

The contribution of business services to aggregate productivity growth

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SUMMARY

As in most OECD countries, the business services industry in the Netherlands has grown much faster than the market sector as a whole. It has, however, displayed stagnating productivity growth, in some periods even a fall in productivity. Does this fast-growing industry with a bad productivity record present a threat to aggregate productivity growth and, hence, to future economic growth? Reviewing existing empirical evidence, the paper argues that this concern need not be valid. The business services industry has an important role in the national innovation system and in knowledge spillovers to other industries. The innovation contribution of business services to the rest of the economy may countervail the effect of its own stagnating productivity growth. Moreover, the industry has not yet exhausted opportunities for tackling existing X-inefficiencies. The paper further sketches some policy options for improving the productivity record of business services, and for strengthening its role in knowledge spillovers to client industries.

JEL Codes: L11, L16, L8, O3, O4

Key words: business services, productivity, innovation, market failure

INTRODUCTION

The business services industry in OECD countries grew much faster than the market sector as a whole. In all countries, business services have been a job-creating machine. Apart from its dynamism, the industry is widely regarded as strategic because of its contribution to the modern knowledge economy. The flip side of the coin is that the business services industry itself had an almost stagnating productivity growth which might become a burden for economic growth, especially in view of the industry's increasing weight within the total economy.

This paper considers the macro-economic productivity contribution of business services in more detail. The central research question is whether knowledge and productivity spillovers generated by the business services industry countervail the increasing effect of its own weak productivity growth. The paper ends with some policy options. The main focus is on the business services industry in the Netherlands, but its development will sometimes be put in an international perspective. Throughout the paper, 'BS industry' is used as an abbreviation for business services industry.

BAUMOL DISEASE?

The macroeconomic productivity contribution of the BS industry will be discussed against the background of the *unbalanced-growth* model developed by Baumol (1967) and Baumol et al. (1989). The latter analysed how an expanding low-productivity services sector may bring down the growth rate of the entire economy, a pattern that is nowadays known as "Baumol disease". The services sector in his growth model has only a limited potential for labour-saving and productivity growth. Moreover, it is characterised by a relatively price-inelastic demand. Its wages follow those of the most productive sector. In this economy, an increasing share of labour will be employed by the services sector. The imminent 'disease' is that the growth rate of the economy falls, while the relative price of services rises. Fase and Winder (1995) found evidence for the presence of 'Baumol disease' phenomena in the Netherlands.

Stylised facts on the growth pattern of the Dutch BS industry indeed provide some ground for the suspicion that this industry's performance contributes to the advent of Baumol's disease:

1. *Employment growth.* While representing about 10% of total market sector employment in 1990, the BS industry contributed no less than 54 per cent of market sector employment growth between 1990 and 2002.¹
2. *Low price elasticity of demand:* demand growth was strong despite an increasing relative price of BS vis-à-vis the market sector.
3. *Converging wage rate increases.* The BS industry closely follows the wage increases of the most productive industries (Fase en Winder 1995; Van der Wiel 1999; Rubiera 2003; Lowe 1995).

¹ If temporary employment agencies are left out, the contribution becomes 35 per cent.

Figure 1 Change in labour productivity per hour worked, BS industry, 1981-2000

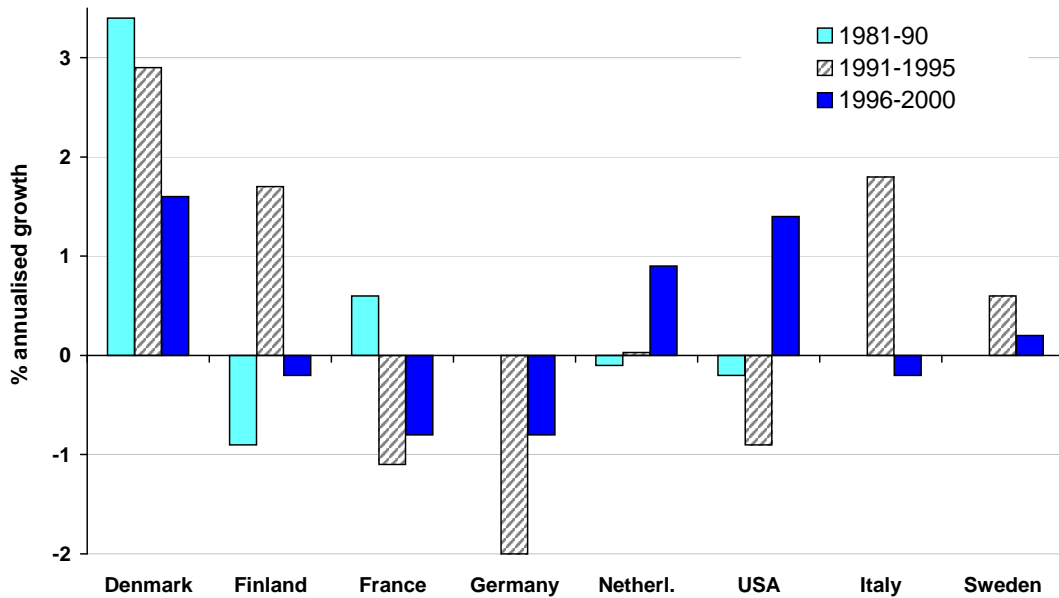
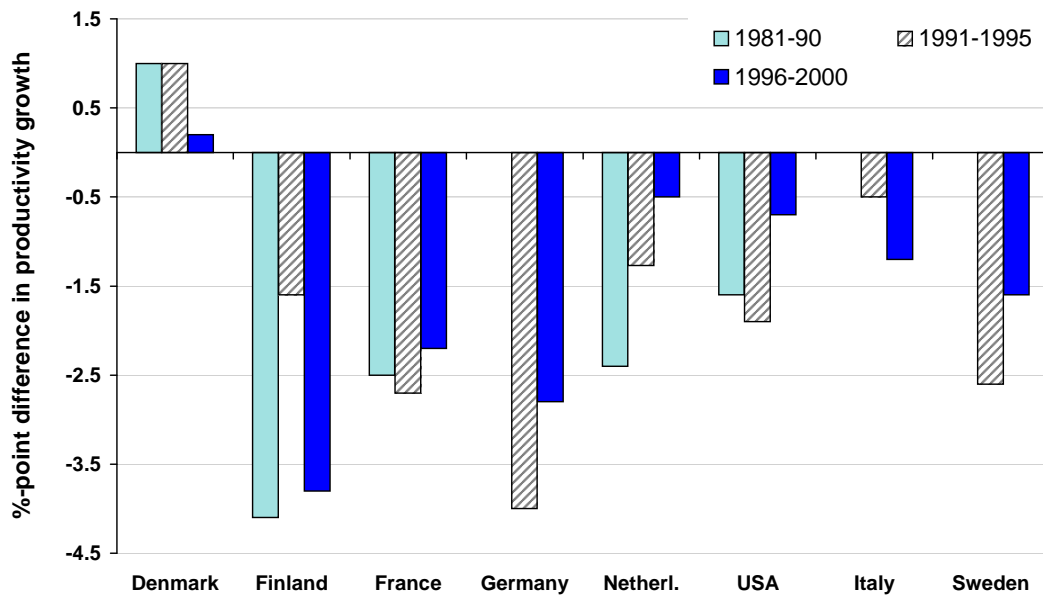


