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Conference Paper

How to measure the economic impacts of mega-events - the example of the World Economic Forum in Davos

43rd Congress of the European Regional Science Association: "Peripheries, Centres, and Spatial Development in the New Europe", 27th - 30th August 2003, Jyväskylä, Finland

Provided in Cooperation with:

European Regional Science Association (ERSA)

Suggested Citation: Scherer, Roland; Strauf, Simone (2003) : How to measure the economic impacts of mega-events - the example of the World Economic Forum in Davos, 43rd Congress of the European Regional Science Association: "Peripheries, Centres, and Spatial Development in the New Europe", 27th - 30th August 2003, Jyväskylä, Finland, European Regional Science Association (ERSA), Louvain-la-Neuve

This Version is available at:

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43TH CONGRESS OF THE
EUROPEAN REGIONAL SCIENCE ASSOCIATION (ERSA)
Jyväskylä 27th - 31st, 2003

How to measure the economic impacts of mega-events – the example of the World Economic Forum in Davos

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Abstract

The number, diversity and popularity of events has increased in the recent years. The question of the concrete economic effects for the location and the surrounding region becomes therefore more and more important. Because every economic activity whether a public intervention or an economic action causes changes in the consumer demand. To measure the economic effects of events you can use different scientific methods. Using the traditional methodological approaches like the input-output-analysis, the cost-benefit analysis or the financial mathematics you can exclusively point out the monetary effects which are directly connected with the event. On the other hand the longterm intangible effects could only be included partially. However the ascertainment of the intangible and longterm effects like the meaning of competences and the learning of regions has become more and more important for the analysis of the spatial effects of mega-events in the recent years. The example of the Annual Meeting of the World Economic Forum in Davos shows how the direct as well as the indirect effects of events could be worked out based on the spatial incidence analysis. The incidence analysis is a kind of cost-benefit analysis which is especially suited for analysing the spatial effects of infrastructural facilities or the service of these facilities. Another advantage is that you can present the results relatively transparent and coherent. Strict-talken the incidence analysis is a systematic to the “problem-related” and spatial order of accounting and statistical information. It considers the basic principles of economic impact analysis, especially focussing on the clearly spatial and textual correlation of the cash flows. In spite of certain methodological and theoretical deficits the spatial incidence analysis seems to be qualified for the presented analysis as a methodological basis. In the context of the the incidence analysis, the theoretical guidelines were adapted to the specific facts of the Annual Meeting of the World Economic Forum. The question of the direct and indirect effects of the World Economic Forum was pointed out as the center of the analysis. Considering the direct effects you focus on the receipts and expenditures which are directly connected with the realisation of the event. The indirect effects could be divided into the so called tangible and intangible effects. Tangible effects are measurable as indirect economic effects. These are the so called spill-over effects. The intangible effects could be explained as soft and mostly not quantifiable effects. Normally these effects are distinguished between image effects (positive and negative), infrastructure-, structure-, competence- and network effects. These effects often cause a clearly higher contribution to the development of an event location than the direct monetary amount to the regional national income. To analyse these effects we used a combination based on a demand-oriented and supply-oriented approach to calculate the whole transaction volume of the event. Spatially we differed between the effects concerning Davos itself, the region of Graubünden and the rest of Switzerland.

1 Introduction and Issue

These results are based on a study conducted by the Institute for Public Services and Tourism (IDT-HSG) at the University of St. Gallen to determine the economic impact of the Annual Meeting of the World Economic Forum. The goal of this study is to identify and then quantify all direct and indirect consequences resulting from this event and then assign a monetary figure to them. In conducting this study, it was important to consider the impact from a geographical standpoint, i.e. not only was the impact for Davos included but also the impact on the Canton of Graubünden and the rest of Switzerland. The focus of the original analysis was the impact of the Annual Meeting 2001. Due to the

fact that the Annual Meeting was held in New York in 2002, accurate assertions about the various economic effects of this event could be formulated because, for the first time, 'lower revenues' were observed as a result of relocating the event.

The analysis of the economic impact of the World Economic Forum pursues three questions that apply to all of the three regions mentioned:

1. What is the direct economic impact of the World Economic Forum?

This question is primarily concerned with the revenues and expenditures that are directly linked to holding the event. These include, on the one hand, the projects that event organizers give directly to third-parties, e.g. advertising material, personal expenditures, etc. They also include the economic impact of visitor spending, external subsidies and other incoming financial resources, for example, expenditures for events held by sponsors.

2. What is the indirect economic impact resulting from the event?

When discussing the indirect effects, a distinction must be made between tangible and intangible effects. Tangible effects are measurable, indirect economic consequences. These are generally called spillover effects. They can be positive, for example, in the form of advance purchases from companies in a region. They can, however, also have an adverse effect, for example, a drop in the revenues of the mountain railways in Klosters and Davos due to closures of streets and trains. The intangible effects are not as easy to define and can often not be quantified. There is generally a distinction made between image effects (positive or negative), infrastructure, structural, competence and network effects. These effects often make a considerably larger contribution to the development of a city as an event location than the direct monetary contribution to the regional income.

3. Who stands to gain from the event and who is adversely affected by it?

It is also interesting to take a look at who stands to gain from the event and who is negatively affected for the public debate on the significance of the World Economic Forum. A distinction is made here, on the one hand, between different sectors and industries. And, on the other hand, how the costs and benefits are distributed geographically plays an important role here.

2 Methodological Approaches to Measuring the Impact of Events

The impact, particularly the economic impact, that events have on the local communities where they are held is a question that comes up with increasing frequency. Events, just like every other economic activity, whether state-supported investments or entrepreneurial activities, can cause regional and national economic demand to change. Public discussions about whether to subsidize events as well as the negative spillover effects caused by these types of events (trash, noise, transportation problems, etc.) often trigger the question of what the economic benefits are of the holding such events.

The public discussion about the economic benefits of events has led to a series of studies being commissioned over the last two years to analyze and, to the extent possible, to quantify these benefits as well. These types of geographic impact analyses generally examine what kind of impact these activities have on economic factors such as production, added value, employment and income within specific regional borders. There are several different types of methodological approaches that can be applied, such as the input-output analysis, the cost-benefit analysis or the geographic incidence analysis (see Laesser/Ludwig 1999).

