The Economic Role of Producer Services

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1. Introduction

In the last three decades the provision of services has replaced the manufacturing of goods as the predominant mode of economic activity in advanced economies. For example, in Austria the share of services in total employment has risen from 39.5% in 1964 to 54.7% in 1984. In other developed economies services are no less important in economic affairs. The transition from a manufacturing to a service economy in the industrialised countries, measured in terms of output or labour shares, has been widely documented (see, for example, Inman 1985, Stanback et al. 1981).

Much current research on producer services shows the lack of insight into the dynamics of the producer service sector and its implication for socioeconomic systems. This is - no doubt - an outgrowth of the beginning of some understanding of the phenomenon of producer service activities and a recognition of the problems associated with understanding the consequences of this phenomenon. Despite a general interest in producer services and much rewriting of research agenda there has been little substantial research up to now into the dynamics of producer service activities and the role of producer services in (regional) economic development.

This paper makes a modest attempt to contribute to the understanding of the economic role of producer services in discussing some issues related to the intriguing research triangle of producer services, manufacturing and regional development. The paper is structured as follows. It opens in Section 2 with a categorization of service activities in general and producer services in particular which take into account the diversity of service activities. There is a general consensus that new information technologies have an enormous impact on producer service industries. The impact of technological change has the capacity to alter the nature of producer services, their role in the economy and also the location of their employment. This relationship is being discussed in Section 3, while Section 4 pays attention to the linkage between the producer service and the manufacturing sector. Section 5 incorporates a particular emphasis on the regional consequences of the growth and diversification of producer services. Finally, Section 6 reports on some preliminary results of an ongoing research based on survey work in the metropolitan area of Vienna carried out in the framework of interdisciplinary seminars at the Vienna University of Economics and Business Administration.
(jointly organized by the Department of Economic Geography and by the IIR) and the Department of Geography at the University of Vienna and is based on Traxler et al. (1990).

2. Definition and Classification of Producer Service Activities

Despite an increasing interest in services there is no consensus among social scientists to define the service sector. The diversity of service activities has often led to loose definitions and ascriptions of characteristics which are misleading and/or analytically unhelpful (Lakshmanan 1990). Typical of such definitions is the definition of the service sector as a category for residual activities (i.e. activities excluding agriculture, mining, manufacturing production).

It is evident that a variety of quite distinct service activities are involved in the service sector, although there is no agreement on the best strategy to defining distinct service sectors. Several classifications recognizing the diversity of service industries have been suggested. Most classifications distinguish between the public and private provision of services, and some, within private services between physical distribution services and office-based services (see, for example, Stanback and Noyelle 1982, Gershuny and Miles 1983, Noyelle and Stanback 1984).

For the purpose of this paper a 2-dimensional classification scheme adopted from Miles (1986) and outlined in Table 1 appears to be more useful. The first dimension of this scheme describes whether services serve intermediate markets (i.e. intermediate inputs to manufacturing, commerce and/or government, so-called producer services) or support final consumption (i.e. services to individuals, so-called consumer services). Not all final consumer services are marketed, thus a further disaggregation of the category of consumer services - according to whether the mode of provision of the services is primarily market-based or largely a matter of non-marketed provision by governmental and semi-public agencies - is useful. The second dimension of the classification scheme refers to the type of activity with which the service is concerned. Three major types of activities may be distinguished:
<table>
<thead>
<tr>
<th>Non-Marketed Consumer Services (supplied by the State)</th>
<th>Health Care and Welfare Services</th>
<th>Environmental Services</th>
<th>Administration, Indiciary, Education etc.</th>
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<tr>
<td>Marketed Consumer Services</td>
<td>Personal Services, Catering etc.</td>
<td>Retailing, Repair and Maintenance, Domestic Services</td>
<td>Telecommunications, Entertainment Finance etc.</td>
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* Personal support or personal interactive services,
* Goods-related or quasi-industrial services, and
* Information processing services.