Figure 2 Productivity growth gap: difference between labour productivity growth in BS industry and the total market sector, selected countries, 1981-2000



Notes: Productivity is measured per hour worked. For Germany the period average refers to 1992-1999. For Italy the second period refers to 1993-2000. In the Netherlands, BS industry data do not include temporary work agencies. Data: calculated from OECD STAN database and CBS input-output tables (for the Netherlands).

4. *Productivity growth.* Over the 1980s, Dutch BS productivity growth was negative, about zero in the first half of the 1990s, and improving to 0.9% annually over the period 1996-2000 (Figure 1). With such a poor productivity record, the BS industry lagged significantly behind the rest of the market sector (Figure 2). What is positive, however, is the fact that the productivity gap in the Netherlands is shrinking over time. Both graphs also show that the patterns are not typically Dutch. The productivity performance of the BS industry in most other countries is even worse.

Using growth decomposition, we can look inside the black box of BS productivity. The productivity growth of the BS industry as a whole during recent years stems completely from two sub-sectors: *computer services* and *legal, accountancy and economic consultancy*. Table 1 indicates that all other sub-sectors – also knowledge-intensive sub-sectors such as contract R&D or engineering consultancy – contributed negatively to BS productivity growth.²

Table 1 Sub-sector decomposition of productivity change in Dutch BS industry, 1995-2001				
Sub-sector	Productivity change by sub-sector	Change in sub-sector share	Total contribution by sub-sector to BS productivity growth ^a	Sub-sector share in total BS employment, 2001
	% -point contribution to annual productivity change			% share
Legal, accountancy and economic consultancy	0.35	-0.04	0.28	31.7
Computer services	0.13	0.18	0.39	19.1
Industrial cleaning	-0.03	0.11	0.07	12.7
Engineering, architectural services	-0.12	0.00	-0.12	14.2
Marketing services	-0.05	0.00	-0.05	5.8
Contract R&D	-0.07	-0.05	-0.11	4.5
Other BS sub-sectors	-0.07	0.01	-0.05	11.9
Total^b	0.13	0.20	0.42	100

Notes: a) The total contribution includes second-order effects (composite effect of changes in productivity and changes in sub-sector shares. b) Excluding the equipment rental sub-sector and temporary work agencies. Data sources: CBS input-output tables and CPB database.

A superficial diagnosis on the basis of the stylised facts presented could conclude that the growth of the BS industry must have reduced Dutch economic growth in a way comparable to the Baumol disease. Yet, this conjecture is not justified. There are three reasons why further growth of the BS industry does *not* necessarily contribute to stagnation of macro-economic growth. They will subsequently be elaborated upon. The main point that is overlooked is that the Baumol model focussed on consumer services, whereas business services are intermediary inputs for other industries. The second point is that the BS industry indirectly raises the productivity of other industries by the knowledge spillovers it generates. Finally, in contrast to the service sector in the Baumol model, the BS industry might have an unexhausted potential for labour-saving and productivity improvements.

² In the case of industrial cleaning this effect was compensated by its decreasing share in BS industry, thus allowing the average productivity of BS as a whole to increase.