The extent to which these the geographic impact analyses are valid is quite controversial among experts discussing regional and tourism economic issues. Several authors identify two key problems here ¹. On the one hand, there are fundamental differences between the methodological approaches that can lead to

¹ See in particular Tyrell/Johnston (2001), Crompton et al (2001) or Dietl/Pauli (1999).

completely different results in answer to the same question. Crompton et al (2001:80) state succinctly: "Indeed, if a study were undertaken by five different experts, it is probable that there would be five different results." On the other hand, the problem of project research plays an important role in economic impact analyses of events or of public infrastructure facilities such as theaters or sport facilities. In a comparative analysis of studies on the economic impact of public sport facilities, Dietl/Pauli (1999) have discovered that the economic impact is found to be extremely positive, with the positive economic benefits usually being overestimated. Two factors identified here as the cause were: first, usually only positive studies conducted by supporters are published. Studies with negative results, on the other hand, disappear into the drawer of the person who commissioned them. A second factor is the problem of the (economic) dependency of the person performing the assessment: "An expert whose testimony harms his employer's case doesn't get much repeat business" (Curtis 1993:7).

In the following section, the individual methods are described in brief and the advantages and disadvantages listed:

- **Input-output analysis**

The input-output analysis is a method of determining the direct and indirect value created, placing macroeconomic issues at the forefront. The input-output analysis uses advance service matrices to calculate the total economic effect of external stimuli. The advantage of this method is its calculability: it supplies relatively clear, comparable results. To perform this type of analysis, it is necessary to have quantitative data which can be relatively hard to obtain depending on the area being investigated and is usually difficult to apply to smaller regions. The input-output analysis is heavily dependent on available data and limits itself to considering the quantitative (monetary), macroeconomic effects produced by events. Consequently, the suitability of this method for examining all the effects of an event, even those that cannot be quantified, is limited. Because this method uses a one-sided approach based on quantitative data, it is not possible to determine the effects of 2 and 3. The results of the input-output analysis are only as good as the quality of the original data due to its fixation on numbers.

- **Cost-benefit analysis**

A cost-benefit analysis is a comprehensive, long-term and broadly based method for determining the costs and benefits of projects for various target groups. Similar to the input-output analysis, macroeconomic issues are at the forefront of this analysis. The objective of the cost-benefit analysis is to determine all identifiable (quantifiable) effects and, in doing so, to create an overview of the costs and benefits of a project that is as complete as possible. The cost-benefit analysis is a widespread, internationally accepted method which demonstrates multidimensional use. The evaluation criteria is economic efficiency which is oriented exclusively around quantitative factors and does not incorporate qualitative issues. Consequently, the cost-benefit analysis is easy to manage and calculate but its usefulness for assessing projects is limited because the comparability of figures is not guaranteed. Moreover, it is not always possible to determine all relevant costs and benefits. In theory, this approach provides a comprehensive assessment but in practice, this method often fails based on its assumptions and limitations.

- **Financial mathematics**

The financial mathematics method is drawn on to evaluate payment streams. This method supplies good results particularly suited for comparing and evaluating investments or for feasibility studies. The focus of financial mathematics are microeconomic issues. Unlike cost-benefit analyses, the financial mathematics approach can be used to compare the payment streams of various projects over several time periods. Just like the previous two methods, one disadvantage of this method is, however, the fact that it limits itself to the purely monetary and directly quantifiable dimensions of the impact. To apply the financial mathematics approach, clear planning figures are necessary to be able to arrive at accurate conclusions.

- **Incidence analysis**

Incidence analyses are used to monitor the distribution-oriented success of measures undertaken by the government. This analysis is particularly useful for examining the geographic effects of infrastructure or other public measures. The incidence analysis makes it possible to determine all payment streams triggered by a project. Incidences here are defined as all of the effects, not just the monetary ones, of measures that have been implemented. The spillover effects identified using this method are a special type of external effect brought about by economic activities and have a regional effect. The objective of an incidence analysis is to systematically determine these types of spillover effects. Incidence analyses are usually easy to manage, flexible and can be applied to various time periods. They supply transparent results and can be conducted both before and after events. As a result, the incidence analysis is particularly suited to assessing case studies. The drawback of this method is that it lacks a theoretical foundation, strictly speaking this method is only a classification system. The results themselves are also often heavily dependent on classification methods and underlying hypotheses. It can also be difficult to select a point of reference. All the same, the incidence analysis can be used to supplement the other approaches and it answers questions related to regional spillover effects of major events. However, with the incidence analysis, only payment streams that affect revenue can be determined and hence, monetary factors. The indirect impact must be estimated.

- **Network approach**

Helbling's network approach (1990) aims to evaluate the long-term impact of an event before it has taken place. This approach makes it possible to examine, for example, the long-term impact of a winter sporting event by means of a prior analysis, thus identifying ways to manage the impact of the event. The evaluation is performed using an extensive list of key data that aims to identify not only the economic, but also the environmental and social consequences. The network approach is a very pragmatic method that sets itself apart because the analysis is problem-specific. Describing the results as a network also makes it easy to manage. Even though an event can be well-represented with a network analysis, this analysis does not show the intensity of the impact nor the quantitative correlations. The results of the network method are generally limited to a specific region as larger areas are very difficult to examine due to the complexity of the representation. Overall, the network approach is, however, a suitable classification system for determining the impact of a major event.

2.1 The Analysis Strategy

Using the traditional methodological approaches above, it is only possible to illustrate the direct monetary effects related to an event. The long-term consequences, on the other hand, can only be incorporated into the analysis in a limited fashion. However, over the last few years, the importance of determining the intangible and long-term effects when analyzing the geographical impact of major events has drastically increased. Another factor which discourages the use of the traditional macroeconomic analysis methods and encourages the identification of the long-term impact of events is that the available data in Switzerland is inadequate for a purely monetary analysis.

Due to insufficient data as well as differing framework conditions (such as available financial resources, the availability of data or their significance and the availability of other studies), the incidence analysis was selected as the methodological approach to analyze the economic impact of the Annual Meeting of the World Economic Forum 2001. Despite theoretical deficiencies, the geographical incidence analysis is a suitable methodological foundation for the study conducted. When applied, its theoretical requirements were adjusted to the specific givens. The current approach attempts to determine the various incidences produced by this event in a systematic way. The primary and secondary incidences can be quantified during this process. The focus here is the **tangible effects**. It is much more difficult to illustrate the quantitative determination of goods and benefit incidences. These **intangible effects** can usually only be represented qualitatively. Where possible, these effects were determined quantitatively. The following table is a summary of the various effects that were analyzed.