These three types of service activities differ each from another in several aspects, especially in the nature of the service provider-consumer/client interface, in the levels and types of information exchanged, the degree and type of participation of the consumer/client in service production (for more details see Lakshmanan 1990).

Personnel support services are delivered principally on a face-to-face basis for purposes such as health care, psychological consulting, welfare services, etc. In general, these service activities operate in dynamic and complex environments, where the complexity primarily derives from the environmental uncertainty because consumers are usually imprecise and unaware of their problems (for example, health provision, welfare services etc.). Goods-related services refer to a class of services which are closest to the production of goods. They are complementary to goods production and include distribution and storage of goods, wholesale activities, transport management, installation, maintenance and repair, etc. Firms providing goods-related services operate in stable environments in general. The information exchanged at the provider-consumer/client interface are direct and relatively simple. The consumer’s demands are known and the consumer can monitor the activity of the service producer. Information processing services include task interactive services in the sense of Lakshmanan (1990), such as R&D, engineering, computer services, marketing, advertising, legal services etc., and routine interactive services. The environment of the task interactive services is characterized by moderate to high degree of uncertainty. The uncertainty derives from the uniqueness of the client’s needs and the contingencies in specific situations.

This classification scheme leading to nine types of services is not without ambiguities. For example, some services such as telecommunications, banking services and education are mixed services to both business and individuals. Nevertheless, the classification scheme provides a useful framework to look more closely at the economic role of producer services.
Table 2: Classification of Producer Services (adapted from Marshall et al. 1988)

<table>
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<th></th>
<th>Personnel Interactive Services</th>
<th>Goods-Related Services</th>
<th>Information Processing Services</th>
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<tr>
<td>Internal Service</td>
<td></td>
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<tr>
<td>Trade</td>
<td></td>
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<tr>
<td>External Service</td>
<td></td>
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<tr>
<td>Trade</td>
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But the three categories of producer services identified in Table 1 are still rather broad in scope and thus still contain a considerable degree of variation within the categories. Thus, it seems to be appropriate to subcategorize the above mentioned producer service categories. To enable a further disaggregation, the nature of the market served by producer services may be employed. Producer services may be traded commercially on the open market or provided internally within organisations (Marshall et al. 1988). This distinction disaggregates personal support producer services, goods-related producer services and information processing producer services into

* services produced by firms for themselves (i.e. internal service trade) and
* services produced by organisations to meet demands from other organisations (i.e. external service trade).

Having made a conceptual distinction between six types of producer service activities (see Table 2), it is important to mention that the identification and measurement of the above mentioned producer service categories is a very difficult task, in face of the conventional rather crude government output and employment statistics on the one hand, and the complexity of the producer service sectors on the other. The line between producer and consumer service activities is not so clear cut in reality. It is because of such difficulties that in
Section 5 the emphasis is on a case study approach, and that only some selected types of information processing producer services are considered.

3. New Information Technologies and Producer Services

Producer services are currently experiencing rapid change because of innovations, primarily associated with new information and communication technologies. New information and communication technologies (NIT) may be said to include all new technologies related to the capture, storage, processing, retrieval and communication of information. Continued improvement in performance of NIT-based products, the increased user-friendliness of the systems as well as the cheapening of processing power make it likely that NIT will be more broadly applied in the producer service sector soon.

The potential for application of NIT to producer services is remarkable. Some major specific opportunities are summarized in Table 3. NIT is used to increase efficiency and labour productivity, to reduce costs, to provide new technology-based services (on-line financial information services, data base services of various sorts, etc.), to improve the quality of existing services, to facilitate linkages with client organizations by reducing transaction costs and time and by permitting the integration of different companies computerised purchasing and sales functions via telecommunications-based computer networks.