BS INDUSTRY AS A PROVIDER OF INTERMEDIARY INPUTS

Several studies have shown that even low-productive intermediate industries may increase macro-economic productivity growth (Fixler and Siegel 1999; Oulton 2001). For this to occur, it is only necessary that the intermediary inputs replace primary labour inputs in the client industries.³ This is exactly what has happened, for cost-saving reasons, in the outsourcing movement that swept across all market industries throughout the 1980s and 1990s. Privatisation of government services had the same effect. There have been two outsourcing waves. The first one, running from the 1980s into the early 1990s, was characterised mainly by the outsourcing of relatively simple internal labour services to outside firms. BS branches with standardised services like industrial cleaning, catering and security benefited most from the early outsourcing tendency. The BS industry thus accounts for an increasing share of total intermediary input use. Table 1 indicates that the remarkably strong growth of the Dutch BS industry may at least partly be due to a catch-up growth process vis-à-vis other OECD countries. Essential in the first outsourcing wave was that business services rendered

Table 1 Use of business services as intermediary inputs in market industries, 1990-1998 d)

Country	1990	1998
	Value of BS inputs as percentage of gross output ^a	
Netherlands	4.8	8.6
United Kingdom	7.5	9.3
USA	7.2	6.3 ^b
France	7.8	7.5 ^c

Notes: a) measured in current prices, implying that inter-period growth rates must be interpreted with some caution. b) 1997. c) 1995. d) For a further breakdown by BS-using industry, see Kox (2002: 84-86). Sources: calculated from input-output tables from OECD database and Statistics Netherlands.

to the client firms were more akin to (and, hence, a substitute for) direct labour inputs into the client's production process than to material intermediate deliveries.⁴ The second outsourcing wave, starting in the early 1990s in the Netherlands, makes the relation between BS inputs and the client's production process more complex. It entailed a shift towards knowledge-intensive BS products that were often tailor-made for particular clients. Often this represented quality improvement, specialisation and innovation, rather than pure replacement of internal services. The BS branches benefiting most from the second outsourcing wave were IT development, engineering, legal services, management consultancy, industrial design, marketing, and even commercial R&D. Since 1995, these knowledge-intensive sub-sectors accounted for most of the growth of the BS industry. Many of their services changed the very production process of the client firms, rather than representing mere labour substitution.

³ As Oulton (2001) shows this may increase overall productivity growth, provided that the business services industry itself has a positive productivity growth rate. Furthermore, an important but implicit assumption in his model is that competition in the markets for BS products is such that all labour productivity gains (no matter how small) are fully passed on to its clients. It will be argued later on in this paper that this full-competition criterion may not be satisfied in many BS markets.

⁴ Cf. Egger, Pfaffermayr and Weber (2003)

DO MEASUREMENT PROBLEMS IN BS INDUSTRY AFFECT MACRO-ECONOMIC PRODUCTIVITY?

A brief side-step to the potential impacts of productivity measurement problems in the BS industry is warranted at this juncture in the argument. The high degree of product differentiation and the increasing knowledge intensity of the products beg the question whether real output of the industry is measured appropriately. Although European statistical offices are working out methods for improving the registration of services activities, there is still a long way to go. Now suppose that product differentiation and the degree of knowledge intensity indeed causes an underestimation of BS output. How would this affect BS productivity, and the BS contribution to aggregate productivity growth? Some observations can be made without even knowing the empirical details. To this end, Table 2 presents a simplified input-output framework for the BS industry and two other industries (*Ind_1, Ind_2*) with fictive numbers. It is assumed that intermediate BS deliveries are underestimated by factor a and BS deliveries to final demand by factor b . The shaded part in the table reflects net production or value added, the basis for measuring aggregate productivity.

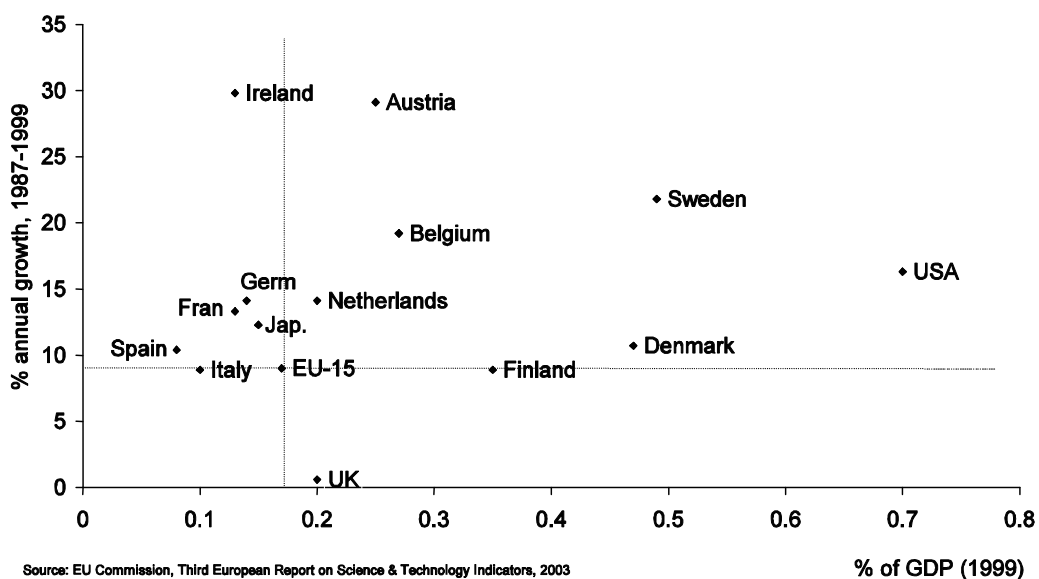
Table 2 A fictive input-output table in which BS output is underestimated

	Intermediate deliveries to:			Total	Final demand	Gross production
	Ind_1	Ind_2	BS industry			
Deliveries by Ind_1	10	5	1	16	16	32
Deliveries by Ind_2	4	2	2	8	10	18
Deliveries by BS industry	$7 + a_1$	$3 + a_2$	$10 + a_3$	$20 + \Sigma a$	$3 + b$	$23 + b + \Sigma a$
					$29 + b$	$73 + b + \Sigma a$
Received intermediate deliveries	$21 + a_1$	$10 + a_2$	$13 + a_3$	$44 + \Sigma a$		
Value added (= net production)	$11 - a_1$	$8 - a_2$	$10 + b + a_1 + a_2$	$29 + b$		
Gross production	32	18	$23 + b + \Sigma a$	$73 + b + \Sigma a$		