	Effects	Examples
Intangible effects	Network effects	<ul style="list-style-type: none"> • Company cooperation • Destination marketing
	Competence effects	<ul style="list-style-type: none"> • Quality of services • Service clusters
	Structural effects	<ul style="list-style-type: none"> • Infrastructure facilities • Infrastructure offerings
	Image effects	<ul style="list-style-type: none"> • Press reports • Advertising value of the press reports
Tangible effects	Total revenues from tourism	<ul style="list-style-type: none"> • Regional multipliers
	Direct economic effects of visitors	<ul style="list-style-type: none"> • Participant spending • (Company) partner spending • Press spending • Security personnel spending • Employee spending
	Direct economic effects of WEF	<ul style="list-style-type: none"> • Revenues and expenditures • Subsidies and taxes

Figure 1 Economic effects of major events (according to Bieger/Frey 2001)

Starting with a resource-oriented approach, Bieger/Frey (2001) have taken in the traditional tangible effects, *image* and *infrastructure*, and added *competence effects* and *network effects*. According to Bieger/Frey (2001), there is enormous potential concealed in the awareness and use of these effects, and hence, the opportunity to shape the economic effects of a major event in a sustainable and positive way. We define these intangible effects as:

- **Image and branding effects** describe the effects brought about by the event or facility that shape the perception of the location as a potential destination. These effects can be positive but can also be negative if the event is a failure. In the long-term, the image effects influence how a destination or location is branded. The subjective experience that attendees have is, in part, responsible for creating this image. On the other hand, how an event is portrayed to the public plays a central role in creating the image with respect to long-term branding.
- **Structural effects** describe in particular the infrastructure consequences that will affect the location over the long-term. These include material infrastructure components that are directly created in association with the event, for example, venues, streets, ski runs or telecommunication facilities. Structural effects also include, however, the overall availability of immaterial infrastructure services such as public transport services and cultural or educational facilities.
- **Network effects** describe the cooperative effects that are brought about as a result of the event between various actors and that (can) also continue to exist beyond the event itself. 'Added value' within the context of cooperation between small and medium-sized companies is the name given to this type of intra-company cooperation particularly concerning the transfer of knowledge and expertise between the parties involved. In the tourism industry, these types of cooperative efforts offer a variety of different opportunities for developing joint products and/or bringing them to market.

- **Competence effects** also affect the "knowledge effects" that are the result of holding an event. New knowledge is generated in the companies and in the public institutions involved in the event, new processes (i.e. new production processes) are developed and tested and new contact networks are established with customers and suppliers. These new relationships are sometimes even put to the test almost right away. These gains in knowledge are necessary so that the parties involved in the event retain their innovative ability and can continue to successfully function on a market with ever-changing conditions.

If the intangible effects are included in the economic impact analysis of an event, the time period when the various effects occur changes automatically as well: the tangible effects, i.e. the monetary effects of the events occur immediately before, during and shortly after the event. Steiner/Thöni (1993:93) use the example of the Olympics to show that the payment streams associated with the events disappear once the organization holding the event has closed its final accounts. The intangible effects, on the other hand, continue to have long-term effects: image and brand can influence where tourists decide to spend their vacation. Infrastructure facilities such as athletic facilities and event venues can and must be used after the actual event is over. The knowledge that companies and public facilities gain from the event can be used in the long-term to set up new networks and clusters of expertise.

2.2 The Empirical Method

Determining the tangible and intangible effects of the World Economic Forum is a highly complex system that requires an analysis of numerous actors and a variety of impact structures. In addition to the World Economic Forum as the organizer of the event, there are also numerous other groups and institutions involved: the participants, companies as well as public and private institutions that hold events directly related to the World Economic Forum, members of the press from around the world and, of course, the large numbers of security personnel. The activities of these various actors have a direct economic impact on Davos and other regions. Using the incidence analysis, an attempt was made to quantify these effects by analyzing and classifying the actual payment streams based on the various geographic parameters. When performing quantitative analyses of payment streams, two different approaches can be taken (see also Bieger 1988):

- A **demand-side approach** focuses on analyzing the payment streams of buyers of concrete services. Generally, the accounting data provided by the primary institutions organizing an event are classified with respect to the geographical origin of the financial resources and the buyers of the services. Determining payment streams that are the result of purchases made by event participants are generally gathered using representative surveys.
- A **supply-side approach**, on the other hand, focuses on analyzing suppliers of concrete services. Here as well, the accounting data provided by primary institutions is classified with respect to the geographical origin of the financial resources. Unlike the method above, the primary service providers are analyzed in more detail. This analysis is usually supplemented by a representative survey of companies in the region being examined.

To analyze the tangible economic impact, these two approaches were combined due to the specific situation in Davos. This was necessary because the analysis was not conducted during the events but after a considerable amount of time had passed. It was not possible to conduct a purely demand-side analysis because the participants could not be surveyed about their individual spending habits. The figure below is a schematic diagram of this combination of demand and supply-side approaches. The analysis of the direct monetary payment streams is therefore based on the following data:

- Systematic analysis of the accounting and participant data of the World Economic Forum
- Systematic analysis of accounting data of the six most important event locations of "outside events"
- Written survey of all companies in Davos (March 2002, rate of return: 23 %)
- Systematic analysis of revenue figures for mountain railways for 2000, 2001 and 2002

