Growth challenges for the Dutch business services industry: International comparison and policy issues

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Preface

The present study is about one of the growth engines of the Dutch economy during the 1990s, namely the business services industry. Between 1990 and 2000, the business services industry alone contributed 23 per cent of value-added growth, and 31 per cent of employment growth of the total Dutch market sector. As a consequence of the prodigious growth process, business services (including the temporary work agencies) now employ more people than manufacturing. The mere size of business services industry entails that its structural characteristics may get macroeconomic implications. Future technological development may strategically depend on innovation in business services branches like software production, engineering, and R&D institutes.

CPB initiated a study on the growth characteristics and prospects of the business services industry. Will this industry continue to be an engine of growth? Why is this industry's labour productivity growth lagging behind the rest of the market sector? What can we learn about Dutch business services industry by comparing it with its counterparts in other countries? What policy options are available to improve its overall welfare contribution?

The present study, written by Henk Kox, provides an extensive summary of the research findings. CPB is grateful to a panel of outside experts with representatives from the industry, policy and research for their comments and suggestions on a previous version of this study.[1] Special thanks go to Marcel Braakman, Maarten Cornet, Pim den Hertog, Frans Suijker, Sander Wennekers, Henry van der Wiel, and in an earlier stage, Kees Burk for their detailed comments. Several others persons gave useful comments on specific parts or background papers. Fred Kuypers provided his appreciated assistance with parts of the statistical data and the graphs. The study benefitted from discussions with participants of seminars given at CPB, at the Economics Department of Groningen University, and at the Centre for Economic and Business Research in Copenhagen.

Henk Don,
Director CPB

[1] Annex XI gives the composition of the external experts committee.

Executive summary (in Dutch)

Deze studie onderzoekt de oorzaken en kenmerken van de zeer sterke groei van de zakelijke dienstverlening in Nederland. Wat voor macro-economische doorwerking heeft deze groei? Blijft deze bedrijfstak ook in het komende decennium een groeimotor voor de Nederlandse economie? Welk beleidsopties zijn er ter vergroting van de welvaartsbijdrage van de zakelijke dienstverlening? De studie vergelijkt de Nederlandse zakelijke dienstverlening met die in het buitenland om zicht te krijgen op de specifieke sterke en zwakke punten.

Achtergrond van de studie

De zakelijke dienstverlening omvat verschillende branches, uiteenlopend van softwarehuizen, beveiligingsbedrijven, tot ingenieursbureaus en schoonmaakbedrijven. Volgens de internationale definities horen ook de uitzendbureau's tot de zakelijke dienstverlening. Al deze branches hebben gemeen dat ze hun diensten hoofdzakelijk aan andere bedrijven leveren. De zakelijke dienstverlening is één van de snelst groeiende bedrijfstakken in Nederland. Inclusief het uitzendwezen telt de sector meer werknemers dan de gehele industrie. Nu de sector qua omvang zo groot is geworden, krijgt zijn verdere ontwikkeling steeds meer een macro-economisch belang.

De studie onderzoekt de groeivooruitzichten van de zakelijke dienstverlening, en de mogelijkheden om de ontwikkeling in deze sector zo te beïnvloeden dat deze optimaal bijdraagt aan de toekomstige welvaart. Gekozen is voor een internationaal vergelijkende studie om de specifieke sterkten en zwakten van de bedrijfstak in Nederland beter in beeld te krijgen.[2] Dit rapport vat alle onderzoeksresultaten samen.

Welke factoren bepaalden de groei van de zakelijke dienstverlening?

Uitbesteding van dienstenactiviteiten door andere bedrijven vormde de belangrijkste bron van groei voor de zakelijke dienstverlening sinds medio jaren 80. Het aandeel van de zakelijke diensten in de totale intermediaire leveringen (van bedrijven aan bedrijven) is op markante wijze toegenomen. In vergelijking met de benchmarklanden was daarbij in Nederland sprake van een inhaaleffect. Sinds het midden van de jaren tachtig is de aard van de uitbesteding gestadig veranderd. Aanvankelijk was de uitbesteding vooral puur vervanging van intern geproduceerde relatief eenvoudige diensten door die van externe bedrijven. Gaandeweg is het accent steeds meer verschoven naar kwaliteitsverbetering, specialisatie en kennisintensivering van de uitbestede diensten. Dit gebeurde zowel bij bedrijven als bij de overheid. Productinnovaties en technologische veranderingen leverden eveneens een bijdrage aan de groei. Vanaf de tweede

[2] De benchmarklanden zijn: België, Frankrijk, Duitsland, Verenigd Koninkrijk, de Verenigde Staten, Denemarken en Finland. Incidenteel worden ook enkele andere landen in de vergelijking betrokken.

helft van de jaren negentig waren het vooral de leveranciers van kennisintensieve zakelijke diensten die het meest van de uitbestedingstrend profiteerden.

Niet alleen de intermediaire vraag verklaart de groei van de zakelijke dienstverlening, ook de finale vraag (consumptie, investeringen en export) droegen daaraan bij. Vooral het aandeel van software en ICT-gerelateerde diensten in de finale vraag nam toe.

Tenslotte, de groei van de werkgelegenheid in de zakelijke dienstverlening wordt mede verklaard doordat de productiviteitsgroei in deze sector achterblijft bij de rest van de marktsector. Per eenheid product zijn daardoor verhoudingsgewijs meer werknemers nodig.

Kenmerken van de bedrijfstak zakelijke dienstverlening

De zakelijke dienstverlening is bij uitstek het domein van kleine bedrijfjes. Liefst 58 procent van de bedrijven had in 2000 geen werknemers, en nog eens 30 procent had minder dan 5 werknemers. Het aandeel van de microbedrijven neemt eerder toe dan af. De zzp-er, de zelfstandige zonder personeel, is een vertrouwd fenomeen geworden in de sector. Het aandeel van startende ondernemingen in de zakelijke dienstverlening is hoger dan in andere bedrijfstakken. Dat voor de opstart van een nieuw bedrijf weinig vaste investeringen vereist zijn, vergemakkelijkt de toestroom van jonge, kleine bedrijfjes.

Een deel van zakelijke dienstverlening kent tamelijk gestandaardiseerde producten. Dat geldt bijvoorbeeld voor de meeste bedrijven in industriële reiniging en bedrijfsbeveiliging. Tot circa 1993 was de groei van de zakelijke dienstverlening sterk gelokaliseerd in branches met gestandaardiseerde dienstenproducten. Sindsdien wordt de groei van de zakelijke dienstverlening met name bepaald door de branches met kennisintensieve en vaak klantspecifieke producten. Hiertoe behoren o.a. de software-ontwikkelaars, ingenieursbureau's, economische adviesbureau's, advocatenkantoren en marketingbureau's. Sommige van hun dienstenproducten zijn relatief nieuw en zitten aan de beginfase van de levenscyclus.

Op markten voor kennisintensieve zakelijke diensten hebben kopers te maken met kwaliteitsonzekerheid, ook wel aangeduid met asymmetrische informatie. Dat hangt samen met het kenniskarakter van de producten. Klantbedrijven hebben vooraf geen zekerheid over de kwaliteit van het te leveren product; het zijn *vertrouwensgoederen*. Aan de vraagkant van de markt wordt dit opgelost door sterk te navigeren op bestaande marktreputaties. Een bedrijf met gerenommeerde klanten dat gisteren een goed product leverde, wordt geacht dat morgen weer te doen. Aan marktreputaties zit ook een regionaal aspect. Kleine bedrijfjes hebben vaak vooral lokale reputaties in een beperkte kring van klanten. Het belang van de marktreputaties leidt tot sterke marktsegmentatie. Niet ieder bedrijf in een branche concurreert met alle branchegenoten. De grote toestroom van kleine bedrijfjes hoeft daarom niet te leiden tot een toename van de algemene competitiviteit. Concurrentie vindt vooral plaats per segment. Het klantspecifieke karakter van de diensten en het bestaan van omschakelkosten aan de zijde van de klanten

(geïnvesteerde tijd en energie) kunnen zorgen voor monopolie-achtige situaties, waardoor de prijsconcurrentie minder sterk is.

Buitenlandse concurrentie in de zakelijke dienstverlening komt deels via import, deels door de binnenlandse vestigingen van multinationale ondernemingen. Beide facetten van buitenlandse concurrentie zijn groeiende in Nederland. Buitenlandse concurrentie concentreert zich veelal op de marktsegmenten waarin de grotere ondernemingen opereren.

De onvolledige mededinging in veel deelmarkten voor kennisintensieve zakelijke diensten impliceert dat de prikkel tot verhoging van efficiëntie en arbeidsproductiviteit minder groot is. Een deel van de kleine ondernemers in de zakelijke dienstverlening (vooral de zzp-ers) heeft er bewust voor gekozen zijn onderneming klein te houden. Deze ondernemers verdienen in hun eentje vaak een aardig inkomen en willen niet de sores die samenhangen met het hebben van personeel.