This simple static framework allows three conclusions regarding the possible effects of any errors in the measurement of BS output. First, the measurement error may cause an underestimation of gross output for the BS industry and for the total economy. Secondly, the aggregate economy's net production is *only* underestimated to the extent that BS deliveries to final demand are underestimated. The measurement errors in intermediate deliveries cancel out each other, and have *no* impact on aggregate net production. Thirdly, measurement errors in intermediate BS deliveries do have an impact on the productivity of individual industries. Productivity of the BS industry will improve, while the productivity of other industries will be lowered.

The upshot is that only an underestimation of BS deliveries to final demand could matter for aggregate productivity growth.⁵ Empirical estimates on the impact of measurement errors in other OECD countries indicate that a slight underestimation of aggregate productivity could occur.⁶ In relation to the Baumol disease discussion, it is important to note that the BS industry's contribution to aggregate productivity growth may well be larger – and the contribution by other industries smaller – than measured at present.

Figure 4 Level and growth rate of R&D expenditure by commercial services industries, 1987-99



KNOWLEDGE SPILLOVERS BY BS INDUSTRY

Knowledge-intensive BS firms have achieved an important role in national innovation systems; they contribute in three ways to modern knowledge infrastructure:

Original innovations. Firms in the sub-sectors software, engineering and contract research actively contribute to technological innovations. These BS branches account for a large part of the above-average R&D effort of the Dutch services industry, shown in Figure 4. They also account for the majority of the national patent registrations that originate from services industries (European Commission 2003; Blind et al. 2003). Firms in other BS branches are active innovators in non-technological

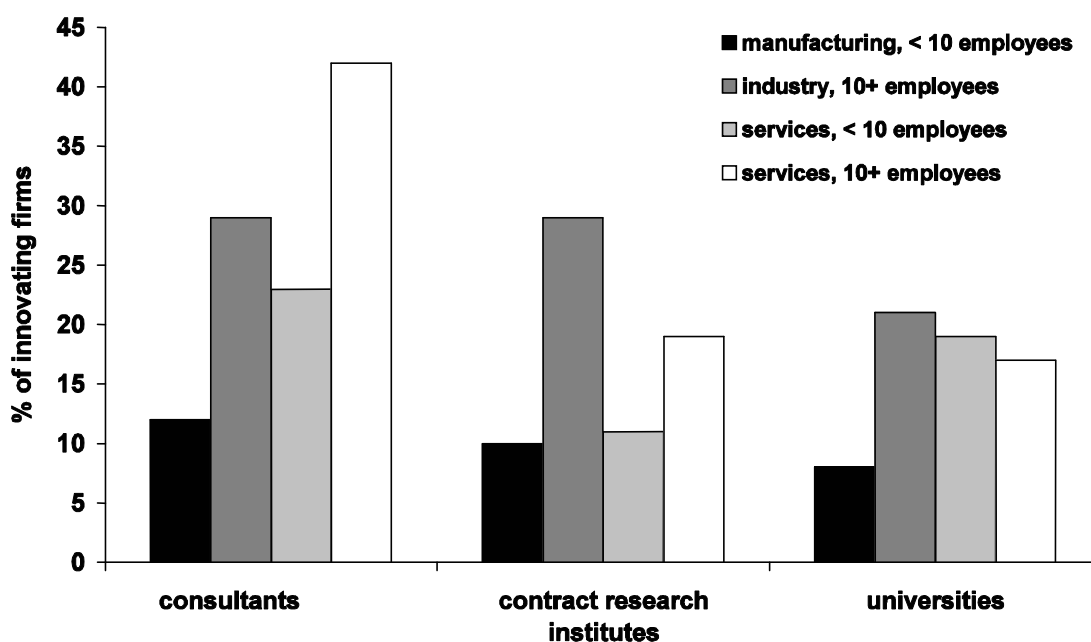
⁵ In 2002, 21% of BS industry's gross production went to domestic final demand (mainly investment), and 17% to exports.

⁶ Wölfl (2003) surveys recent studies on the potential macroeconomic impact of the measurement bias in the entire services industry. The surveyed empirical studies all have a speculative nature ('what if..?').

areas such as organisational development, firm strategy, human resource management, PR or marketing. (Boden and Miles 2000; Rubalcaba 1999). Many of the basic BS innovations are adapted for client firms on a case-by-case basis. The Community Innovation Survey for the Netherlands shows that the share of innovating firms in *computer services* and *engineering and architectural services* is equal or higher than in manufacturing industry, even though their innovation expenditure is relatively lower (CBS 2001).

Knowledge diffusion. Service providers in several BS branches are in the unique position of being able to look into the ‘knowledge kitchen’ of client firms. They observe localised, tacit knowledge solutions in client firms. But since their horizon is wider, they can more easily conceptualise such solutions and select ‘best practice’ solutions to more common business problems. Such ‘best practice’ information is subsequently introduced as input when they serve new clients. With regard to many competence areas, BS providers thus lead client firms to the relevant efficiency frontier. As a source of external information for innovating Dutch companies, BS firms rank before universities (Figure 5). Similar patterns were found in Finland (Leiponen 2001) and the United Kingdom (Hughes and Wood 1999).