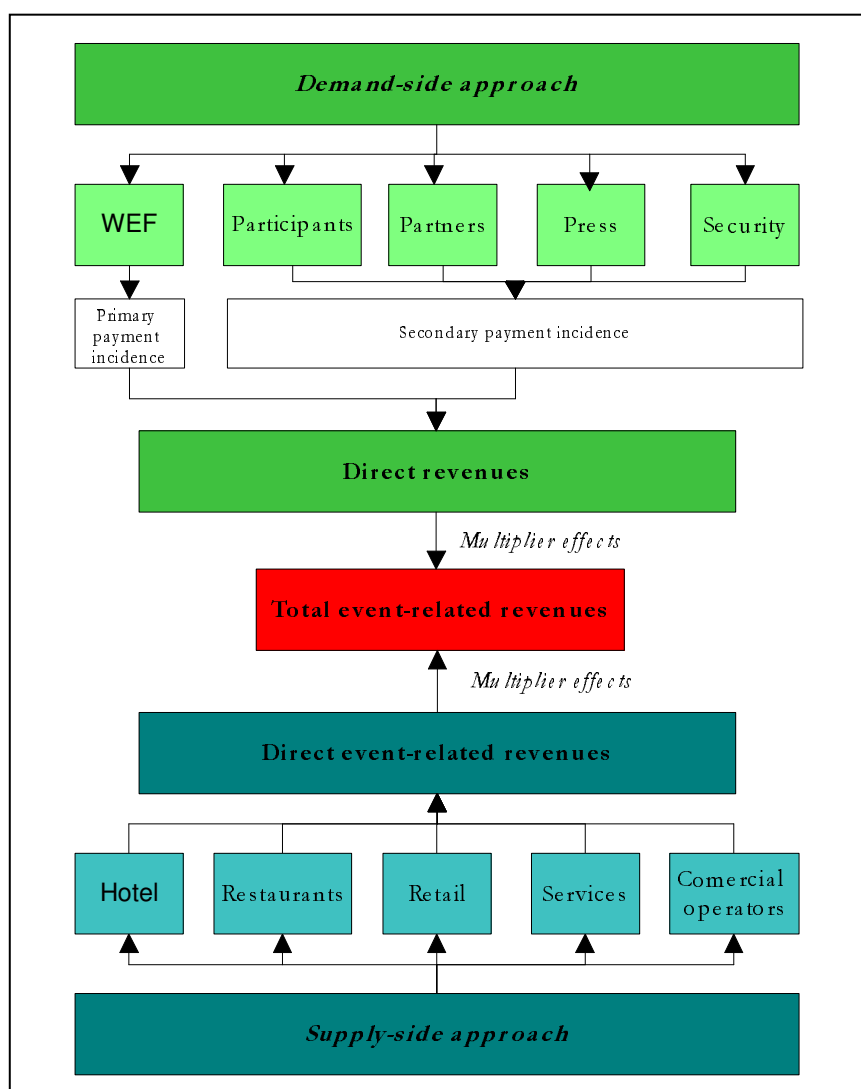


Figure 2 Schematic diagram of payment streams analysis

When determining the intangible effects, an attempt was made to quantify these to the extent possible. The analysis is based empirically on the following mechanisms:

- Quantitative and qualitative evaluation of the media archive of the World Economic Forum
- Representative telephone survey in the most important target markets for Davos tourism²
- In part, on the written survey of Davos companies

Additional information on the intangible effects was acquired in expert interviews and in two workshops which were attended by around 70 Davos residents and businesspeople. Some data and information could be taken from existing studies and assessments of the Annual Meeting of the World Economic Forum in Davos.³ Numerous articles about the World Economic Forum which appeared in the press were also analyzed.

² The telephone survey was conducted between January 28 and February 2, 2002 by *demoscope*. A total of 710 people were interviewed in the German-speaking part of Switzerland and in southern Germany.

³ The Peter Arbenz report (2001) in particular, Swiss tourism data and the image effects of the WEF 2001 as well as the analyses of the Graubünden Canton police.

3 The Annual Meeting of the World Economic Forum in Davos

The Annual Meetings of the World Economic Forum date back to the year 1971 when the first informal conference of European economic leaders took place in Davos. During this conference, a uniform strategy for trade and commerce was discussed to face the challenges on the international market. Over the last 30 years, a world economic forum at the highest international level has emerged from this conference of European economic managers.

Today, the World Economic Forum is a private foundation headquartered in Geneva. The highest supervisory bodies in the foundation are the Foundation Board and the Forum Council which creates the framework for the Managing Board. The Managing Board is responsible for the World Economic Forum's strategy. A Leadership Team has been set up to execute and implement its strategies. There are three core groups that this Leadership Team is responsible for: Global Agenda, Global Industries and Regional Strategies. In addition to overseeing the various thematically-based and regional events, the World Economic Forum concentrates on other important areas:

- Holding the regional summits in various global regions on a regular basis (e.g. a European forum in Salzburg or the forum for southern Africa in Durban).
- Coordinating different task forces and initiatives on specific issues with global relevance (Center for Global Agenda or the Center for Global Industries).
- Publishing studies and reports on various topics (including the regularly appearing 'Global Competitiveness Report').

The World Economic Forum stretches over a five-day period with most participants arriving shortly before it begins and staying for the entire duration in Davos. The total number of participants including the people who accompany them is approx. 4,600. Many companies and public facilities, in particular the official country representatives, use the platform of the Annual Meeting either to hold their own the events or to present themselves in a different way.⁴ The outside events play an important role in creating the overall atmosphere in Davos and thus contribute to the special allure of the events. If one considers the various events that take place around the Annual Meeting, it can be said that around **90 - 100 companies** or public institutions hold their own events. In 2001 alone, there were around **200 outside events** that were paid for exclusively by companies or public institutions.⁵

In 2002, for the first time ever, the World Economic Forum was not held in Davos but in New York. The official reason was to make a symbolic gesture to the city of New York and the United States following the September 11, 2001 attacks. Unofficially, this decision was probably heavily influenced by security issues and the enormous financial burden associated with providing adequate security.

With respect to relocating the Forum, the issue of whether it should continue to remain permanently in Davos came up and whether the event can continue to be organized and financed in light of the necessary and increasingly complex need for security measures.

Two key factors in this decision are the overall mood in the potential location as well as whether there is an agreement between the World Economic Forum, the public sector and globalization opponents about different ways to hold a broadly based event. As head of a task force, Peter Arbenz came up with various scenarios in the "Report on the Annual Meeting 2001 of the World Economic Forum in Davos -

⁴ Here, we mention only the *Microsoft* Villa where Microsoft receives important customers and business partners as well as representatives of public institutions during the Annual Meeting or the special marketing campaign of PriceWaterhouseCooper which appeared on all buses in the Davos public transport system.

⁵ These companies, of course, bring their own staff to Davos who are responsible for overseeing the various events. We can assume that approximately **450 - 500 people** work for the various companies in Davos.

Opportunities and Risks for the Future". In the long-term, it will be important which scenario in the Arbenz report will be pursued and how the Forum in Davos itself is anchored. The economic impact of the event is, of course, an important factor in the decision-making process.

4 The Tangible Economic Effects

When analyzing the tangible economic effects, both the direct and indirect economic effects were taken into account. When determining the direct payment streams, a demand-side approach was used. The accounting data of the World Economic Forum was analyzed using a regional and industry-specific classification system. For other actors, there is no corresponding primary data.