Marktreputaties zijn vooral gebaseerd op de kwaliteit van de geleverde kennisinputs. Een groot deel van de kennisactiva is persoons- in plaats van ondernemingsgebonden, en eerder (klant-) specifiek dan generiek. Dit werkt door in de arbeidsverhoudingen. De kennisintensieve zakelijke dienstverlening heeft soms te maken met sleutelwerknemers die een grote rol spelen voor de marktreputatie van ondernemingen. Zij kunnen relatief gemakkelijk hun kennis meenemen en eventueel voor zichzelf beginnen. Hun activiteit vinden bovendien vaak buitenshuis plaats en zijn moeilijk te monitoren. Dergelijke sleutelwerknemers ontlenen aan hun positie een sterke onderhandelingspositie, goede arbeidsvoorwaarden, en vaak – impliciet of expliciet – een deel van de winst. Het fenomeen sleutelwerknemer drukt de optimale schaalgrootte. Voor de ondernemer kan het verwachte marginaal product van een extra sleutelwerknemer te gering zijn om uitbreiding voor hem (of haar) aantrekkelijk te maken.

Sterktes en zwaktes van de Nederlandse zakelijke dienstverlening

De sterktes van de Nederlandse zakelijke dienstverlening liggen vooral op het gebied van zijn dynamiek en openheid.

De Nederlandse sector groeide het afgelopen decennium zowel in werkgelegenheid als in toegevoegde waarde harder dan in alle benchmarklanden. De groeiranglijst blijft hetzelfde ongeacht of de uitzendbranche wordt meegenomen of niet. Deze formidabele groeiprestatie lijkt voor een belangrijk deel te zijn veroorzaakt door een inhaaleffect. In 1990 gebruikten Nederlandse bedrijfstakken per eenheid product gemiddeld minder zakelijke diensten dan hun counterparts in vier benchmarklanden. Vooral de Nederlandse dienstensectoren bleven in dit opzicht achter bij het buitenland. In 1998 echter was Nederland qua gemiddeld gebruik van zakelijke diensten per eenheid product opgeschoven naar de tweede plaats, na het Verenigd Koninkrijk, maar vóór de Verenigde Staten. Vooral het verbruik van zakelijke diensten in de Nederlandse dienstensectoren is spectaculair toegenomen. Met een goeddeels uitgeput

inhaaleffect zal het in de toekomst voor de Nederlandse zakelijke dienstverlening moeilijker worden om dezelfde hoge groeicijfers te halen als in het recente verleden.

De Nederlandse markt voor zakelijke dienstverlening behoort tot de meest open markten in de EU. Buitenlandse leveranciers blijken Nederland en Ierland als de meest open markten voor zakelijke diensten te beschouwen.[3] Afgezet tegen de binnenlandse productie, liggen export en import van zakelijke diensten in Nederland hoger dan in de meest benchmarklanden. Ook buitenlandse investeerders in de zakelijke dienstverlening weten de weg naar Nederland steeds makkelijker te vinden, wat zich uit in een stijgend buitenlands aandeel in de sectorale investeringen. Hetzelfde geldt voor het aandeel van directe investeringen door Nederlandse bedrijven in het buitenland. De meertaligheid van Nederlandse werknemers lijkt in dit geheel een belangrijke rol te hebben gespeeld.

Relatieve zwakten van de Nederlandse zakelijke dienstverlening zijn de achterblijvende productiviteitsgroei, de krappe arbeidsmarkt voor gekwalificeerd personeel, en de magere innovatie-inspanningen door de sector zelf.

Een vertraging in de productiviteitsgroei bij de zakelijke dienstverlening deed zich in alle benchmarklanden voor gedurende de jaren negentig. Deze vertraging hing mede samen met de sterke groei van de die branches waar kennisintensieve zakelijke diensten worden geproduceerd op een veelal kleinschalige basis met een zeer hoge mate van productdifferentiatie (vaak klantspecifiek). Vergeleken met de benchmarklanden zat Nederland qua groei van de arbeidsproductiviteit weliswaar niet in de bezemwagen, maar wel achterin het peloton. Een mogelijke verklaring is dat het selectie-effect van de concurrentie in de afgelopen periode in Nederland slechter werkte dan elders, juist vanwege de onstuimige groei van de productie en de vraag naar zakelijke diensten. Typisch voor Nederland is dat het productiviteit*niveau* in de kennisintensieve zakelijke diensten het hoogst is van alle Europese benchmarklanden, terwijl de gestandaardiseerde zakelijke diensten in Nederland juist onderaan de Europese productiviteitsladder zitten. Nergens is de productiviteitskloof tussen beide delen van de bedrijfstak zo groot. Daar komt bij dat het werkgelegenheidsaandeel van de gestandaardiseerde zakelijke diensten in Nederland hoger is dan in andere Europese benchmarklanden.

Nederlandse zakelijke dienstverleners geven meer dan in andere EU-landen aan dat het tekort aan hoog opgeleid personeel een bottleneck vormt voor innovatie en groei. In een Europese innovatie-enquête scoorden de Nederlandse zakelijke dienstverleners laag op het punt van uitgaven voor R&D en andere innovatieve inspanningen.

[3] Niettemin resteren nog tal van branchespecifieke regels die markttoetreding door buitenlandse concurrenten afremmen.

Toekomstscenario's Nederlandse zakelijke dienstverlening

Gelet op de onzekerheden is gebruik gemaakt van scenario-analyse. Een optimistisch en een pessimistisch scenario zijn uitgewerkt. Elk van de scenario's kan worden gelezen als een samenhangend beeld van mogelijke toekomstige bedrijfstakontwikkelingen.

De ontwikkeling van de nationale economie vormt de algemene achtergrond voor beide scenario's. Zij wordt voor het overgrote deel bepaald door factoren buiten de Nederlandse zakelijke dienstverlening. Met terugkoppelingseffecten is echter rekening gehouden. Hoe de ontwikkeling in de zakelijke dienstverleningen zal afwijken van het algemene pad van de Nederlandse economie hangt af van een aantal drijvende krachten: technologische verandering, trends op het gebied van uitbesteding van diensten, internationalisatie, institutionele veranderingen, en structurele veranderingen op de arbeidsmarkt. Uiteraard kunnen ook beleidsmaatregelen van invloed zijn, maar daarmee is niet specifiek rekening gehouden.

In beide scenario's wordt de productiegroei van de zakelijke dienstverlening lager dan deze in het recente verleden was. Tussen 1996 en 2000 bedroeg deze 6,6% per jaar. In het lage scenario komt de groeivoet voor de periode 2001-2010 uit op slechts de helft daarvan, maar ook in het hoge scenario blijven, ondanks zijn optimistische aannames, de groeicijfers onder de 6%. De lagere groei van het BBP, o.a. door demografische redenen, vormt de hoofdoorzaak. In het pessimistische scenario blijft de Nederlandse bedrijfstak qua productiviteitsgroei in de internationale achterhoede. In het optimistische scenario schuift op naar een Europees gemiddelde, vooral dankzij schaalvergroting, efficiëntieverhogende ICT-toepassingen en een afnemend aandeel van de laagproductieve gestandaardiseerde branches binnen het totaal van de zakelijke dienstverlening.

Invloed van zakelijke dienstverlening op macro-economische groeipotentieel

Er moet een onderscheid gemaakt worden tussen de directe en de indirecte bijdrage van de sector aan de macro-economische groei. Van groot belang, maar moeilijker te kwantificeren, zijn de indirecte, via de klanten verlopende bijdragen aan de economische groei.

De directe groeibijdrage is verbonden met de snelle groei van de zakelijke dienstverlening zelf. Tussen 1990 en 2000 was deze goed voor een kwart van de groei van de toegevoegde waarde, en één derde van de werkgelegenheidsgroei in de Nederlandse marktsector. Een dergelijke dynamiek werd alleen in de Verenigde Staten benaderd.

Een eerste indirect effect is dat de kennisintensieve zakelijke dienstverlening meer arbeidsspecialisatie mogelijk maakt in de sfeer van kennis en menselijk kapitaal, met macro-economische efficiëntiewinst. De zakelijke dienstverlening draagt bij aan het verminderen van schaalnadelen op het kennisvlak. Kleine en middelgrote bedrijven krijgen toegang tot specialismen die voorheen voornamelijk waren voorbehouden aan de grotere concerns.

Een tweede indirecte groeibijdrage ligt op het terrein van innovatie en kennisdiffusie. High-tech branches als softwarehuizen en ingenieursbureau's spelen met eigen innovaties een

belangrijke eigen rol in het nationale innovatiesysteem. Men draagt bij aan technologische innovaties en aan niet-technologische vernieuwing. Een belangrijk deel van de kennisintensieve zakelijke dienstverlening is vooral actief op het gebied van kennisdiffusie. Deze dienstverleners komen in tal van bedrijven, conceptualiseren gelokaliseerde kennis, en distilleren *best practice* informatie die vervolgens als input wordt gebruikt bij volgende klantbedrijven. Via hun klanten dragen de zakelijke dienstverleners op tal van competentieterreinen– van personeelsbeleid, automatisering, organisatiestructuur, productontwerp, tot en met marketing en inkoopbeleid – bij aan vernieuwing en aan verbetering van de efficiëntie. Macro-economisch levert dit welvaartswinsten op.

Niet alles is echter koek en ei. Gelet op het toenemende gewicht van de zakelijke dienstverlening in de totale economie, zijn de povere prestaties op productiviteitsgebied reden voor enige zorg. Tussen 1995 en 2000 droeg het IT-deel van de zakelijke dienstverlening daaraan positief bij aan de macro-economische productiviteitsontwikkeling, maar voor het niet-IT deel van de zakelijke dienstverlening was de bijdrage negatief. Met een vergrijzende bevolking en een dalende arbeidsaanbod, zal de toekomstige economische groei in Nederland echter steeds meer afhangen van productiviteitsverbetering.