Figure 5 Share of innovating firms that co-operates with BS providers and other information sources outside the own industry, Netherlands 1996-1998



Note: Both contract research institutes (NACE 73) and consultants (NACE 72,74) form part of BS industry. Sources: CBS (2001), Klomp and Meinen (2001).

Surpassing human capital indivisibilities. The supply of knowledge-intensive business services reduces firm-specific economies of scale with regard to knowledge and human capital inputs. Even small client firms nowadays have access to specialist

knowledge and specialist skills that once were the domain of universities and large firms.

We may wrap up the argument so far. The poor productivity growth figures for BS industry do not reflect this industry's full contribution to aggregate productivity growth. The BS industry also generates positive indirect productivity effects in its client industries. In the literature on spillover effects between industries, a distinction is made between knowledge spillovers and rent spillovers (e.g. Griliches 1979). The former relates to knowledge flows between industries, while the latter relates to under-priced quality improvements in intermediate inputs.⁷ In both cases, the price charged

Table 3 Empirical studies on the impacts of BS industry and BS use to productivity change and growth				
Study	Method	Country, coverage	Productivity or spillover indicator	Main findings
Antonelli (1999)	Calculate production elasticities for BS use in production functions for a large range of industries (cross section and time series)	4 EU countries (IT, FRA, GERM,UK), 1988-1990	Value added impact of BS use	Effect of BS use on value added of client industries: a 1% increase in BS inputs caused value added to increase by on average 2.6 to 4.2%
Greenhalgh & Gregory (2000)	Growth decomposition in input-output framework: tracing key sectors that generated cost savings and product improvements (measured by R&D intensity) in other industries	UK, 1979-1990	Labour productivity growth, R&D spillovers	BS industry key sector for productivity growth during 1980s, causing large labour saving in other industries. BS also important player in the forward transmission of rising product quality ^a
Katsoulacos & Tsounis (2000)	Correlation between TFP residuals of industry production functions and BS use, cross section for 75 industries	Greece, 1980-1988	TFP, TFP growth	Strong correlation between BS use and TFP levels and TFP growth of industries
Nordhaus (2002)	Decomposition of productivity growth (measured from income side value-added data)	USA, 1975-2000	Aggregate productivity growth	Software industry contributed 0.1% to the 1.6% productivity growth acceleration after 1995.
Pilat & Lee (2001)	Decomposition aggregate labour productivity growth by industry contributions	5 EU countries (DENM, NL, FINL, ITAL, GERM), 1989-99	Aggregate labour productivity growth	(a) Computer services contributed positively in Denmark, Germany and Italy, but negatively in Netherlands and Finland. (b) other BS inputs contributed negatively except in Denmark (period 1995-1999) ^b
Van Leeuwen & Van der Wiel (2003)	Combination of growth accounting and enhanced production function models including ICT spillovers and innovation indicators	Netherlands market services, 1994-1998	TFP growth, labour prod. growth	Contribution of ICT spillovers to productivity growth was very strong, and even more so in innovating firms

Note: a) "Whilst the high-technology manufacturing undertakers of R&D are also the major feeders for other sectors, the interesting feature is the rise of the BS sector which by 1990 had become a major 'supplier' of R&D although itself only a small R&D spender" (Greenhalgh & Gregory 200: 81). b) Contributions by other BS sub-sectors were positive in Finland and Germany during 1989-1994.

⁷ Under-pricing of products in the case of rent spillovers is the result of an intentional process governed by market circumstances. It differs therefore from the statistical problem of how to measure BS services appropriately.

for inputs is lower than the contribution of these services to value creation in client industries. Now, if the BS industry is indeed the source of such spillovers, this must show up in empirical studies of industrial productivity. Some studies cover BS inputs in general, but most spillover studies focus more specifically on the contributions of R&D and information technology. Table 3 gives a brief survey of some studies.⁸ Though the empirical evidence is incomplete and fragmentary, we may conclude that positive spillover effects from the BS sub-sector *computer services* have been quite strong. Other studies show positive spillover effects from BS inputs without differentiating their sub-sector origin. These results seem to imply that BS firms have been unable (or unwilling) to charge prices that reflect the full contribution of their services to value creation in client industries.

When the productivity spillovers originating from BS industry keep growing along with the size of this industry, this might well be sufficient to outweigh the effect of its own poor productivity growth. The indirect productivity effects provide a counterbalance to the Baumol disease tendency. But there is more.

STAGNATING PRODUCTIVITY GROWTH IN BUSINESS SERVICES NO *FAIT ACCOMPLI*

Notwithstanding their labour-intensity, some service industries accomplished fairly high productivity increases (OECD 2003). Also, the BS industry may have unexhausted opportunities for productivity increase. Some causes of X-inefficiencies still remain to be tackled: lack of market transparency (e.g. Fase and Winder 1995), diseconomies of small firm size, and modest process innovation effort within BS firms. These problems will be discussed subsequently:

(A) *Lack of market transparency and weak competition lower efficiency pressure.* Competition intensity and market transparency increase the pressure on margins, and the pressure to remove X-inefficiencies. Conversely, weak competition and opaque markets have an adverse effect on average cost efficiency. The latter condition applies in large parts of the markets for knowledge-intensive BS. Product differentiation, up even to the level of client-specific products, reduces comparability of products and prices. Competition in markets for knowledge-intensive services is dampened by the occurrence of switching costs (invested time, information) on the side of the clients.

Asymmetrical information problems further constricts transparency in these markets. The products are experience goods or credence goods, i.e. buyers often lack quality information before and even shortly after purchasing the service. Buyers solve this quality information problem by navigating strongly on the basis of vested market reputations (Table 4).