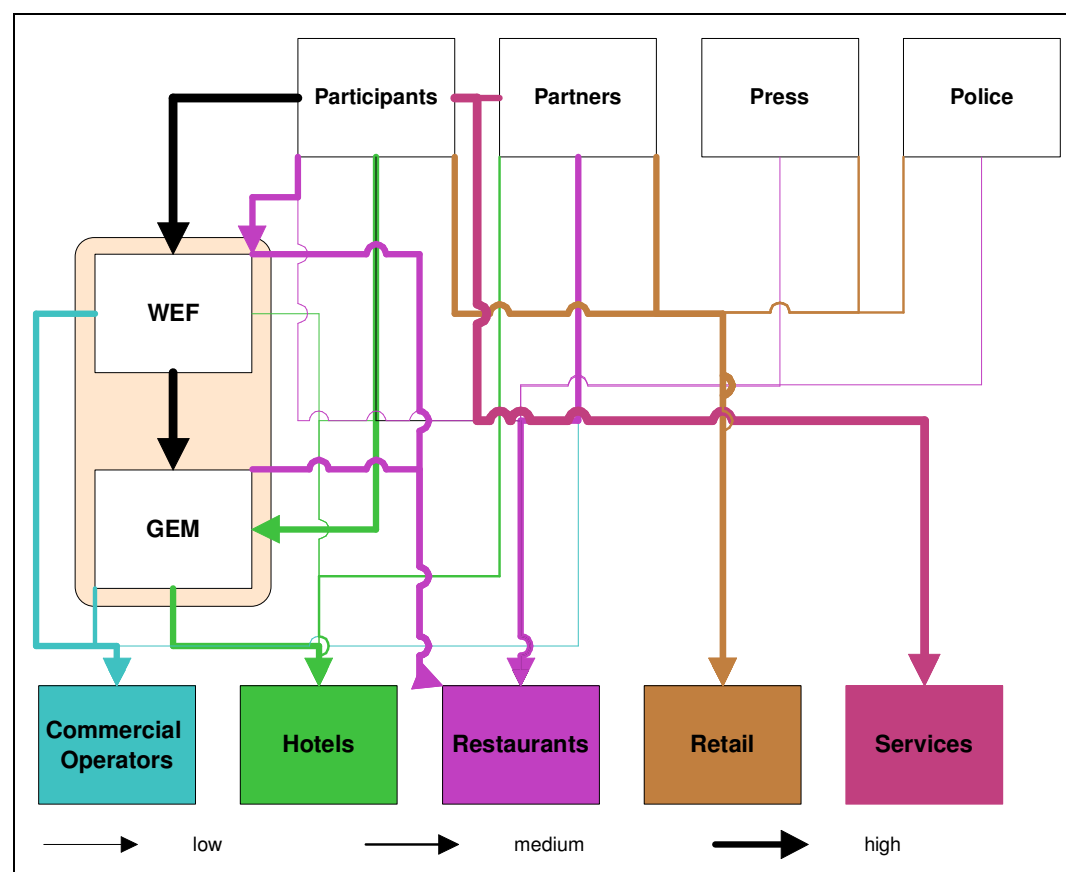


Figure 3 Schematic diagram of the direct payment streams generated by the demand-side of the World Economic Forum

As can be seen in the figure above, a considerable portion of the payment streams that emerged during the Forum were transacted either via the World Economic Forum or GEM, a company closely associated with the Forum. This applies in particular for the entire area of hotel accommodation and for Meeting-related projects awarded to commercial operators.

In addition to the payment streams triggered directly by the World Economic Forum, demand for goods and services also emerges from the events held by other actors not only in Davos but across all of Switzerland. The following basic groups of goods and services were identified as resulting from World Economic Forum expenditures:

- Setting up and decorating of the Davos Conference Center as well as the Media Center and individual venues where outside events are held

- Supplying (technical) infrastructure for holding the conference (including telecommunications, security technology, simultaneous interpreting)
- Executing the actual conference program (including arrival and departure of speakers and panel members, accommodation, food, etc.)
- Holding events outside of the Conference Center (lunches, dinners, events)
- Executing a secondary cultural and athletic program (including arrival and departure of artists, accommodation, food, etc.)
- Providing extensive support to the participants within the Conference Center, during transportation and events outside of the Conference Center
- Providing a security service for entry control and protection of the Davos Conference Center and individual venues for outside events

The question as to which regions primarily cover this demand for goods and services arises for secondary payment incidences. It can be assumed that a large majority of the expenditures mentioned above occur directly at the event location, particularly expenses for accommodation, food, shopping, etc.

In addition to the direct expenses that are generated by the Annual Meeting itself and by the participants, the partners, the members of the press and the security personnel, there are also indirect economic effects for Davos. The primary revenues described above that originate outside the region trigger a so-called multiplier effect in the region which in turn leads to other economic effects. The basic assumption is that the change in demand, i.e. the increase in revenues due to external sales or the money people spend coming from outside the region, creates additional regional income which leads to an increase in consumer demand from wage recipients and companies through advanced purchases. The indirect effects are described by calculating the multiplier effect that are based on advanced purchases and revenues at other economic levels.

If a multiplier of 1.45 is used as a basis in accordance with Frey/Häusel (1983) for small-town aggregation, when applied to the economic impact of the Annual Meeting in Davos, this means that each franc spent in connection with the meeting generates an additional regional revenue of 45 centimes. If the direct economic payment streams that emerge from the Annual Meeting are used as a basis, we estimate that the overall contribution of the World Economic Forum to regional revenues in Davos is **CHF 22 – 23 million**.

Using the payment incidences calculated from the direct and indirect payment streams and taking into account the multiplier effect, the Annual Meeting 2001 of the World Economic Forum in Davos generated the total economic revenues shown below.

	Davos	Graubünden	Switzerland
Primary payment incidence	7.2 million CHF	7.9 million CHF	12.9 million CHF
Secondary payment incidence	8.5 million CHF	8.8 million CHF	13.4 million CHF
Total direct revenues	15.7 million CHF	16.7 million CHF	26.3 million CHF
<i>Indirect revenues</i>	<i>7 million CHF</i>	<i>7.5 million CHF</i>	<i>15.5 million CHF</i>
Total revenues	22.7 million CHF	24.2 million CHF	41.8 million CHF

Figure 4 Overview of the economic impact

The economic impact produced by the Annual Meeting affect the regions examined in different ways. A distinction is made here between the direct impact on Davos as well as on the rest of the Graubünden Canton and the rest of Switzerland. The results lead us to the following conclusions for the perimeters examined:

In 2001, **Davos** had a positive economic impact totaling just under **16 million CHF** in additional revenues that were a direct result of the Annual Meeting. If the multiplier effects are included in the calculation, the total amount of additional revenues generated amounted to **22 – 23 million CHF**. Hotels and restaurants profited the most from the events. In 2001, additional revenues of **10 – 11 million CHF** were generated in this area as a result of the Annual Meeting. Other industries that profited heavily from this event are retail (around 2 million CHF), construction (around 1 million CHF) and transport services (approx. 750,000 CHF).

The full implications that the Annual Meeting as for the hotel industry became evident as well during the 2002 winter when the meeting was not held in Davos. While some of the hotels were able to find other ways to fill some of their capacity, there was a decline of 9% from the previous year in hotel stays during January and February 2002 despite the massive, one-time financial support for marketing provided by the City of Davos and the Graubünden Canton. There were revenue losses of at least 7 million CHF in the hotel and restaurants industries alone. This could be primarily attributed to the fact that the outside events of the Annual Meeting, which are particularly lucrative for the hotels, did not take place. Revenue losses of at least **3 million CHF** were recorded in the food and beverage area alone.