Wat er zou gebeuren wanneer de zakelijke dienstverlening met een stagnerende productiviteitsgroei een steeds groter gewicht krijgt in de totale economie, is door middel van een simulatiemodel onderzocht. Een eerste resultaat is dat zakelijke diensten ten opzichte van de meeste andere producten en diensten steeds duurder zullen worden. Voor het effect op de macro-economische productiviteitsontwikkeling is vooral van belang in welke mate de stagnerende productiviteit in de zakelijke dienstverlening zelf wordt gecompenseerd door indirecte, via klanten verlopende productiviteitseffecten.

De markt laat mogelijkheden tot welvaartsverbetering liggen

De vraag rijst of de stagnerende productiviteitsgroei in de zakelijke dienstverlening als een technologisch *fait accompli* moet worden beschouwd. Daarvan lijkt vooralsnog geen sprake. De productiviteitsgroei wordt negatief beïnvloed door gebrekkige marktwerking, kleinschaligheid, en wellicht ook door achterblijvende innovatie-inspanning. Op elk van deze punten zijn verbeterslagen te maken, door de sector of via overheidsbeleid. Zakelijke dienstverleners en hun branche-organisaties hebben zelf mogelijkheden om de productiviteitsprestaties te verbeteren. Zo kan men het productiviteitsdrukkende effect van het sleutelwerknemermechanisme terugdringen door het opzetten van interne traineeprogramma's, het vastleggen van kennis en andere vormen van kennismanagement. Demonstratieprojecten van de branche-organisaties op gebied van productiviteitsverbeterende maatregelen of kennismanagement kunnen een positieve rol spelen. Op deze terreinen liggen nog onbenutte kansen.

Dat de mogelijkheden tot productiviteitsverbetering tot dusverre onderbenut bleven, heeft te maken met structurele factoren. Schaaldrempels vormen wellicht een obstakel bij enkele van de

genoemde potentiële oplossingen voor het bedrijfsleven zelf. Daarmee vallen ze buiten het bereik van de meeste kleine bedrijven in de sector. Het gebrekkig functioneren van markten voor zakelijke diensten vormt een tweede structurele oorzaak waarom de productiviteit-problemen nog slechts ten dele door de sector zelf zijn opgelost.

Drie dominante typen van marktfalen spelen een rol in de zakelijke dienstverlening: het bestaan van marktmacht, onzekerheid over de kwaliteit van de dienstverlener en zijn diensten, en het optreden van externaliteiten. Op elk ervan wordt kort ingegaan.

De werking van het prijsmechanisme in de markt voor zakelijke diensten wordt belemmerd door het bestaan van marktmacht. Sterke productdifferentiatie, marktsegmentatie en monopolistische concurrentie karakteriseren de branches met kennisintensieve zakelijke diensten. Prijsconcurrentie speelt een ondergeschikte rol. In branches met gestandaardiseerde zakelijke diensten is meer prijsconcurrentie, maar hier speelt een rol dat een handvol ondernemingen veelal een groot gezamenlijk marktaandeel controleert.

Het bestaan van informatie-asymmetrie vormt een volgende reden waarom een puur marktgestuurde ontwikkeling van de bedrijfstak niet tot optimale maatschappelijke resultaten hoeft te leiden. Zoals al geschetst, leidt dit tot marktsegmentatie en gelimiteerde concurrentie. Beide werken ten nadele van kleine bedrijven en nieuwkomers. Zo kon het gebeuren dat de grote instroom van nieuwe bedrijven weinig invloed had op winstmarges, kostenniveaus en efficiëntie van de gevestigde ondernemingen.

Positieve externaliteiten ontstaan door de rol van de zakelijke diensten bij innovatie en kennisdiffusie. Slechts een deel van deze positieve uitstralingseffecten kan door de bedrijven in de zakelijke dienstverlening worden toegeëigend. Intellectuele eigendomsrechten op niet-technologische innovaties in de dienstensector zijn zwak ontwikkeld. Een eigen innovatie die bij een klant wordt toegepast, kan vaak zonder veel problemen door derden worden gekopieerd. Door dit weglek-effect is de prikkel om te innoveren zwakker dan hij zou kunnen zijn, waardoor ook het aanbod van innoverende en kennisverbreidende zakelijke diensten waarschijnlijk lager is dan het zou kunnen zijn.

Beleidsopties voor de periode tot 2010

In 2010 zal de zakelijke dienstverlening een fors aandeel hebben in de totale Nederlandse economie. Dit rechtvaardigt extra beleidsaandacht voor het repareren van de dominante vormen van marktfalen in deze bedrijfstak. Na 1980 trok de Nederlandse overheid zich stelselmatig terug uit sectorgericht beleid. De nadruk verschoof van directe interventie naar het verbeteren van marktwerking en deregulering. Branches in de zakelijke dienstverlening, zoals het uitzendwezen, profiteerden direct van deze verschuiving.

De hier te bediscussiëren beleidsopties sluiten aan bij de ingezette beleidsrichting, en vragen in de meeste gevallen geen nieuw instrumentarium. Vaak zou het al helpen wanneer bestaand beleid iets wordt toegespitst of geïntensiveerd, rekening houdend met het economische gewicht en de karakteristieken van de zakelijke dienstverlening. Overigens geldt bij alle te noemen beleidsopties dat aanvullend onderzoek nodig zal zijn om de risico's van overheidsfalen te verminderen. Een analyse van maatschappelijke kosten en bate is daarbij de aangewezen methode. Het rapport identificeert beleidsopties die aangrijpen bij de gesignaleerde vormen van marktfalen in de zakelijke dienstverlening, en die de welvaartsbijdrage van deze bedrijfstak mogelijkerwijze kunnen vergroten in het komend decennium. Meer specifiek kunnen een viertal terreinen met beleidsopties genoemd worden:

- direct productiviteitsgerichte maatregelen;
- het vergroten van de markttransparantie;
- het versterken van de buitenlandse concurrentie; en
- het versterken van de innovatie-impulsen.

Productiviteitsverbetering zou vooral kunnen worden bereikt door maatregelen die bedrijven in de sector in staat stellen om meer schaalvoordelen te behalen. Zowel in Nederland als in andere EU-landen blijkt de gemiddeld arbeidsproductiviteit per onderneming op te lopen met de gemiddelde ondernemingsomvang. In Nederland is de productiviteit is het hoogst in ondernemingen met 20–50 werknemers (in klantspecifieke zakelijke diensten), of zelfs 100–200 werknemers (gestandaardiseerde zakelijke diensten). Gelet op de veel kleinere omvang die de gemiddelde onderneming in de sector nu heeft, valt hier nog een forse slag te maken. Dit suggereert dat de beleidsaandacht wat zou moeten verschuiven van starters-problematiek naar maatregelen die ondernemingen prikkelen door te groeien voorbij de huidige micro-omvang. Ook het wegnemen van regels die doorgroei van ondernemingen bemoeilijken, kunnen in dit verband een positieve rol spelen.

Schaaleffecten zijn gerelateerd aan vaste kosten, en de potentieel belangrijkste vaste activa in de zakelijke dienstverlening zijn van immateriële aard (reputatie, expertise, kennis, copyrights, merknaam, innovatiepotentieel, patenten). Zulke immateriële activa kunnen de kristallisatiekern vormen zijn voor schaalvoordelen. Te bezien valt – op basis van een analyse van de maatschappelijke kosten en baten – of het zin heeft bedrijven meer mogelijkheden te geven om intellectuele eigendomsrechten te claimen op innovaties en gecodificeerde, zelfontwikkelde kennis. In de discussie rond de EU- harmonisatie van nationaal patentrecht zou onderzocht kunnen worden of het patenteren van dienstenactiviteiten, eventueel via patenten met een kortere looptijd dan huidige patenten, haalbaar en gewenst is.

Het verder openen van de binnenlandse markt voor buitenlandse leveranciers van zakelijke diensten kan tot meer concurrentie en efficiëntiedruk leiden.

Markttransparantie kan worden verbeterd door het opzetten van een stelsel van vrijwillige kwaliteitscertificatie van ondernemingen en/of individuele dienstenleveranciers. Dergelijke certificering reduceert marktfalen als gevolg van asymmetrische informatie. Het verkleint de rol van marktreputaties en zal vervolgens tot ontschotting van de concurrentie leiden. Dit is speciaal in het voordeel van kleine innovatieve ondernemingen. De literatuur over marktfalen suggereert dat de overheid betrokken zou moeten zijn bij een dergelijk certificatiesysteem. Bekeken kan worden of markttransparantie ook verbeterd kan worden door een beter systeem van productaansprakelijkheid voor zakelijke diensten.

Grote internationale verschillen en ondoorzichtigheid van nationale marktregulering in de zakelijke dienstverlening leiden tot informatiekostenbarrières, wat speciaal in het nadeel werkt van kleine en middelgrote ondernemingen. Van actieve steun voor harmonisatie in Europees verband mogen welvaartswinsten verwacht worden. Datzelfde geldt voor het kritisch screenen van nationale regels die wellicht onbedoeld en onnodig buitenlandse concurrentie in de zakelijke dienstverlening afremmen. Een en ander kan een mooie opmaat vormen tot een nieuw en uitgebreider WTO-akkoord voor de dienstenhandel. In verscheidene branches speelt buitenlandse concurrentie nu nog nauwelijks een rol.