⁸ Other relevant studies are Hempel (2002), Collechchia (2001), Tomlinson (2000, Müller and Zenker (2000).

Table 4 How clients select a business service provider, survey data, EU 2000

Selection criteria	Percentage of BS-purchasing firms stating "This selection criterion is very important" a)
1. Quality of service being offered	79.3
2. Expertise of the service provider	61.1
3. Confidence in the capacity of the service provider to deliver	57.6
4. Quality standards applied by the provider	47.5
5. Price of services being offered	45.4
6. Local presence of the service provider	17.1

Note: a) The survey did not distinguish between standardised and client-specific services. It was held among 198 BS-using firms throughout the EU. Small BS-users were underrepresented in the survey sample Source: CSES (2001: 148-150).

Firms that provided a good product yesterday are expected to do the same tomorrow. Service firms with prestigious and large customers are easily taken to be high-quality providers. The importance of vested quality reputations renders a strong hysteresis element to the market structure. Market reputations differ by type of client and by geographical area (Table 5). Most small BS firms just have local reputations with a small network of clients. The reputation mechanism leads to a system of segmented markets in which different prices and tariffs co-exist. Competition among market segments on the basis of price and cost levels plays a subordinate role.

Table 5 Typical pattern of market segmentation in BS industry

	Company segments			
	Small non-specialists	Small and medium-sized specialist firms	Medium and large national firms	Subsidiaries of large transnational firms
Geographic scope of market reputation	Local, regional	International	National	International
Main competitors	Local, small and medium-sized	International specialists, non-specialist large firms	National-oriented firms, transnational firms	Transnational firms, large national firms
Size characteristics of their clients	Small to medium-sized firms	Medium-sized to large firms	Medium-sized to large firms	Large firms, often transnationals

Source: Kox (2002)

Note that in Table 4 the price criterion comes only in fifth place. Small entrants in general do not compete with the large firms in other market segments; they often find it difficult to outgrow their 'typical' market segments. Monopolistic competition is ubiquitous, especially in knowledge-intensive business services, due to the combination of market segmentation and product differentiation. On top of that, most sub-sectors have a small top segment in which a handful of multinational players—meeting each other in several national markets—interact as oligopolists. Many of their client firms are also multinationals. If foreign service providers compete with domestic firms, their main domestic challengers are large nationally oriented service providers. The latter operate in the most competitive market segment with competition coming

from middle-sized companies, multinational companies, and sometimes even from small international specialists (cf. CSES 2001; Kox 2002).

(B) Sub-optimal firm size reduces productivity levels. Our research established that scale effects in the BS industry are quite strong. On the basis of microdata for Dutch BS firms we identified the optimal firm size from a productivity perspective. To get a first picture of the relation between productivity and firm size, Figure 6 shows average productivity per worker in different size classes of BS firms. A distinction is made between BS branches with a high degree of product differentiation (client-specific services) and those with more standardised products.⁹ The results indicate that the most productive scale size in client-specific BS is between 20 to 50 employees, while the most productive firm size in the standardised BS branches is somewhere between 100 to 200 employees. The results are confirmed and proven robust in detailed production function analysis at the lowest possible industry aggregation levels.¹⁰ Since actual average firm size in the BS industry is much smaller than the most productive scale size, these results strongly suggest that a considerable labour productivity growth can be attained if average firm size in the BS industry would increase.

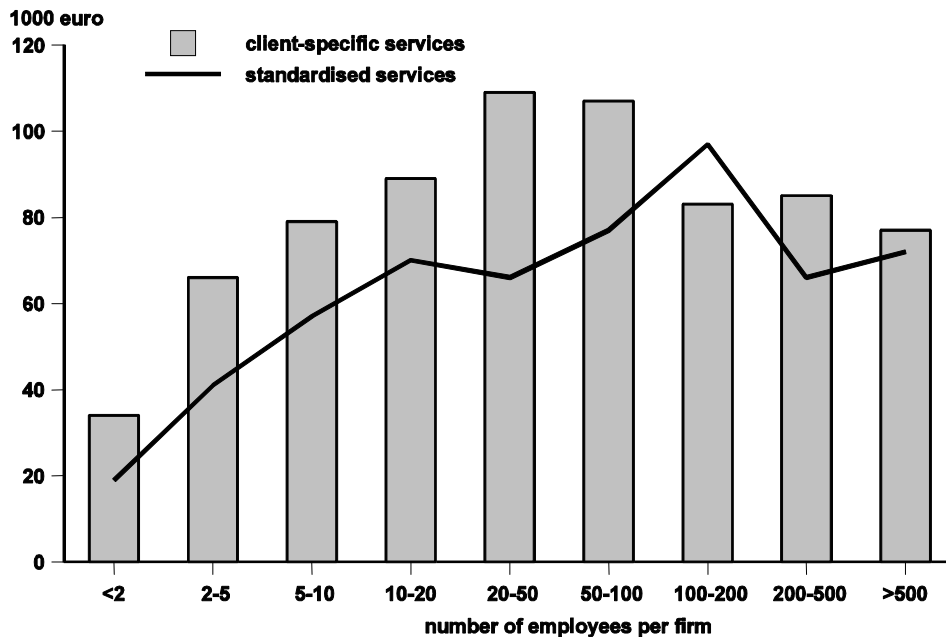
Now, how can this finding be reconciled with the actual firm size distribution? The BS industry is overwhelmingly a small firms industry. Only 6.6% of all 105,000 Dutch BS firms in 2000 had more than ten employees.¹¹ Almost 60% of the firms were self-employed entrepreneurs. In other OECD countries, a similar picture is found. Why do not firms themselves exploit the potential scale economies? One explanation can be found in the influx of many small-scale entrants, such as self-employed consultants. The BS industry counts among the industries with the highest entry rates for new firms, and the share of small firms in the company population is increasing. Since some knowledge-intensive BS sub-sectors are quite 'young', life cycle effects may play a role. Entry in this industry hardly faces any barriers with regard to fixed-capital investment. Also the market condition plays a role here; the very strong market demand for business services created a situation of excess demand in the 1990s, in which competitive pressure was mild and not very selective for new entrants. Daalmans (2003) and Van der Wiel (1999) assessed that new BS entrants on average had a lower productivity level than incumbents, and that it took five to seven years for them to reach the average incumbent's productivity level. Massive entry numbers thus aggravated rather than alleviated this industry's productivity growth problem.