The potential up-take and use of NIT varies considerably between different types of producer services. In personal interactive services the type of tasks amenable to the application of NIT constitutes only a small proportion of the total activities involved, while in information processing services informational activities are paramount. Precise information for the actual take-up of NIT within the different types of producer service activities is scarce. But current evidence suggests that - unsurprisingly - electronic data processing has by far the highest penetration rate, followed by the banking, finance and insurance sector (see Warf 1989, Marshall et al. 1988).
4. Producer Services and Manufacturing

There seems to be a general agreement that service sector employment has grown markedly over the last three decades (see, for example, Gershuny and Miles 1983, Marshall et al. 1988, Cuadrado Roura 1990). There are two major explanations for the secular shift in employment from manufacturing to services. One emphasizes a slower rate of labour productivity growth in the service sector, and the other a faster rate of growth in service output. Traditionally, greater emphasis has been laid upon the productivity lag explanation. Recent analysis of data in UK, however, suggests that this factor may be declining in importance because new technology improves labour productivity in services. Moreover a faster growth in the output of services - measured in terms of net output at constant prices - compared to manufacturing goods has become at least as - if not more - important as an explanation for the employment shift (Barras 1987).

It is recognized that much of the post-war growth has been in producer service activities. In a recent study of the opportunities for growth of services in the EEC, for example, Ochel and Wegner (1987) isolate producer service activities as the most rapidly expanding service activities in the EEC between 1975 and 1982. The growing demand for producer services reflects

* the increase in organisational scale of production with the concomitant demand for administrative co-ordination, transport and telecommunications,

* the growing technical complexity and the increasing diversification and specialisation of production in most manufacturing industries, associated with a proliferating demand for production engineering, technical, maintenance and computer service activities,

* the increasing complexity of legal and financial regulation necessitating greater utilization of more specialized and sophisticated services in finance, marketing and investment,

* the increased uncertainty of the commercial and technological environment in relation to technical innovation and merger activities, encouraging a
Table 3: Applications of New Information Technologies to Producer Service Industries (adapted from Miles 1986)

**SPECIFIC TECHNOLOGIES**

**Office Automation**
Text, voice and image processing, storage and transmission of communications, stand-alone and networked equipment

**Automated Transactions**
Automated tellers, portable data entry terminals and electronic point of sale equipment, electronic funds transfer

**Advanced Telecommunications**
Improved local and mobile equipment, message forwarding and storage systems, satellites, viewdata, electronic mail

**Expert Systems**
Applied to assist in using advanced business databanks and information systems

**DIRECTIONS OF CHANGE**

**Cost Reduction**
Via automation of manual/clerical activities in final services; use of expert systems to complement scarce professional skills; reduction of overheads by using teleservices; increased efficiency through monitoring of outputs, just-in-time stockholding, etc.; simplified equipment maintenance using autodiagnostics and modular repairs

**New Information Technology-Based-Services**
on-line financial information services, data base services, computer-aided design

**Quality Improvements in Existing Service**
via viewdata information facilities at point of delivery, more specialised advice

**More Flexible Services**
via improved scheduling and queue management; quality, routing and timing of services responsive to real-time customer needs by use of customer input systems and computer-aided design

**Reduction of Space and Time Restraints**
via monitoring systems; telecommunications-abased computer networks etc.
greater emphasis on external monitoring, research, development, training and consultancy services,

* flexible specialisation in the production of goods and services, primarily introduced by the adoption of NIT and linking the production process itself more closely to its supporting services.

There also seems to appear some structural changes in the demand for producer services. Contraction in the production sector has affected the demand for some goods-related services, especially physical distribution services. Also well established professional producer services, such as market research and advertising, appear to have reached maturity, while other information-related services such as management consultancy, accountancy, financial services and new services associated with NIT such as on-line information systems and computing services have grown rapidly (see Marshall et al. 1988).

The increasing demand for producer services is either met in-house or by the external producer service sector. There is some evidence that externalization of service demand is increasing in general (see Cuadrado Roura 1990). Producer service firms can utilize economies of scale in the production of highly specialised services made available to a wider range of client organisations (Daniels 1985). There has also been a tendency to externalise blue collar producer services in order to reduce costs and to increase flexibility. In particular, many manufacturers have externalised their physical distribution services in the recent period of high interest rates and low financial liquidity to convert it from a capital to a current cost element (Marshall et al. 1988).