De EU streeft ernaar, zoals verwoord in de Lissabon Verklaring, om Europa in 2010 te maken tot de meest dynamische en meest concurrerende kenniseconomie. De zakelijke dienstverlening is uitgegroeid tot een kernspeler in de kennisinfrastructuur. Het ‘Lissabon-doel’ is gebaat bij maatregelen die deze kernspeler vitaal en alert houden.

De innovatie-inspanningen van zakelijke dienstverleners zullen waarschijnlijk toenemen , wanneer meer mogelijkheden worden geschapen om via intellectuele eigendomsrechten de resultaten van de innovaties toe te eigenen. Dit kan zowel voor technologische innovaties als voor niet-technologische vernieuwingen gelden.

De prikkel tot investeren in innovatie door de zakelijke dienstverleners zelf kan versterkt worden door het scheppen van faciliteiten voor het vernieuwen en onderhouden van de cruciale kennisactiva in de bedrijfstak. Generieke maatregelen die het aanbod van hoger opgeleiden en ICT-educatie verbeteren, zullen een relatief sterk effect hebben op de zakelijke dienstverlening.

Speciale aandacht is nodig voor de grote meerderheid van kleine bedrijfjes. Zij worden vaak volledig geabsorbeerd door lopende klussen en hebben weinig ruimte voor intellectueel bijtanken. Op termijn is dit een bedreiging voor de innovatiecapaciteit. In dit verband zou nog eens goed gekeken kunnen worden naar mogelijkheden tot verruiming van faciliteiten voor bijscholing, met name voor de kleine ondernemingen in de zakelijke dienstverlening. Wellicht kunnen de behoeften en effecten op dit terrein worden gesondeerd via enkele kleinschalige experimenten.

Kleine ondernemingen blijken in Nederland relatief weinig gebruik te maken van zakelijke dienstverleners, wellicht als gevolg van schaalnadelen en onzekerheid over de kwaliteit van de diensten. Daarmee lopen zij potentiële vernieuwingen mis. Onderzocht zou kunnen worden of het maatschappelijk waardevol is om inschakeling van zakelijke dienstverleners door kleine bedrijven met fiscale faciliteiten of subsidies te stimuleren.

1 Introduction

This report presents the results of a forward-looking research project on the growth of the business services industry. It pinpoints the strengths and weaknesses of the Dutch business services industry. Future growth prospects are analysed through a scenario analysis. The study identifies important policy questions related to the future contribution of business services to economic growth in the Netherlands.

1.1 Research questions

International benchmarking studies for specific industries received a priority mark in the multi-annual CPB research programme of 1998. The business services industry was chosen as one of the pilot studies. Four research questions have guided this project on the business services industry:

- Which factors caused the fast structural growth of business services industry?
- How does the growth of business services industry affect the macro-economic growth potential?
- What are the growth perspectives of the Dutch business services industry, in view of its internationally comparative strengths and weaknesses?
- Which policy areas are crucial for fostering growth of the Dutch business services industry?

1.2 Background of the study

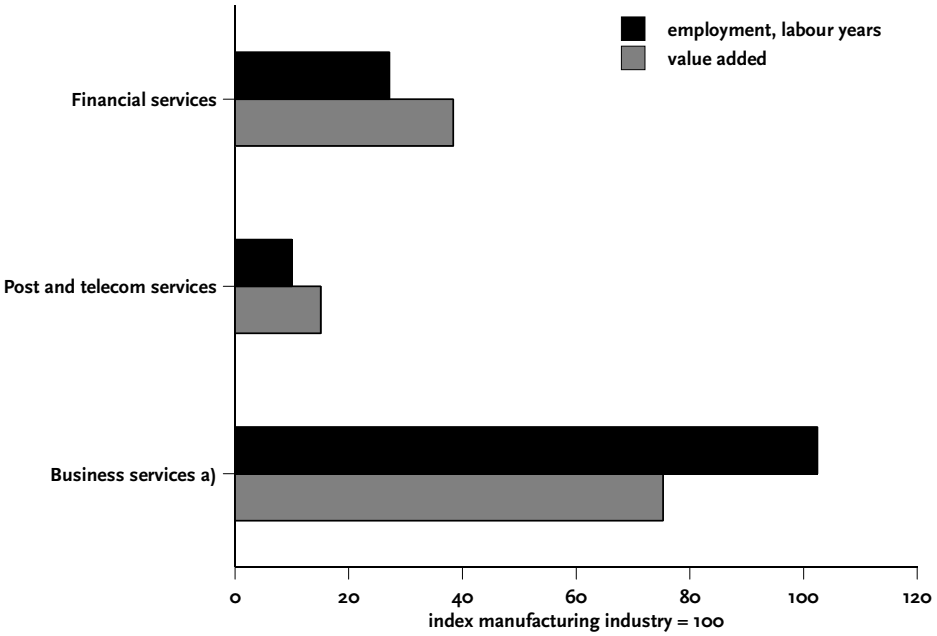
Interest for the BS industry in economic theory is relatively new. The surge in attention is to a large extent a side-product of structural change in the economy. Nineteenth century classical economists like Smith and Ricardo used to regard services as an unproductive activity having more to do with distribution and consumption of wealth than with production of wealth. An exception was sometimes made for transport. The implicit association of production with material goods production disappeared with the ascent of neoclassical economic theory since the early 1870s. But in the century to follow, theoretical interest for growth contributions of the services sector was only allotted in a step-motherly way. A gap remained between theoretical acknowledgement that value could be created through material and non-material production, and empirical treatments in which the emphasis remained on material production.

This dichotomy was seriously challenged when Colin Clark in 1938 pointed out that no less than 50 per cent of the British and US labour populations worked in professions other than mining, agriculture, manufacturing and crafts.[1] He framed the catchword “tertiary production” for this no longer negligible category, but still it was treated as a heterogeneous residual of goods production.

[1] Clark (1938). Cf. Fisher (1939) on the then contemporary debate on the growth of services.

Thirty years later, Baumol pointed out that growth of the services sector could be a drag on macroeconomic growth, because it has a limited potential for productivity increase.[2] Ensuing discussion soon led to the conclusion that at least an analytical distinction had to be made between government services, consumer-oriented market services and producer-oriented market services. Theoretical interest for producer services as a specific economic sector thus dates back from the 1970s.[3] It was not before another decade had passed that business services - a sub-set of producer services - got any real theoretical and empirical appreciation. The interest was triggered by the industry's high growth rates and the complexity of its relationship with

Figure 1.1 Size of BS industry and other producer services, relative to manufacturing industry, the Netherlands 2000



[a] Including temporary work agencies and environmental services to companies

Business services industry was an engine of growth for the Dutch economy between 1990 and 2000. This industry contributed no less than 23 per cent of value-added growth, and 31 per cent of employment growth in the total Dutch market sector. At present it represents a large part of the Dutch economy, as shown in Figure 1.1.

outsourcing, innovation and productivity tendencies elsewhere in the economy. Moreover, the high rate of human capital input in business services made the industry an interesting case from the perspective of modern growth theory and the economics of technical change.

[2] Baumol (1967).

[3] Browning and Singelmann (1978) came up with a useful disaggregation of tertiary services, distinguishing four categories: distributive services (trade, transport and communication), producer services (banking, insurance, business services), social services (government, health, education, non-profit organisations) and personal services.

The business services industry includes the software sector and several other sectors that produce knowledge-intensive inputs for other industries. Especially these knowledge-intensive business services are widely regarded as strategically important for innovation and for the transition to a knowledge-based economy. An important question is whether the remarkable growth performance of the 1990s was a one-time-only shift in economic structure, or whether it will remain a lasting element of economic growth in the next 5 to 10 years.

The study was conducted as an international benchmarking study, in which the performance of Dutch business services industry was compared with counterparts in a number of OECD benchmark countries.[4] The comparison allows the identification of commonalities, national particularities, strengths and weaknesses. Benchmarking also generates a better understanding of growth-enhancing and growth-retarding policies. Results of this project underpinned the industry-level analysis in CPB's most recent medium-term growth scenarios.[5] This international benchmark study on the business services industry was a pilot study, and it will be evaluated with a view to future CPB industry studies.

1.3 Structure of this report

Throughout this report, business services industry will be abbreviated as BS industry. Individual sectors within the business services industry (e.g. software development, tax consultancy) will be adduced to as BS branches.

The first two chapters present the main findings from previous progress reports in this project. Chapter 2 disentangles the factors behind the very strong structural growth of BS industry during the past decade. It also shows typical aspects of the growth process in the BS industry, particularly the role of product differentiation, market segmentation and internationalisation.

Chapter 3 deals with the contribution of the BS industry to macro-economic growth. The growth contribution is related to vertical fragmentation of value-added chains, dissemination of best-practice knowledge and innovations, and to the poor productivity performance of BS industry itself. Simulation modelling is used to assess BS industry's contribution to future macro-economic growth.

Chapter 4 compares the performance and structure of the Dutch BS industry with the OECD benchmark countries. It assesses the relative strengths and weaknesses of Dutch BS industry.

[4] Earlier research papers appeared on competition structure and labour productivity development in BS industry (Kox 2000), sources of growth for the BS industry (Kox 2001a) and on the role of international competition and trade regulation in the growth process (Kox 2001b).

[5] Cf. CPB (2001).