⁹ This pattern persists when productivity is measured as gross value added per full-time labour equivalent.

¹⁰ We estimated translog production functions for 25 sub-sectors at a 5-digit level, for a total of 5700 BS firms, and applied the Ray method for determining the most productive scale size. The results confirm the earlier results on the basis of descriptive statistics. Finally, additional research shows that similar scale effects on productivity can be found in Sweden, France, Belgium and Italy, using New Cronos micro data for (Kox, Van Leeuwen and Van der Wiel 2003).

¹¹ Data: Statistics Netherlands, Statline.

Figure 6 Labour productivity level and firm size in Dutch BS industry, Netherlands 1996



Notes: Productivity levels are measured as turnover per employee. The subsets of client-specific and standardised services firms are distinguished on the basis of the average degree of product differentiation per 5-digit sub-sector. Data source: firm census data (CEREM, Statistics Netherlands).

A further reason for the high incidence of small firms in the BS industry relates to the nature of the competition process in BS markets. Once having entered the market, it is not easy to grow beyond a micro firm size. The pervasiveness of market segmentation (see above) creates a growth hurdle for small and innovative firms that have not yet built up a market reputation.

In the markets for knowledge-intensive business services, a firm's reputation and client goodwill is bound up with the perceived quality of its knowledge assets. But who controls these knowledge assets, and who appropriates their rents? In manufacturing industry, market reputations are often based on firm-owned and law-protected intangible assets (patents, copyrights, brands, trademarks and design licenses). For the BS industry, especially for firms in knowledge-intensive services, the situation is different. A larger part of reputation assets is embodied in the firm's employees, particularly those employees that form the 'face' of the company for the clients. These so-called *key employees* carry and 'own' tacit knowledge and intangible competences, taking the latter home at the end of each working day (Zambon et al. 2003). Since the mobility of this type of employee is rather high, conflicts between service company and service employee regarding claims to intellectual property are likely (e.g. Blind et al. 2003). The relevant knowledge assets and expertise are often client-specific rather than generic in branches like accountancy, software design and

maintenance, legal services, management consultancy, and engineering services.¹² Job activities are implemented at the client's premises rather than at the 'home' office. Key employees often have considerable discretionary decision power about the way they do their jobs. Marginal output increments from their work may be observable only after considerable time lags, if at all. They work under incomplete or inefficient monitoring, and under incomplete contracts. Job complexity and the incidence of contingencies make it virtually impossible for firm owners to write water-tight contracts sealing off all future contingencies (e.g. Foss 1999). For the owner of the services firm, key employees therefore are often monopolist providers of unique labour services. They cannot easily be substituted by other employees, for on-the-job training takes time and money, while changing a familiar face may cost client goodwill. There is always the risk that the key employee quits and starts a business on his own account. Often firm owners in knowledge-intensive BS industries hardly have a choice but to allow the key employees a share in the rents of the reputation assets. On the basis of their strong intra-company bargaining position, key employees may squeeze out part of the service firm's residual profit income in the form of above-average salaries and fringe benefits. For small entrepreneurs, the bargaining position of key employees may form a growth disincentive that outweighs the 'technical' scale advantage associated with increased internal division of labour if market competition is not too strong. Hence, the importance of employee-held reputation assets in knowledge-intensive BS sub-sectors may at least partly explain the prevailing firm-size distribution and the failure of most firms to reach the most-productive firm size.

(C) *Modest process innovation effort inside the BS firms.* While the BS industry has an important role in the innovation process of its clients, there is little indication that it is also innovative with regard to efficiency measures for its own production process. Dutch firm-level data showed that intra-firm innovation has a positive effect on labour productivity growth of BS firms (Van der Wiel 2001). Especially the introduction of non-technological innovations appeared to have a prodigious impact on a firm's labour productivity growth. From the Community Innovation Surveys (CIS) it emerges that an important part of BS firms did not introduce any internal process innovations. CIS results took stock of several factors that may keep firms back from doing more process innovation and eradicate internal X-inefficiencies: risk aspects, financing constraints, and internal resistance.¹³ A shortfall in internal innovation effort may imply that BS providers fail to grasp opportunities to strengthen their own productivity.

So far, three factors have been identified that may have a negative impact on productivity growth in the BS industry: lack of competition, scale disadvantages, and shortfalls in internal process innovation. It can hardly be seen why no improvements would be possible on these three causes for a poor productivity performance. The prime responsibility for this rests with the firms and their industry associations. The productivity impact of the key-employee mechanism could be reduced by giving more attention to internal trainee programmes, knowledge codification, and other forms of knowledge management. Professional and branch associations could play an enabling

¹² Leiponen (2003) found evidence that reliance on tacit knowledge held by individual knowledge workers (rather than by employee teams) hampers the innovation performance of business services firms.