If one takes a look at how revenues generated by the Annual Meeting in the past were distributed to various companies, revenues are visibly concentrated in specific companies. Approximately 15 to 20 Davos companies, primarily the high-end hotels, as well as specific construction and transport companies, profited considerably from the World Economic Forum. Some of these companies can earn between 15 and 20% of their annual revenue in connection with the Annual Meeting. It has to be assumed that, without the Annual Meeting, these companies would experience considerable economic difficulties, possibly even be threatened with closures. This could have a considerable adverse effect on tourism in Davos as the hotels affected are high-end hotels with dynamic businesses that bring new guests to Davos again and again and are indispensable for Davos as a conference location. This means that the revenues generated by the Annual Meeting are of strategic importance because they contribute to keeping dynamic companies here over the long-term. These revenues, hence, are also of considerable strategic importance for the job market in Davos even if they do not really influence employment directly: without the revenues generated by the Annual Meeting and without a substitute for these losses, up to 400 jobs are at risk of being lost over the long-term in the Davos hotel industry. At first glance, the revenues generated in connection with the Annual Meeting for pure accommodation⁶ are a relatively insignificant part of the 200 million CHF spent in tourist revenue. However, it must be kept in mind that these revenues, which make up approximately eight percent of the total annual tourist revenue in Davos, occur in a very concentrated fashion over a five-day period (i.e. 1.5% of the year).

The additional revenues that are earned as a result of the Annual Meeting in Davos are naturally offset by the costs and the lower revenues that also come about by holding this event. These include, for example, costs that the City of Davos has to pay for a percentage of security measures. One portion of these expenses, e.g. for feeding and housing security personnel, is neutral from the perspective of its regional incidence, i.e. those paying and those receiving the funds are both within the same regional perimeter. These types of payment streams were therefore not included in the calculation of additional revenues. Other costs, e.g. for insurance or material expenditures outside of Davos do, however, need to be taken into account. It is also necessary to take into account lower revenues that occurred as a result of security measures implemented during the Annual Meeting 2001 for specific Davos companies (e.g. for mountain railways or individual retail companies). Based on the information supplied in the Arbenz report, the results of the company survey and various expert interviews, we assumed direct and indirect costs for Davos to total between **2 and 2.5 million CHF**. As already shown, these are **22 – 23 million CHF** in addition to the total revenues generated via the Annual Meeting in Davos.

⁶ Refers to a rough estimate based on 1 million hotel stays at Fr. 200 - average amount spent.

For the **Graubünden Canton**, the regional economic balance of the World Economic Forum looks slightly different. In addition to the extra revenues generated in Davos, only small amounts of revenue are generated in the rest of the regions of the Canton totaling approximately **1 - 2 million CHF**. In total, additional revenues in the amount of around **24-25 million CHF** (also including Davos) can be estimated that arise both as a direct and indirect result of the World Economic Forum. Due to the important role that Davos plays for the overall tourism industry in Graubünden, the direct economic impact of the Annual Meeting also holds great significance for the Canton of Graubünden. At the same time, there were no losses resulting from the event in the form of lower revenues because people wanted to, for example, go to other destinations as a result of the massive security measures. The overall balance for the Graubünden Canton is less advantageous than for Davos. The massive increase in costs for security precautions were primarily responsible for this fact over the last year. Even though a large part of these financial resources are spent within the Canton (e.g. for personnel costs, material expenditures, etc.), at the same time, significant amounts of funds are transferred to other Swiss cantons, for example, as compensation for police forces from other cantons.

The revenues for all of **Switzerland** that are generated either directly or indirectly by the Annual Meeting amount to approximately **42 million CHF**. Outside of Davos, these revenues primarily affect the transport industry, in particular air transport. Large revenues are also seen in the area of corporate services as well as in advance purchases for hotels and restaurants. Large revenues are also generated for private households whereby this applies primarily to personnel costs for people hired temporarily during the Annual Meeting in Davos. Seen from a regional standpoint, revenues outside of Davos were generated primarily in the Zürich Canton (particularly in air transport) and in the Geneva Canton (headquarters of the World Economic Forum). The total revenues generated in Switzerland are offset by costs of around **11 million CHF** borne mainly by the public sector. These costs include those for security measures which resulted either directly or indirectly from security precautions taken by individual companies in Davos and other Graubünden communities as a result of the damage and revenue losses that occurred during the violent demonstrations in 2001 in Zürich.

5 The Intangible Economic Effects

In addition to the tangible effects, i.e. the additional direct and indirect revenues generated by the World Economic Forum for the different regions in Switzerland, the intangible effects that are also produced by this event also play an important role in the overall analysis of the event. A particular focus was placed on the image, structural and competence effects on Davos as a tourist destination.

The World Economic Forum affects the **image** of Davos considerably. The figure below shows how private households and Davos companies reacted to the hypothesis: "The World Economic Forum has contributed very positively to the image of Davos over the last few years"⁷.

⁷ Analysis of a telephone survey conducted of households (710 interviews in the German-speaking part of Switzerland and in southern Germany) and a written survey of all companies in Davos (138 questionnaires analyzed).