The decision by organizations to provide services in-house (i.e. to internalize), or to buy them in from the external producer service sector (i.e. to externalize) is influenced by a series of considerations (see Williamson 1978, Marshall 1982):

* the confidentiality associated with the service,
* whether the service has a strategic position in the company’s activities,
* the level of know how required to carry out the service,
* the availability, quality and cost of services outside the company.
Confidential and strategic service needs are likely to be met in-house, while in situations where specialist skills especially for new services are costly to acquire, outside suppliers may be utilized. Also the nature of industrial relations may play an important role in the decision whether to internalize or externalize service production. In enterprises with rigid internal labour markets (for example in nationalized companies) externalization of certain tasks may aim at increasing flexibility in the use of labour.

The declining importance of administrative, technical and clerical staff employed in manufacturing, and the growth of jobs in contract physical distribution enterprises suggest that producer service employment within manufacturing enterprises is being replaced by contracting-in the required services from outside. This trend seems to conform to more general well known trends of subcontracting out and flexible specialisation associated with new ways of organizing labour.

Producer services are becoming increasingly intertwined with other economic sectors, especially with manufacturing. But it is still larger organizations who appear to make most use of external producer services. Small and medium sized enterprises who tend to play an increasing role again in some industrial sectors in several countries may need to externalize functions which they only need occasionally or on a small scale or for which they do not have expertise (see Miles 1986).

Many producer service activities have traditionally been the preserve of small and medium-sized single-site enterprises serving local and regional markets. However, in the last two decades an increasing concentration of ownership within key producer service segments like accountancy and management consultancy could be observed, a tendency which has been enforced in the recent past in face of the European Community push to a Single Market in 1992. Service producer firms in these segments have begun to react to the growth of large client organizations and their changing demand for services by diversifying in terms of services provided and the locations served, via acquisition, establishment of branch offices and partnership arrangements (Marshall 1985, Marshall et al. 1988). This process has been facilitated by developments in telematics. Firms providing computer services - often created through a process of key worker spin-off from the corporate sector - tend to be
much smaller, less locationally ubiquitous and dependent on a smaller number of clients than those providing accountancy and management consultancy.

The increasing interdependence between the manufacturing and service sectors is largely a function of the increasing tertiarization of manufacturing. These service inputs may be - as already mentioned - internalized or externalised from the viewpoint of a manufacturing firm. The provision of external service functions plays an important and increasing role in servicing the manufacturing sector whether as subcontractors, as a source of innovation or in providing a competitive sector in which the price of services may be kept down. Producer services (such as R&D, marketing), whether met in-house or supplied by the external sector, seem to become necessary preconditions for the economic success of a firm especially in times of rapid technological change. They may assist to adapt skills, attitudes, products and production processes to changes, and to reduce the informational, organizational, managerial and structural barriers to adjustment.

The relationship between the manufacturing and service sectors manifests itself not only in the demand for producer services met either internally or externally. The relationship is likely to be two-way in so far that the organisation of the producer service sector might affect manufacturing demand for producer services via influencing the distribution of services. The influence of spatial differences in the supply of producer service functions on the pattern of manufacturing demand for such services has been highly neglected up to now.

5. Producer Services and Regional Development

In various traditional approaches to regional development, such as the economic base concept, non-service activities have been considered as driving force for regional development, because of their regional exports. Services have been thought of as being locally linked and dependent upon the manufacturing industry. This point of view represents a simplified view of certain important characteristics of the historical development of regions in certain countries, but stresses on exports of the manufacturing sector too
narrowly. On the other side, it is not only the demand side, but also the supply side (neglected in the above mentioned point of view) which plays an important role in regional development processes.