Chapter 5 uses trend projections and scenario analysis to determine growth perspectives of the Dutch BS industry in the next 10 years.

Chapter 6 identifies the policy areas and policy questions that may be crucial in fostering the BS industry's future growth and its contribution to national economic performance.
Chapter 7 summarises the findings with regard to the initial research questions.

A reading advice for time-constrained readers

Those who are just interested in the main findings may find it sufficient only to read chapter 7 which presents an overall summary, including the most important policy issues.

2 Causes and characteristics of structural growth in the BS industry

This chapter untangles factors behind the extraordinary growth of BS industry during last decade. Section 2.1 first describes the empirical evidence on the magnitude of BS growth comparing it to other market industries. Section 2.2 deals with the factors behind structural growth of the BS industry. Section 2.3 analyses how the modalities of this growth process relate to product differentiation and the structure of competition in BS industry. Section 2.4 investigates the role of foreign markets in the growth of BS industry. Section 2.5 summarises the conclusions. Several findings in this chapter are based on published and unpublished progress reports produced earlier in the CPB project on the future of the BS industry.

Business services is a collection of branches with the common characteristic that they supply non-financial services products to other firms or government services rather than to private consumers. Some BS branches supply standard services to all clients, whereas other branches supply a services product that differs by client. The text box below gives a classification of BS branches according to the degree of standardisation or client-specificity of their products.[1]

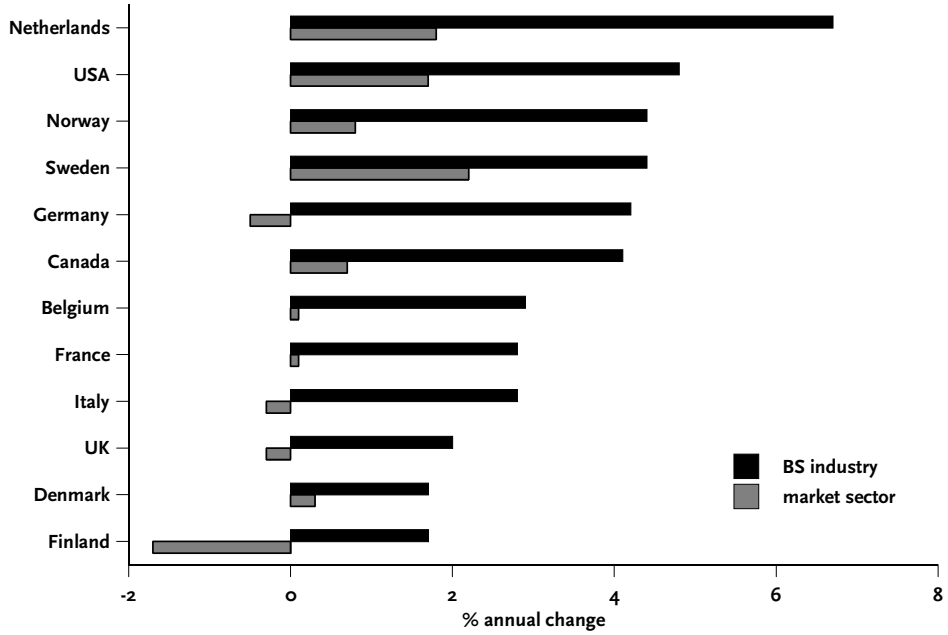
Standardised business services		**Client-specific business services**	
* industrial cleaning	* data processing	* economic consultancy	* advertising and PR.
* security services	* wage administration	* software design	* market research
* notary services	* temporary work agencies	* specialist accountancy	* legal and tax advise
* technical testing	* standard software	* engineering	* executive recruitment

2.1 A high-growth industry

This section surveys empirical evidence on the growth dynamics of the BS industry. Industrial restructuring implies that some industries fade away, while other ones strengthen their positions in a country's economic structure. In this report, an industry is defined to grow structurally when it grows faster than the rest of the market sector. Subsequently, two dimensions of structural growth are reviewed, employment and value added.[2]
Structural growth of the BS industry is an international phenomenon. In all benchmark countries, BS employment grew faster than in the total market sector. Figure 2.1 shows how employment growth in the BS industry outpaced overall employment growth in the market sector during the 1990s. The same pattern was found in all sub-periods since 1980. Hence, it is justified to speak of strong structural growth of the BS industry.

[1] See Annex I for a more comprehensive listing of business services branches and sectors. Note that some BS branches may have standard products as well as client-specific products. This is indicated in Annex I.
[2] Empirical details (performance in sub-periods, absolute numbers, data sources) can be found in Kox (2001a).

Figure 2.1 Annual employment growth in BS industry and total market sector, selected countries, 1991-1998



Data : OECD SVAE / CBS

Figure 2.1 shows that the growth gap was particularly large in the Netherlands. BS industry includes temporary work agencies, and this holds for all benchmark countries. The temporary work branch developed exceptionally fast in the Netherlands (Dunnewijk 2001). It was checked whether the growth rate difference between the Netherlands and the other countries was perhaps caused by the exceptional growth of the Dutch temporary work branch. This was not the case.[3]

The comparative growth performance of BS industry can also be portrayed by looking at the value-added dimension. With exception of Italy, BS industry everywhere grew faster than the total market sector during the 1990s. The structural growth gap is largest again in the Netherlands, Sweden and Norway, followed by Germany and Canada.

The growth difference between BS industry and the market sector was smaller for value added than for employment. This finding indirectly shows that BS industry must have had a relative slow labour productivity development. This aspect receives more attention later on in this report.

The evidence permits the following conclusions. BS employment grew faster than overall employment in the market sector. This also held for value-added growth. The structural growth pattern was found in all benchmark countries. Finally, structural growth of BS employment and BS value added was stronger in the Netherlands than in most benchmark countries.

[3] Cf. Kox (2001a, p. 3-7).

2.2 Growth sources for BS industry in the past

What explains the extraordinary BS growth during the last 15 years? To answer this question, a difference must be made between value-added growth and employment growth. The growth sources of both are overlapping, but not identical. Demand factors are common growth sources for both. Analytically, demand can be split in three parts. One part of output is used as an intermediary input by other firms and industries. Another part of output has the form of a final product, and is consumed or invested (at home or abroad). A last part of output is bought by the government sector, either as intermediary input or as investment asset. If BS industry grows faster than the rest of the market sector, the reasons can be situated in any of these three demand segments. On top of that, structural employment growth of the BS industry is also caused by a sluggish labour productivity performance. This section subsequently analyses the role played by these potential sources of structural growth.

Changes in the system of intermediate deliveries

Empirical studies invariably find that changes in the system of intermediate deliveries have been the major factor contributing to structural growth of the BS industry. Shifts in the system of intermediate deliveries can be caused by several underlying causes, in particular technological change, product innovation, outsourcing trends, and institutional changes such as deregulation.[4]

Service elements are pervasive in any production process. Any production requires elements of planning, design, management and quality control. Moreover, putting products in the markets requires exploration of demand, sales promotion, and distribution. Complying with government rules, and with sometimes conflicting interests of shareholders, financing institutions, and other stakeholders means that no company can do without elements of administration, legal advise, reporting, auditing, debtor monitoring, and public relations. In short, all kinds of functional services lie at the very heart of *any* production process. Such functional services can be provided by employees on a firm's own payroll, or they can be bought from outside providers. The 'make or buy' decision depends on several factors, like variabilisation of costs, economic stability, technological possibilities, business cultures, transaction costs associated with outsourcing, quality considerations, and the efficiency of BS markets. The degree of vertical integration with regard to functional business services is variable over time.[5] Outsourcing is increasing, although incidental cases of renewed 'insourcing' have been reported as well (e.g. Outsourcing Journal 1999). Playing a role in the background is the preference of client industries for a diversified supply of BS products, thus generating strong demand for new and specialised BS products.

[4] Unfortunately, input-output analysis does not allow us to quantify empirically what have been the relative roles of product innovation, process innovation, different outsourcing practices, and institutional changes.

[5] E.g. Goe (1991); Fixler and Siegler (1999); Perry (1992); Siegler and Griliches (1991); Abraham and Taylor (1993).

For the BS industry, outsourcing forms a major growth source. Often it goes along with quality improvement of the outsourced services. Cases that the former in-house service and the externally-bought service are identical (close substitutes), are exception rather than the rule. Empirical studies strongly indicate that a shift has taken place from pure replacement outsourcing to service-upgrading, particularly with regard to the human-capital content of the services product.[6] Table 2.1 discerns three outsourcing waves in the Netherlands.