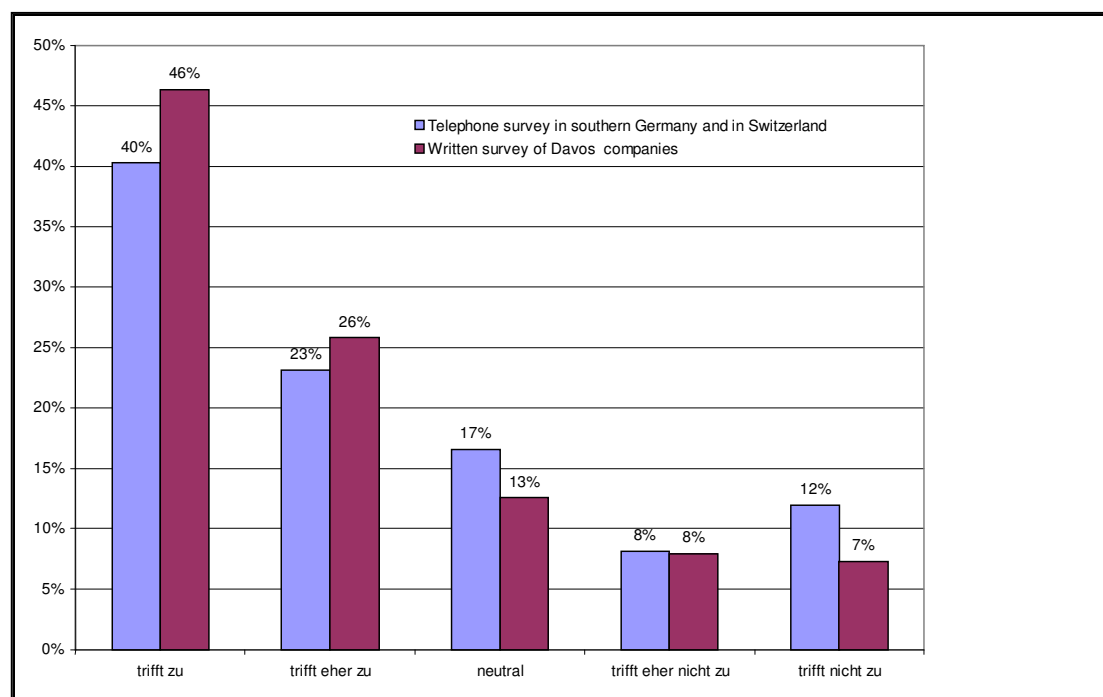


Figure 5: How private households and Davos companies view the World Economic Forum's contribution to Davos' image

The image analysis showed that the overwhelming majority of people who responded from the important sales markets in Switzerland and Germany think that the World Economic Forum makes a positive contribution to Davos' image. At the same time, approximately one-quarter of those responding were more critical of the role that the World Economic Forum plays in shaping this image. Interestingly enough, there was almost an identical trend in responses from Davos companies. Here as well, a clear majority thought that the Forum had a very positive influence on Davos' image but approximately one-quarter of companies were more critical. Overall, it can be said that the negative images shown of the World Economic Forum in 2001, however, did not leave behind a lasting impression, particularly in the international arena. This is also confirmed by the analysis of the international reaction in the press. Overall, however, the value of media coverage is less than expected. The advertising equivalent of the national and international newspapers analyzed was conservatively (Factor 1) estimated at **1.95 million CHF**. Overall, it can be assumed that the World Economic Forum is an essential component of Davos' image, particularly among the relevant target group made up of conference attendees and regular visitors. The World Economic Forum plays a major role in conference tourism which is essential for filling capacity during the off-season and to creating value. It is not just Davos alone which profits from this positive image but the overall Swiss tourism network as a result of the important function Davos has within this network. To utilize the positive image effects undoubtedly arising from this event for improving Davos' position on the appropriate markets, the event must be integrated more tightly into the Davos marketing strategy for tourism. There have been clear shortcomings in exploiting the potential which unquestionably exists.

There are many types of **structural effects**. Certainly, the primary structure here is the Davos Conference Center for which the Annual Meeting is one of the most important events of the year. With this conference infrastructure and the expansions currently under discussion, Davos has attractive infrastructure facilities which play a significant role in Davos' potential as a tourist destination. The World Economic Forum is the largest conference held in Davos and it is generally considered to be a key event that Davos can use to set itself apart on the international conference market.

Other structural effects that are directly associated with the World Economic Forum can be seen particularly in the hotel industry. In this area, extensive financial resources totaling at least 50 million CHF have been invested over the last 3-4 years in improving quality. Other major investments are

planned or currently underway for the coming years. Without the World Economic Forum, these investments would not have been made, or at least not in this amount, based on information provided by experts. There is a similar situation regarding commitments made by internationally operating hotel chains in Davos: without the existence of the World Economic Forum, these corporations certainly would not have decided to commit to Davos with such considerable financial resources. The World Economic Forum acts therefore as a driver for high-end hotels in Davos and hence, makes an indirect but considerable contribution to other industries as well (particularly to the construction sector as a result of the extensive investments) as well as to the job market (particularly in providing attractive jobs in the luxury hotel and restaurant industry).

Network and competence effects are a result of the knowledge that individual companies in Davos acquire in conjunction with holding the Annual Meeting. Here, quality issues are at the forefront: the event, and particularly the numerous outside events, force service providers in Davos to offer an appropriate standard of quality. This high-quality standard does not just exist during the Annual Meeting but extends throughout the entire year. The quality requirements of the Annual Meeting therefore make a contribution to enhancing the quality for the entire city as a tourism destination. The companies who gained competence as a result of the Annual Meeting are those primarily involved in a variety of different functions in the overall organization of the event. And here, it is hotels that both provide rooms as well as different types of events (apéros, dinner, etc.). If one compares the network and competence effects that are produced as a result of this event with other events, a clear set of shortcomings appears: while the network effects of other events have been successfully utilized to bring other events and institutions to the city, it appears that this has not happened in Davos or only to a limited extent. In Davos, only around 4 - 5 companies who participate in the World Economic Forum also hold their own events outside of the Annual Meeting. There is certainly still considerable potential to capitalize more effectively on the intangible effects than has been done up to now to continue developing Davos and sharpening its image as a conference location. Stronger cooperation between the World Economic Forum and Davos could contribute decisively to using this potential more effectively.

6 Conclusion

The World Economic Forum plays an important economic role for Davos in generating revenue and is of great strategic importance: costs of 2 - 2.5 million CHF that have to be paid by Davos are offset by the total revenues generated by the Annual Meeting of 22 - 23 million CHF.

The Annual Meeting gives Davos a certain amount of global publicity on a regular basis. The image effects produced by the World Economic Forum also make it possible to position Davos as a conference location. Thanks to conference tourism, Davos can maintain the necessary price level for a higher-price location in the Alps throughout the entire winter season without a gap in January. Despite the negative images of the World Economic Forum in 2001, the contribution that the World Economic Forum makes to the image of Davos is seen by the majority as very positive in the primary target markets of Switzerland and southern Germany and among companies in Davos.

The economic impact of the Annual Meeting is not concentrated in Davos: around 50% of the total revenues of 42 million CHF generated by the World Economic Forum originate outside of Davos in the rest of the Graubünden Canton and primarily in the rest of Switzerland. Outside of Davos, these revenues primarily affect the transport industry, in particular air transport. Large revenues are also generated in corporate services and in advance purchases at hotels and restaurants. These additional revenues generated in Switzerland are offset with costs of around 11 million CHF borne primarily by the public sector. These costs include those for security measures which resulted either directly or indirectly from security precautions taken by individual companies in Davos and other Graubünden communities as a result of the damage and revenue losses that occurred during the violent demonstrations in 2001 in Zürich.

The structural effects of the World Economic Forum are also considerable for Davos: without the presence of the Forum, major investments in the conference and hotel infrastructure would hardly be

made. Other large-scale investments are planned for the coming years. The World Economic Forum acts as a driver for the high-end hotels in Davos and makes a considerable indirect contribution to other industries (particularly the construction industry as a result of the extensive investments and to the job market).