The increasing interest in producer services by geographers and regional scientists is largely related to their growth potential during a period when manufacturing has contracted in most advanced economies. The ability of regional manufacturing industry to adapt to structural changes, to respond to market changes and to develop new production techniques is partly determined by the availability and quality of regional service information and advise (Goddard 1978, Marshall 1982). This means that the quality of a region’s producer service sector, its ability to react to changing demands for specialized and more sophisticated producer services in general, and information related producer services in particular, is of vital importance to other economic activities in the region and, thus, plays a critical role to its economic development prospects. The regional availability of such producer services is especially important for small and medium-sized firms producing in small series or after order which tend to depend much more on regional service inputs than larger organizations. The provision of external producer services is not only important for existing firms, but also for the creation of new firms.

It is widely recognized that producer services are unevenly distributed over space. The more dynamic, innovative and specialized information processing related activities are over-represented in the core regions ensuring a more favourable service environment for economic development (see Daniels 1988). Several reasons have been suggested to explain the spatial concentration of these service activities (see Gillespie et al. 1984, etc.):

* the concentration of head offices of multi-site manufacturing and service organisations in core regions, and metropolitan areas in particular,

* the introduction of production hierarchies in large manufacturing corporations which increased the demand for external higher-order producer services in headquarter regions,

* the demand for specialized labour force with innovation, planning, marketing and computer service responsibilities,
the lower entry rates of specialized producer service firms in rural and peripheral regions resulting from the prevalence of low-technology branch plants which provide only limited spin-off opportunities for new technology-based service firms on the one hand and which do have only little demand for higher-order producer service activities on the other.

The lack of regional information processing producer activities is detrimental to industrial innovation and competitiveness. Recent advances in telematics may have the potential to reduce information deficits of peripheral regions, but spatial differences in supply of telecommunications infrastructure suggest that regional disparities may be widened rather than decreased.

6. Networks of Producer Service Firms in the Metropolitan Region in Vienna: Some Empirical Results of a Case Study

At present, there is only a very limited understanding of the contribution of producer services to the performance of manufacturing and other sectors in the Austrian economy in general and in the metropolitan area of Vienna in particular. Clearly, the economic role of producer services in national, regional and local economies needs to be studied in more depth.

The major objective of this section is to report some preliminary results of an ongoing research based on survey work in the metropolitan area of Vienna carried out in the framework of interdisciplinary seminars at the Vienna University of Economics and Business Administration (jointly organized by the Department of Economic Geography and the IIR) and the Department of Geography at the University of Vienna. 210 interviews were conducted in February to March 1989 by students, predominantly with younger firms in the producer service sector in the metropolitan area of Vienna. The survey focused solely on the external provision of particular information processing services, and thus neglects both goods-related and personnel support producer services as well as in-house producer services. Three major types of externally provided information processing related producer services are considered: advertising/marketing, engineering and business consultancy/computer services (electronic data processing and software
development services). This section is largely based upon Traxler et al. (1990).

Information processing related producer services tend to be strongly embedded in regional and local networks implying backward and forward linkages extending to all sectors of the economy, predominantly to the manufacturing sector. Emphasis is laid on five major research issues:

* How intensive are backward and forward linkages of producer services in a local/regional economy?
* Can producer services become part of a new economic base of post-industrial, revitalized cities?
* How heterogeneous are the linkages within a local economy for different types of information processing related producer services?
* Which role do networks play in the interaction patterns of producer service firms?
* Does location within the metropolitan region (core, outer region) influence the interaction patterns?

In order to tackle these questions at least tentatively the following research strategy is adopted:

* The spatial interaction patterns of producer service firms are analysed, first for all types of services included in the survey, then differences by type of service activity are analysed.
* The influence of the location of the firm (core, outer region of the metropolitan area) on spatial interactions is investigated.
* Sectoral interactions are explored (with other service organisations, manufacturing, the public sector).
* Finally, the role of the firm size for the interaction pattern is assessed.