Table 2.1 Three 'waves' of outsourcing

Approximate period	Emphasis	Service activities involved
1. 1983-1988	low-skilled service` activities	Internal and external transport, cleaning, catering, maintenance of buildings and equipment, insurances.
2. 1985-1993	standardised in-house service activities	Security services, personnel education, R&D, storage, banking activities, standard administration work, financial controlling, bookkeeping, customs facilities, recruitment for temporary standard jobs, technical testing, specialist computer consulting
3. 1993-now	specialised in-house service activities	Market research, advertising, legal advise, quality control, engineering and technical consulting, economic consulting, client invoicing, salary administration, recruitment for management jobs, logistics management, public relations management, software design, software and hardware maintenance, development e-commerce tools, provision of office supplies, internal post and document services, archive services, interim management, management of communication network services, specialist R&D, text writing, environmental management services

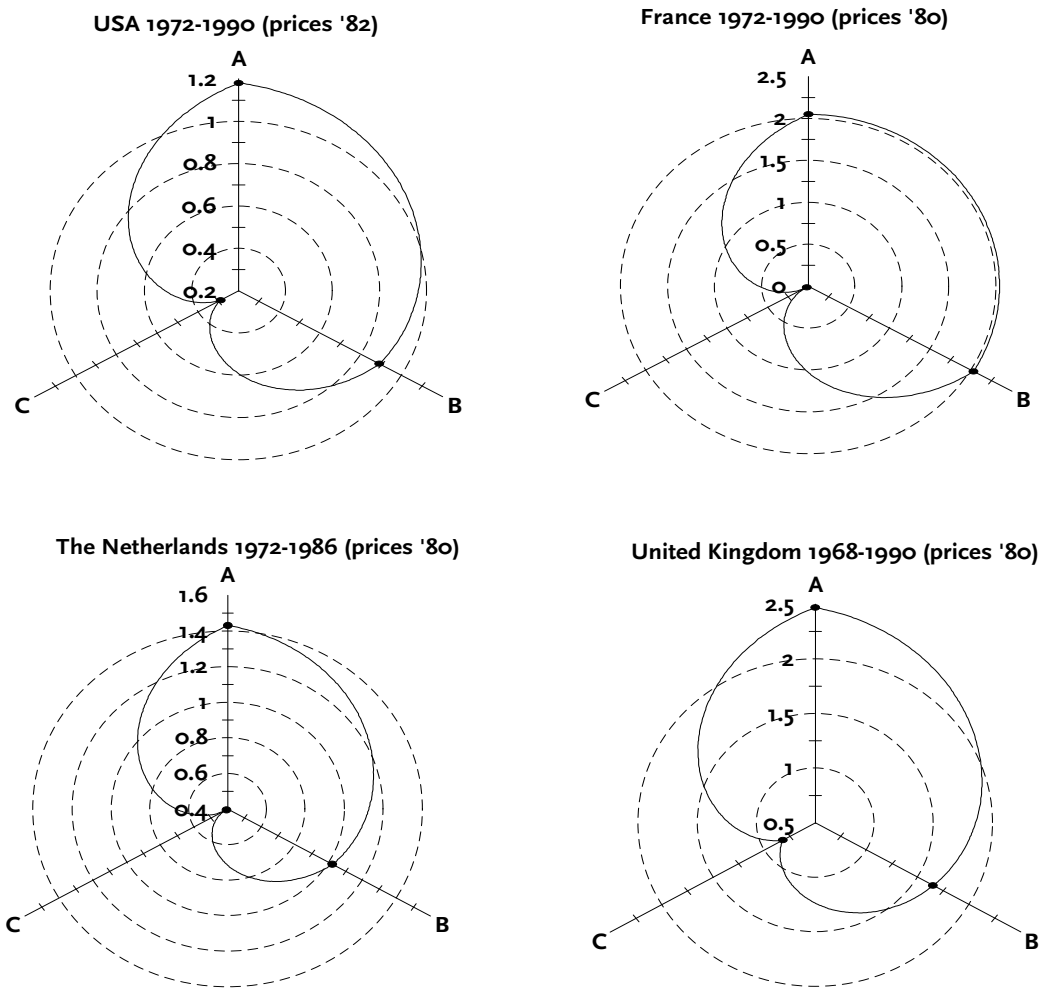
Note: The periodisation may slightly differ by country.

Most outsourced services in the early 1980s were either low- or medium-skilled. From the mid-1980s onwards, many standard functional services became subject to outsourcing.[7] From the early 1990s onwards, even specialist and close-to-management service activities that thus far

[6] E.g. Peneder et al. (2000), Beyers and Lindahl (1996), De Bandt (1995; 1999); Coe (2000).

[7] The periodisation applies to the Netherlands.

Figure 2.2 **Growth rate difference and growth sources of knowledge-based services compared to manufacturing industry, selected countries (constant prices)**



Legend: **A = gross output**

B = change in system of intermediate deliveries

C = change in final demand

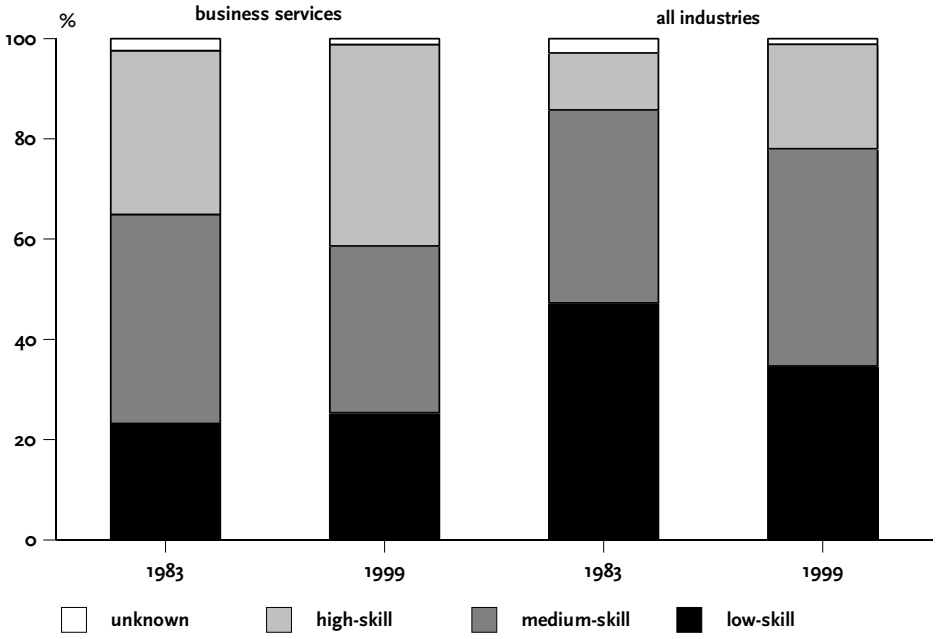
The graphs show for each country the difference (in %-points) between the growth rate of gross output in knowledge-based services industries and in manufacturing industry (indicator A). Indicators (B) and (C) provide further detail; they add up to (A). (B) gives the contribution of change in intermediate deliveries, and (C) the contribution of change in final demand. Data source : Annex III (Peneder, Kaniovski and Dachs 2000).

were considered to be core company domains, became eligible for outsourcing. Increasingly complex services tasks are being outsourced. Knowledge-intensive BS branches gained strongly in the recent outsourcing wave. Increased outsourcing went hand in hand with product innovation and product differentiation in the BS industry, generating demand for specialised

products. This in turn led to innovations in the system of intermediary deliveries between market industries, and to a larger weight for BS industry and other knowledge-intensive services. This clearly emerges when we compare the demand factors that contributed to output growth in the 1980s. Figure 2.2 shows the contributions of intermediary and final demand to output growth in the knowledge-intensive services – defined as business services, financial services, plus communication services –and in the manufacturing industry. The graphs show that in any of these four countries intermediary demand explained by far the largest part of the output growth difference.[8]

The increased human capital intensity of outsourced business services shows up in Figure 2.3, indicating the upgrading of educational levels of the Dutch BS workforce since 1983. High-skilled labour now forms 40 per cent of total employment. While the share of low-skilled labour remains relatively stable, the main shift was from medium-skilled to high-skilled labour.

Figure 2.3 Change in education levels of the workforce, the Netherlands, 1983-1999



Source: CBS data.

Deregulation contributed to a stronger intermediary demand for business services. Relaxation of government-imposed regulations on labour contracts, firm-startups, quality requirements for products and services, and professional qualifications may have benefited BS industry more

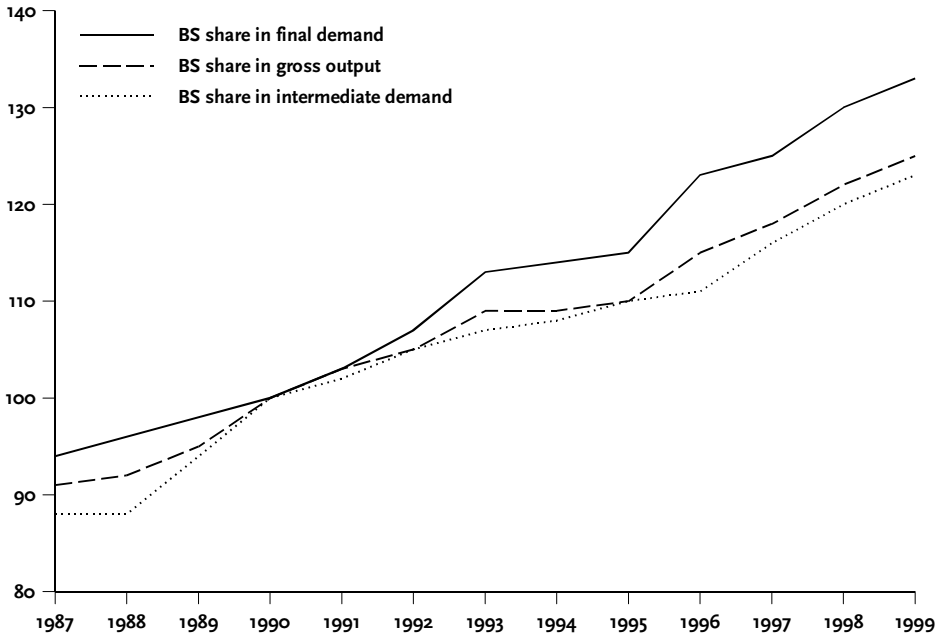
[8] Additional data, also on other benchmark countries, can be found in Annex III. More recent internationally comparable data are not yet available.

than other market industries. It allowed firms to outsource a broader range of functional services. Dutch temporary work agencies flourished as a consequence of relaxed labour market regulations.