A shortcoming has been identified in taking advantage of the positive image effects brought about by the Annual Meeting for actively positioning Davos in the appropriate markets. It would make sense to more strongly integrate the event into the marketing strategy of Davos tourism. The World Economic Forum could work more consistently as a "testimonial" and driver for improving the position of Davos on the conference market.

Bibliography

- Arbenz, P. et al.** (2001): Bericht über das Jahrestreffen 2001 des World Economic Forums in Davos – Chancen und Risiken für die Zukunft (Report on the Annual Meeting 2001 of the World Economic Forum in Davos - Opportunities and Risks for the Future), Chur
- Backhaus K. et al.** (1996): Multivariate Analysemethoden – Eine anwendungsorientierte Einführung., (Multivariate Analysis Methods - An Application-Oriented Introduction), 8th edition, Berlin: Springer
- Bieger, Th.** (1988): Die wirtschaftlichen Effekte des Tourismus als politische Argumentationshilfe – Berechnungsmethoden und Resultate am Beispiel Luzern (The Economic Effects of Tourism as a Political Argument - Calculation Methods and Results Using the Example of Lucerne), in: the journal *Revue de Tourisme* 2/88, p. 20 – 23
- Bieger, Th.** (2002): Management von Destinationen (Management of Destinations), 5th edition. Munich: Oldenburg
- Bieger, Th./ Frey, M.** (2001): Wirtschaftliche Nachhaltigkeit von Sport-Events am Beispiel der Ski WM 2003 (Economic Sustainability of Sporting Events using the Example of the World Ski Cup 2003), St. Gallen, IDT-HSG
- Brent Ritchie, J.R./ Yangzhou, J.** (1987): The Role and Impact of Mega-Events and Attractions on National and Regional Tourism: A Conceptual and Methodological Overview, in: Vol. 28, St. Gallen, p. 17-58
- Crompton, J.L./ Lee, S./ Shuster, T.J.** (2001): A Guide for Undertaking Economic Impact studies: The Springfest Example, in: *Journal of Travel Research*, Vol. 40, No. 1, p. 79-76
- Curtis, G.** (1993): "Waterlogged", in: *Texas Monthly*, September, p. 7
- Dietl, H./ Pauli, M.** (1999): Wirtschaftliche Auswirkungen öffentliche finanzierter Stadionprojekte. Paderborn (Economic Impact of Publicly Financed Stadium Projects in Paderborn), Report from the department of economics at the University of Paderborn, New series, No. 61)
- Fischer, G./ Nef, M.** (1990): Die Auswirkungen der Hochschule auf Stadt und Kanton St. Gallen – Ergebnisse einer regionalen Inzidenzanalyse (The Impact of the Institute of Higher Learning on the City and Canton of St. Gallen – Results of a Regional Incidence Analysis), Publisher Rüegger, Grösch
- Frey, R. L.** (1984): Die Inzidenzanalyse: Ansatz und Probleme der Erfassung von Spillovers (The Incidence Approach and Problems Identifying Spillovers). In: Frey, R. L./ Brugger, E. A. (publisher): *Infrastruktur, Spillovers und Regionalpolitik (Infrastructure, Spillovers and Regional Policy)*. Diessenhofen: Rüegger, p. 37-55
- Frey, R. L./ Häusel, U.** (1983): Regionalmultiplikator. Zur Transformation der formellen primären in die effektive sekundäre Kaufkraftinzidenz (Regional Multipliers. For Transforming the Formal Primary Purchase Power Incidence into Effective Secondary Ones). Methodological paper as part of the nationally funded project "Regional Disparities and Spillovers", Basel.
- Helbling, Th.** (1990): Vernetzte Sicht einer Wintersport-Grossveranstaltung: Beurteilung der langfristigen Auswirkungen und Steuerungsmöglichkeiten aus regionaler Perspektive (Network View of a Major Winter Sport Event: Assessment of the Long-Term Effects and Management Options from a Regional Perspective), Dissertation, St. Gallen
- Kotler, Ph. et al.** (1993): *Attracting Investment, Industry, and Tourism to Cities, States and Nations – Marketing Places*, New York: The Free Press

Laesser, Ch./ Ludwig, E. (1999): Auswirkungen von Sportlichen Grossanlässen (Conceptual Framework) (The Impact of Major Sporting Events), St. Gallen and Berne, IDT-HSG.

Middleton, V. T. C. (1998): Marketing in Travel and Tourism, Oxford: Heinemann Professional Publishing Ltd.

Rütter, H./ Guhl, D./ Müller, H. (1996): Wertschöpfer Tourismus (Value-Added Tourism), Research Institute for Recreational Activities and Tourism, Berne

Scherer, R./ Strauf, S./ Behrendt, H. (2001): Die wirtschaftlichen Effekte von LUCERNE FESTIVAL (The Economic Effects of the LUCERNE FESTIVAL): Final report, St. Gallen, IDT-HSG.

Senn, P./ Bieger, Th./ Glanzmann, V./ Moser, W. (1986): Die wirtschaftliche Bedeutung des Tourismus in der Stadt Luzern (The Economic Significance Of Tourism in the City of Lucerne). The Lucerne

Socher, K./ Tschurtschenthaler, P. (1987): The Role and Impact of Mega-Events: Economic Perspectives - The Case of the Winter Olympic Games 1964 and 1976 at Innsbruck, in: AIEST, Editions AIEST, Vol. 28, St. Gallen, p. 103-117

Spilling, O. (1999): Long-Term Impacts of Mega-Events - The case of Lillehammer 1994, unpublished report

Steiner, M./ Thöni, E. (1999): Sport as a Tool For Regional Development: The Case of Graz 2002, unpublished report

Thierstein, A./ Schedler, K./ Bieger Th. (2000): Die lernende Region - Regionale Entwicklung durch Bildung (The Learning Region - Regional Development through Education), Chur-Zürich: Rüeegger

Travis, A. S./ Croizé, J.-C. (1987): The Role and Impact of Mega-Events and Attractions on Tourism-Development in Europe: A Micro Perspective, in: Editions AIEST, Vol. 28, St. Gallen, p. 59-78

Tyrell, T. J./ Johnston, R.J. (2001): A Framework for Assessing Direct Economic Impacts of Tourist Events: Distinguishing Origins, Destinations and Causes of Expenditures, in: Journal of travel Research, Vol. 40, No. 1, p. 94-100

Wellhoener, B. (1992): Das Image von Reisezielen - Eine Studie zum Schwerpunktthema der Reiseanalyse 1990 des Studienkreis für Tourismus (The Image of Travel Destinations - A study on travel analysis 1990 of the Institute for Tourism), Starnberg: Institute for Tourism