Three types of networks are distinguished in this case study:

* client networks (i.e. output oriented networks),
* intermediary networks (i.e. input oriented networks), and
* co-operation and contact networks.
Particular attention is paid to the orientation of these networks. Four types of orientation are distinguished in this respect:

* **local orientation** (i.e. the county/district in which the producer service firm is located),

* **regional orientation** (i.e. the metropolitan area of Vienna, where the metropolitan area is further disaggregated into the city of Vienna (core region) and the outer region of the agglomeration),

* **national or interregional orientation** (i.e. major urban areas in Austria and rest of Austria), and

* **international orientation** (i.e. foreign countries).

**Client Networks**

With respect to client networks the most important spatial category for all the producer services of the agglomeration - no matter where they are located - seems to be the metropolitan area. About three quarter (two thirds) of the producer service firms located in the core (outer region) of the agglomeration have their most important clients in the city of Vienna. Short distance interactions (i.e. clients located in the same county) seem to prevail for firms located in the ring. Moreover producer services in the core tend to be more nationally and internationally oriented than those located in the outer region of the agglomeration (see Figure 1).

A disaggregation by type of producer activity shows that for producer service firms located in the core region (see Figure 2a) intraregional customer interactions prevail for engineering firms (core area: 86%, ring: 57%). Clients in other areas of Austria are important for all types of service activity, for advertising/marketing and business consultancy/electronic data processing slightly more than for engineering. Engineering (50%) as well as business consultancy and electronic data processing (44%) exhibit international client interactions.

In comparison, the client networks of the producer services located in the outer region are much more locally and much less nationally and internationally oriented (see Figure 2b).
In summary, it appears that by and large the interaction patterns resemble each other to a large degree. Business consultants, EDP and engineering firms tend to supply their services over wider markets than advertising and marketing firms.

It is worth mentioning that the producer services are predominantly supplied to manufacturing industries. A fairly large proportion, however, is delivered to other service firms. Commercial services are important customers of advertising and marketing companies, engineering firms are the only significant service suppliers for the public sector.

Firm size plays a role as far as smaller firms - as to be expected - are generally more locally oriented, and the international interactions increase with firm size. Nevertheless, there are no really striking differences between the different size classes and locations.

**Intermediary Networks**

With the exception of engineering firms, material inputs play only a minor role in the transactions of producer service firms. Most of the material inputs are purchased from firms located in the city of Vienna. It is interesting to note that other Austrian regions as well as foreign countries are more frequently the source of deliveries than the outer region of the agglomeration. Producer service firms situated in the ring tend to be slightly more regionally oriented, those located in the centre slightly more nationally and internationally oriented (see Figure 3). Disaggregations by types of producer service firms and size classes do not show any significant differences.

Figure 4 summarizes the services purchased from other service firms. The main factors mentioned by the interviewees as important to externalize service activities were primarily lack in know how required to carry out the activities and additionally cost advantages especially in the case of marketing and advertising firms as well as time constraints. The highest demand is for routine services like legal counseling, financing and management. Regarding locational differences, the following pattern may be observed: Producer service firms located in the ring tend generally to buy more services than firms in the core region do. The most striking difference can be identified with
respect to the above mentioned routine services. About 84% of the firms in the ring versus 51% of those in the core area demand such services externally. The external purchase for computer services and education and training shows also significantly higher values for the firms located in the ring. On the other hand these firms demand less R&D related services than those located in the core.

Disaggregation by type of producer service, which is possible only for the subsample of the ring shows that the engineering and consulting /EDP firms purchase more often routine services, advertising and training than advertising and marketing firms do.

Firm size (again the disaggregation is possible only for the subsample of the outer region) plays a role as far as external purchases of services are concerned. Larger producer service firms show a higher propensity towards externalisation of routine services as well as high-grade services than smaller ones do. Thus, the larger firms seem to be more involved into a division of labor than the smaller ones.

Concerning the spatial pattern of intermediary linkages it is evident, that the lion’s share of these inputs are purchased in the city of Vienna followed by the ring of the agglomeration. The firms located in the core region purchase only few services locally (i.e. in their own district), but most in the rest of the core region (city of Vienna). Foreign countries play a slightly more important role than the ring of the Vienna agglomeration.