¹³ Cf. Gellatly (1999); Hughes and Wood (1999); Mohnen and Rosa (2000).

role by organising demonstration projects. However, if such initiatives hinge only on motivation and information, then why have companies failed to grasp the available opportunities? Some of the aforementioned solutions seem to be subject to scale thresholds: they may simply fall beyond the reach of the majority of small firms. Structural market failures (cf. Table 5) play a role that differs by BS industry branch, but seem particularly strong in markets for client-specific and knowledge-intensive BS.¹⁴

Table 5 Four types of market failures in business services	
Imperfect competition.	Strong product differentiation ('Balkanisation'), market segmentation and monopolistic competition are prominent market characteristics in branches with knowledge-intensive services.
Information asymmetry	Arises in the market for knowledge-intensive business services due to client uncertainty about product quality. Information asymmetry diminishes market transparency and causes client firms to navigate on vested market reputations. This in turn leads to market segmentation and reduced competition intensity.
Externalities	<ul style="list-style-type: none"> ▶ Arise in relation to the industry's role in innovation and knowledge diffusion. Only part of these positive impacts on client firms can be seized upon by business services firms. The public good character of the transferred knowledge and the risk of imitation (through resigning key employees, or learning-by-looking) limit the possibility of asking prices that correspond with the marginal social benefits. Hence, the supply of such knowledge services is likely to be lower than socially desirable. ▶ The productivity stagnation in business services, and the industry's own inaptitude to overcome it, can be considered as a negative growth externality for the rest of the economy (e.g. European Commission 1997).
Lump-sum information costs	Due to the lump-sum costs of relevant market information small firms in other industries appear to make less use of business services than large firms (e.g. European Commission 2003). This may cause those small firms to remain operating at efficiency levels lower than they would have otherwise.

POLICY OPTIONS FOR STRENGTHENING PRODUCTIVITY AND INNOVATION

This section sketches some policy options for tackling the market failures in the BS industry. Some options may require new policy instruments, while it may be sufficient in other cases simply to refocus existing policies, bringing policy attention for the BS industry more in line with this sector's economic weight and function.

A positive impact on BS productivity performance might be expected from measures that allow firms to benefit more from scale economies. Figure 6 suggests that, given the current small size of the average firm, productivity gains should be achievable. Creating incentives for firms to grow beyond the micro-scale, and thus gain the associated productivity improvements, seems a gainful policy avenue in this industry. Reducing administrative burdens for expanding firms might be a useful step in this regard.

¹⁴ The European Commission in its recent Communication on "the competitiveness of business-related services and their contribution to the performance of European enterprises" very closely follows the analysis adopted here (cf. European Commission 2003). The EU Communication forms kick-off for an EU-wide consultation process that is to result in an action plan for this industry in 2005.

Intellectual property rights such as patents, copyrights and brand names play only a small role in the BS industry. With a keen eye for the potential competition drawbacks of this step, the creation of wider possibilities for intellectual property rights on products and innovations could create a basis for more scale advantages in the business services industry. Consider, for example, patents with short duration for services products. US experiences with patentability of business methods and software could be instructive in this regard.¹⁵ Enhanced possibilities for claiming intellectual property rights on innovative services would also stimulate the innovation process in services. Service firms are under-represented as participants in present innovation policy schemes. Stimulation of innovation in the BS industry might require more policy attention for non-technological innovations.

Market transparency in the BS industry can be improved by removing elements of quality-related information asymmetry. Here a system of voluntary quality certification might be helpful. Suppose individual service providers or service firms can apply for a government-supported quality certificate. Such certificates would reduce quality uncertainty for clients, making it less risky for the latter to opt for certified small firms without an established market reputation. Ambitious and innovative small firms would find it easier to compete in market segments that were once beyond their reach. The literature on market failure (cf. De Bijl and Van Damme 1997) suggests that some government involvement in such certification schemes may be helpful.¹⁶ Another way to reduce information asymmetry is by introducing standard formats or models for certain services. This is a policy avenue which the European Commission intends to explore (European Commission 2003).

Competitiveness would be enhanced by opening up domestic markets for foreign providers. In some branches (like accountancy, tax consultancy, engineering and architectural services) foreign competition still plays a negligible role. While the Dutch market for business services is relatively liberalised compared to other EU countries, many branch-specific regulations still effectively block foreign market access (EU 2002). Widely diverging national market rules among EU countries may create prohibitive information costs for medium-sized firms that could otherwise have embarked on export activities. Harmonisation of EU market rules in the BS industry, and mutual recognition of national quality standards, will lower transaction costs and create growth incentives for individual firms, leading to overall welfare gains.

CONCLUSIONS

Having an expanding BS industry does not automatically propel the Dutch economy and other OECD economies onto the path of the Baumol disease. In order to assess the net contribution of the BS industry to macroeconomic productivity growth, we must also account for the industry's indirect productivity effects. The latter (innovation, knowledge diffusion) run through client industries and are mainly positive.

¹⁵ Since 1998, the US Patent Office grants more than 800 patents on business methods, and more than 20,000 software patents each year. Also Japan has a more permissive stand towards software patents than the EU (OECD 2003a).

¹⁶ Thus preventing a proliferation of parallel quality labels, and a trade in certificates. Government involvement, e.g. in co-operation with BS industry associations, may uphold quality standards and facilitate European harmonisation.

Nonetheless, the stagnating productivity growth in the business services industry itself is a matter for concern. The most promising policy options tackle the root causes for the weak productivity record. Stimulate innovation, increase the transparency of the industry's markets, and elicit more foreign competition: these measures will bolster the productivity contributions of business services.

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