Final demand as a growth source of BS industry

Empirical analysis shows that until 1990 final demand growth was not the cause of the BS industry's structural growth.[9] Changes in the system of intermediate deliveries contributed far more to structural growth than changes in final demand, as could be seen already in Figure 2.3. There are some indications that final demand has become a more important growth factor in the 1990s. Final demand for computer-related services (software, hardware services) expanded faster than for the market sector as a whole. For the USA, Oliner and Sichel (2000) found an increased national income share of software inputs. Another indication for a more important role of final demand in the structural BS growth is the fact that in the 1990s, BS exports in many countries increased faster than average exports from the market sector.[10]

Figure 2.4 Development of BS share in macro-economic demand categories, the Netherlands, 1987-1999 (1990 = 100)



Note: All elements expressed in constant prices of 1990. Source : CBS, Input/output tables (prices 1990)

[9] Cf. growth decomposition studies by Tschetter (1987); Oosterhaven and Hoen (1998); Peneder et al. (2000); Van der Hoeven, Kwaak and Lever (1997); Alladin et al. (1998); Brus (1998).

[10] Cf. section 2.4.

In the Netherlands, BS industry accounts for a growing share of total final demand of the market sector. Figure 2.4 shows a remarkable jump in the final-demand share after 1993. From then onwards, the contribution to the market sector's final demand has grown faster than the contribution of BS industry to intermediary demand and gross output of the market sector.

Privatisation as a growth source of BS industry

Privatisation is a special case of outsourcing, with the government as outsourcing agent. In the early 1990s, government activities in many OECD countries still included activities like infrastructure maintenance, energy supply, postal services, telecommunication, water supply, transport and construction. Since then, many of such government activities have been privatised, but other market industries benefited more than BS industry from this trend. However, governments in most OECD countries also screened their functional services activities for possibilities to outsource them to BS industry. This privatisation wave contributed in two ways to the growth of the BS industry. Firstly, tasks that so far were done by government services were outsourced to private companies. Firms in accountancy, technical consultancy, juridical services, building security services, industrial cleaning, salary administration, software development, ICT hardware maintenance, public relations, text writing, economic consultancy, and several other business services branches have benefited from this privatisation process.[11] Secondly, specialised government services, which in the past worked for other government departments and local government authorities, were split off as independent companies. They became new entrants in the commercial BS market. The off-spinning process happened, *inter alia*, with government services in software development, engineering consultancy, salary administration, accountancy, and temporary work agencies.

Sloppy labour productivity growth

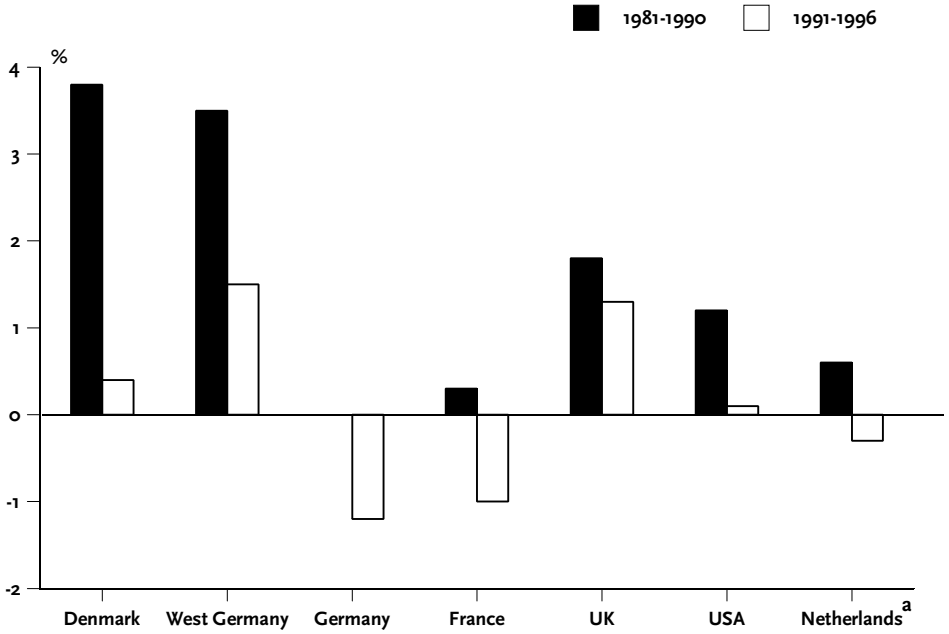
Although the BS industry is widely praised for its positive impact on competitiveness and innovation capacities of client industries, the BS industry's own productivity is faltering since the 1990s. This pattern is pervasive across OECD countries. The pattern has worsened since the early 1980s, as is shown in Figure 2.5. BS industry in all main benchmark countries was confronted with a flawing growth or even a fall in labour productivity.[12]

Labour productivity in the BS industry increased slower than in the rest of the economy. In most benchmark countries (except West Germany and Denmark) this was already the case in the 1980s as can be seen in Figure 2.6. Denmark is the only country where the BS industry also in the 1990s had a higher labour productivity increase than the rest of the economy. During the

[11] Cf. Kavanagh and Parker (2000); Coe (2000).

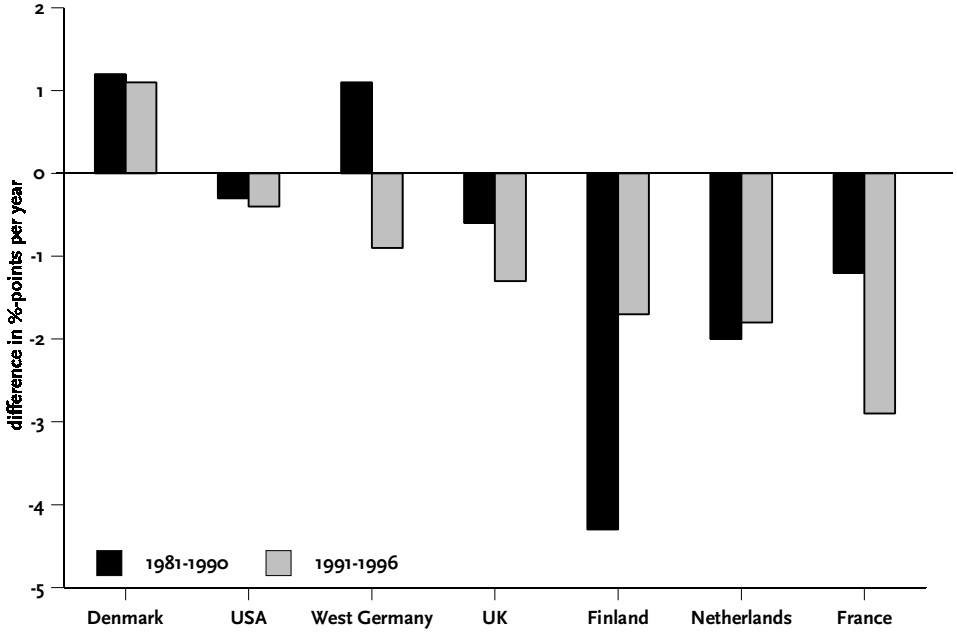
[12] More country data on the change in labour productivity can be found in Annex 7.

Figure 2.5 **Annual change in labour productivity per hour worked in BS industry, selected countries, 1981-1990 and 1991-1996**



[a] Excluding temporary work agencies. For detailed data : cf. Annex VII

Figure 2.6 **Difference between labour productivity growth in BS industry and the total market sector, selected countries, 1981-1990 and 1991-1996**

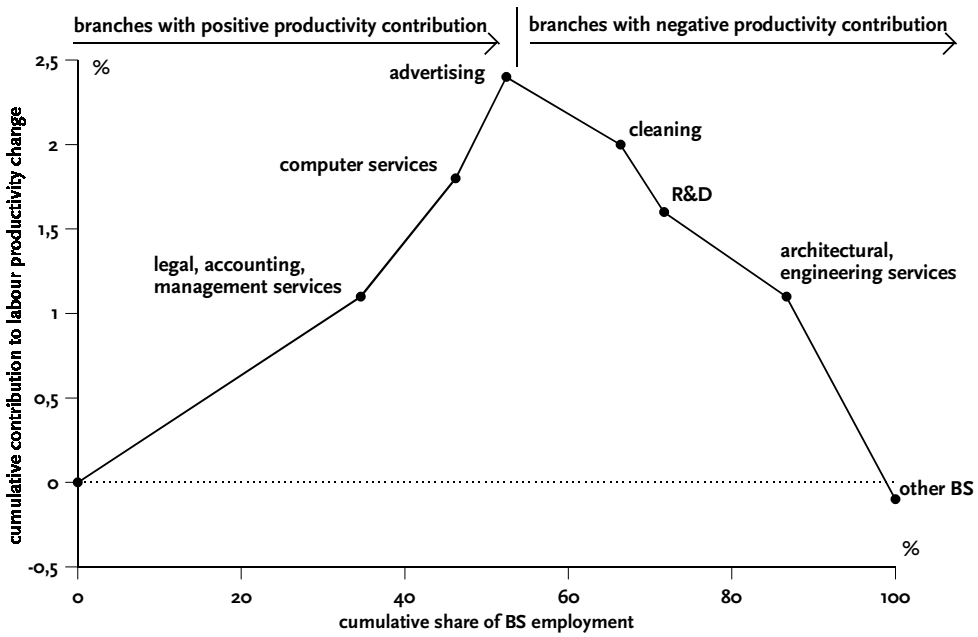


Data : cf. Annex VII

1990s, the gap in labour productivity between the BS industry and the rest of the economy widened; only in Finland and the Netherlands it became slightly smaller.