The firms located in the ring show a different pattern. They are even more locally and regionally oriented. The short distance interactions are significantly higher than for the core firms, interregional and international interactions are not relevant (see Figure 5).

The disaggregation by sector does not yield any new striking results. Advertising and marketing companies seem to be the most locally oriented, while engineering firms, consultants and computer service firms have wider interaction ranges.

Size seems to play some role. As already seen before, the small firms are extremely locally oriented and some of them (especially in the outer region) do
not have interregional interactions at all. With firm size these interregional and international contacts are increasing.

These results corroborate the close regional link hypothesis for the producer service industry on the input side much more than for the output markets.

Co-operation and Contact Networks

Looking at co-operative networks yields the following results. Producer service firms tend to co-operate intensively, particularly those located in the core region. About 3/4 of the firms located in the core area and about 2/3 of those in the ring have indicated co-operation links (see Figure 6). The majority of co-operation partners are within the agglomeration. This pattern is similar to that of the client networks and does not show striking differences between core and ring. The most important co-operation activities involve joint marketing strategies and joint sales packages (see Figure 7). The data, however, reveal additional interesting insights.

Engineering firms co-operate more intensively (especially with business consultants) than the other types of producer services considered. If producer services are located in the core (see Figure 7a), their co-operation in the case of the advertising and marketing firms concerns joint supply, advertising and marketing, while for engineering firms the R&D-cooperation seems to be rather important; marketing and advertising co-operations tend to be more seldom. Consulting and EDP firms co-operate first of all in matters of joint supply and marketing, the rest is comparatively less important. The firms in the ring (see Figure 7b) are much less co-operative than those in the core. Co-operation activities of advertising and marketing firms (50% do not cooperate at all) are concentrated on advertising and joint supply, very little on R&D.

Firms located in the city of Vienna are much more oriented towards co-operation with national and international partners than those in the outer region of the agglomeration.

Differentiated by type of producer service activity, for firms located in the city of Vienna (core region) it can be seen that engineering firms show a stronger national and international orientation in their co-operation and contact
networks, while advertising and marketing firms are clearly more locally and regionally oriented (see Figure 8a). The firms in the ring show a different pattern by type of activity (see Figure 8b): only 6% of the engineering firms do not have any technical-scientific contacts; the advertising and marketing companies have the least frequent contacts in the subsample. But the engineering firms located in the ring are completely different oriented than those in the core, their major co-operation and contact partners are in the agglomeration, short distance interactions are important. Business consultants and EDP-firms are the only firms, which exhibit a stronger national and international orientation, often via partnership arrangements. In contrast to the intermediary networks, small firms, especially those located in the core, tend to co-operate more intensively than larger firms. Thus, it seems that small firms substitute (market) input links by co-operation links. Internationalisation increases with firm size, small firms are more locally oriented.

Figure 9 displays that contacts with universities, public research institutions and counseling services is rather infrequent, also the counseling service provided by the chambers is being utilized only rather extensively. The most important partners are the firms of the same sector and manufacturing as well as other service firms. As to be expected, computer service and engineering firms tend to retain regular and frequent contacts with universities and especially with the Technical University of Vienna, while firms providing other producer services report only on infrequent contacts with such institutions.

7. Conclusions and Outlook

The increasing interest in producer services by geographers and regional scientists is related to their growth performance and potential in times of manufacturing contraction. In order to understand the economic role of producer services it is important to analyse the nature of producer services in national, regional and local economies. In this contribution three major categories of producer services have been distinguished: personal interactive producer services, goods-related producer services and information processing producer services. Moreover, a distinction has been made between the in-house and external provision of these services.
The paper makes a modest attempt to contribute to the understanding of the economic role of producer services in discussing the relationship between producer services and manufacturing as well as the link between producer services and regional development. In the empirical part of the paper emphasis has been laid on the analysis of producer service networks in the metropolitan region of Vienna. Even if the case study is based upon a limited and to some extent unrepresentative sample of producer service firms, some generalisations may be made (see Traxler et al. 1990):

**First**, the producer service sector is the most dynamic component of service activities in Austria and even more so in the metropolitan region of Vienna. The rate of foundation of producer service firms in the agglomeration of Vienna has substantially increased in the 1980s.

**Second**, in comparison to other advanced economies the producer service sector in Austria is still comparatively small in size, but shows a considerable growth potential. The sector is largely dominated by small firms which characteristically offer a general all-round service within their field rather than highly specialized services. Concentration tendencies seem to be insignificant up to now.

**Third**, producer services have a high degree of regional and local economic significance due to intensive forward and backward linkages with the local/regional economy. Also, export orientation of the highest-order producer services is significant.

**Fourth**, input purchasing networks are more locally and regionally oriented than output and co-operation/contact networks.

**Fifth**, among the different types of producer services considered, advertising, marketing, consultancy and EDP firms tend to be much more active locally and regionally while engineering firms tend to have a higher spread in their activities.

The results point to the importance of producer service activities in generating and retaining endogenous local and regional economic development. But there is still a need for more substantial research on the relationship between producer services, manufacturing and regional development in general, and
on the link between the use of producer services by firms and their economic performance in particular.
References


APPENDIX
Fig. 1: Orientation of Client-Networks Disaggregated by the Location of the Producer Service Firms

- Producer Service Firms Located in the Core Region of the Metropolitan Area of Vienna (n=88)
- Producer Service Firms Located in the Outer Region of the Metropolitan Area of Vienna (n=122)

Multiple responses possible
Fig. 2a: Orientation of Client-Networks Disaggregated by Different Types of Producer Services Located in the Core Region of the Metropolitan Area of Vienna

Fig. 2b: Orientation of Client-Networks Disaggregated by Different Types of Producer Services Located in the Outer Region of the Metropolitan Area of Vienna
Fig. 3: Orientation of Intermediary Networks Disaggregated by the Location of the Producer Service Firms: Material Inputs

- Producer Service Firms Located in the Core Region of the Metropolitan Area of Vienna (n=55)
- Producer Service Firms Located in the Outer Region of the Metropolitan Area of Vienna (n=53)
Fig. 4: Services Purchased from Other Firms Disaggregated by the Location of the Producer Service Firms

Fig. 5: Orientation of Intermediary Networks Disaggregated by the Location of the Producer Service Firms: Service Input
Fig. 6: Co-Operation of Producer Service Firms Disaggregated by Different Types of Co-Operation and by the Location of the Producer Service Firms

- Producer Service Firms Located in the Core Region of the Metropolitan Area of Vienna (n=67)
- Producer Service Firms Located in the Outer Region of the Metropolitan Area of Vienna (n=121)

Multiple responses possible
Fig. 7a: Co-Operation of Producer Service Firms Disaggregated by Different Types of Co-Operation and by Different Types of Producer Services Located in the Core Region of the Metropolitan Area of Vienna

Fig. 7b: Co-Operation of Producer Service Firms Disaggregated by Different Types of Co-Operation and by Different Types of Producer Services Located in the Outer Region of the Metropolitan Area of Vienna
Fig. 8a: Orientation of Co-Operation and Contact Networks Disaggregated by Different Types of Producer Services Located in the Core Region of the Metropolitan Area of Vienna

Fig. 8b: Orientation of Co-Operation and Contact Networks Disaggregated by Different Types of Producer Services Located in the Outer Region of the Metropolitan Area of Vienna
Fig. 9: Frequency of Technical and Scientific Contacts with Different Partners Disaggregated by the Location of the Producer Service Firms

- Few or No Contacts
- Regular Contacts
- Frequent Contacts

a. Producer Service Firms Located in the Core Region of the Metropolitan Area of Vienna (n=88)
b. Producer Service Firms Located in the Outer Region of the Metropolitan Area of Vienna (n=122)