In the second part of the 1990s, Dutch BS industry performed slightly better than in the first part of it. BS productivity growth went from –0.5% annually in the first half of the 1990s to +0.2% annually over the period 1996-2000. Still not much reason for waving a flag. It is informative to look into the branch pattern that underlies the recent productivity record. Average productivity change in Dutch BS industry is decomposed into the contributions of direct productivity change per branch and the effect of changing branch shares in the BS total. Most interesting, of course, are the direct productivity changes per branch.

Figure 2.7 Contribution of individual branches to the direct change in productivity of total BS industry, Netherlands, 1996-2000 (entire period)



Note: based on shift-share analysis in Annex VII. The Annex also gives annual changes and reallocation effects.

Figure 2.7 pictures the cumulative contribution of individual branches to the BS industry's increase in direct labour productivity for the entire 1996-2000 period. The horizontal axis in the graph shows the cumulative share of each branch in total BS employment in 1995. It can be seen that only three branches contributed positively to direct productivity change. The rest of them had a negative contribution, so that the cumulative change of direct productivity ended up below zero. It was only because of shifts in branch shares (not shown in the graph, but given in

Annex VII) that the total cumulative productivity change remained positive.[13] Figure 2.7 portrays that also knowledge-intensive BS branches (engineering and architectural services, contract R&D) contributed negatively to direct productivity change of BS industry.

A consequence of the sloppy labour productivity development is that BS industry requires an increasing amount of labour - compared to the rest of the market sector - for every unit of production. This factor partly explains the structural employment growth of the BS industry.[14]

Conclusion on growth sources for BS industry

Outsourcing of in-house service activities by private firms was a major source of structural growth. The nature of outsourcing changed over time, from pure replacement outsourcing to service-upgrading outsourcing with increased high-skill inputs from the BS industry. Especially BS branches that produce client-specific products have benefited from this outsourcing wave since the mid-1990s. The increased weight of BS industry in the system of intermediate deliveries is partly caused by technological change that has the form of product innovation and product specialisation.

Final demand for some BS industries – software and ICT-related services – has grown more than final demand for the rest of the market sector. This factor especially pertains to the 1990s.

Deregulation contributed positively to the growth difference between BS industry and the rest of the market sector. Privatisation of in-house service activities by governments probably also contributed to structural growth of BS industry. In particular the second wave of privatisations (mainly service activities) contributed to structural growth of BS industry in the second half of the 1990s.

Finally, the structural growth of employment in BS industry vis-à-vis other market industries is to a considerable extent caused by a stagnating labour productivity development in the BS industry, relative to the rest of the market sector.

2.3 The characteristics of BS growth: industry structure

This section presents stylised findings on the structure and modalities of BS growth. Most of this section deals with the characteristics of those BS branches that experienced the fastest

[13] Positive reallocation effects are caused by the fact that branches (like cleaning) with low average productivity levels, grew less than average and so got a smaller share in total BS employment at the end of the period. The same effect occurs when a branch with high average productivity level grows faster than average.

[14] This is confirmed in growth decomposition studies by Van der Hoeven et al. (1997) and Brus (1998).

growth during last decade, namely the knowledge-intensive BS branches.[15] Taking into account their market characteristics, permits a better understanding of their sloppy labour productivity growth and their contribution to macro-economic growth.

A small-firm industry

The firm population in BS industry is dominated by small firms with less than ten employees. The share of self-employed entrepreneurs in the BS industry is persistently higher than the national average for all industries. The overwhelming majority of Dutch BS firms has less than 10 employees, and more than half of the firms even has no employees at all (cf. Annex II) . Starting up a new firm is relatively easy in the BS industry, compared to other industries. This is shown in Table 2.2 by the remarkably high entry rate of new firms. Few scale economies seem to exist in the BS industry. In most BS branches, the required investment in fixed capital for getting into business is not an important barrier to entry.[16] Though the overwhelming majority of BS firms is very small, a small number of large firms in almost all countries accounts for between one-quarter and one-third of total BS employment.

Product differentiation

Differences in product differentiation leave their mark in the competition structure of BS branches. The main differences are between markets for standardised and client-specific BS products.

Markets for standardised products tend to be more competitive, with prices playing a more important role than in BS branches characterised by tailor-made services. Branches with standardised products have some scope for internal scale economies. They display a larger average firm size than BS branches that produce client-specific business services. Standardised products can be ordered 'from the shelve' according to standard specifications. For these products, it is relatively easy to compare prices of different potential suppliers.

Markets for client-specific BS products tend to have the following traits:

- each supplier to some extent is a monopolist in his own niche market;
- a modest role of price competition, certainly in the short run;

[15] *Knowledge-intensive BS branches* include computer services (NACE 72.1-2), research & development (NACE 73), legal consultancy (NACE 74.111-112) , accountancy and tax consultancy (NACE 74.122-124), market research (NACE 74.13), management, economic and PR consultancy(NACE 74.14), engineering and architectural services(NACE 74.201-203), technical testing (NACE 74.3), marketing consultancy (NACE 74.401), private detectives (74.602). Most of these branches offer client-specific rather than standardised services, but in some cases the picture is mixed (e.g. accountancy offers quite standardised services alongside client-specific services).

[16] Exceptions are: data processing, database services, contract R&D services, and technical testing services. Average employment size of BS firms in different BS branches and EU countries is shown in Annex II.

- customers have to commit own human resources in the contracting and production phase, leading to sunk supplier-switching costs;
- market reputation forms the main competitive asset of incumbent firms.

Table 2.2 Firm dynamics in selected Dutch industries, 1987-99

	Firm entries	Firm exits	Net growth in number of firms
	percentage of firm population		
Retail trade	6	5½	½
Manufacturing industry	7	4	3
Business services	12	4	8
Total market sector	8½	4½	4

Source: EIM data

Client-specific BS products are mostly traded in markets with monopolistic characteristics. Ordering client-specific BS products often proceeds through a tendering process, in which just a few potential suppliers are invited to quote for the job. Some suppliers drop out, while the short-listed suppliers elaborate their tenders in written or oral presentations, often after further, more detailed contacts, until one supplier is chosen eventually. For their selection of tailor-made services, client firms tend to set an upper price limit for the job and then use other criteria to determine the choice of the supplier within the price constraint.[17] The main selection criterion of BS-purchasing firms, as reported in Table 2.3, is the quality or perceived quality of the provider and his product, with the price of the service being clearly less important.[18]

Since there are no standard reference prices for client-specific products, suppliers have a discretionary margin for price-setting. For the BS firm, tariff-fixing is a form of positioning itself vis-à-vis competing firms. The tariff signals in which segment of the market the firm wants to operate. Daily fees for specialised BS workers are mostly fixed by the supplying firm. Invoicing is often based on a pre-agreed lump sum, or on a number of working days. Pre-contract negotiating is about the number of working days and the terms of reference for the job (what's in, what's out). Though direct price competition plays no important role in the short run, prices may change in line with the long-run market situation (excess demand or excess supply) and the

[17] Research in the UK revealed that professional BS suppliers often had to tender 'blind', i.e. without the client's indication of a budget constraint (O'Farrell and Moffat 1991).

[18] Note in Table 2.3 that the price of the service comes only in the fifth place as selection criterion, and that 108 out of the 198 firms do not consider this to be a very important selection criterion. A possible bias in the survey is that small companies were under represented

intensity of market competition by new entrants. Lowering tariffs tends to be the last ditch in a competitive battle.[19]

Table 2.3 How clients select a business service provider, survey data

Selection criteria	Percentage of BS-purchasing firms stating 'This selection criterion is very important' [a]
(1) Quality of the service being offered	79.3
(2) Expertise of the service provider	61.1
(3) Confidence in 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

[a] The survey did not distinguish between standardised and client-specific services. Source: survey among 198 BS-using firms in EU countries (CSES 2001, p. 37-8, 148-50)

Standardised products may be ordered with relatively little interaction between client and customer. Concluding a contract on client-specific BS products requires far more interaction, and often at a higher hierarchical level. The customer firm has to invest own resources (personnel, creativity, confidential information) in finding firm-specific solutions. The actual production of the service often goes along with intensive and high-level contact between the supplying firm and the customer firm. The frequent occurrence of follow-up contracts can be explained by customer switching costs, i.e. the customer's sunk investment in labour time and human capital resources before and during the supply of firm-specific BS solutions. During previous service jobs, the supplier builds up client-specific knowledge, trustworthiness, and personal contacts in the client's firm. After repetitive contacts with regard to strategic and confidential issues, the service supplier may become a regular sparring partner for the customer firm's management.[20] This has an impact on the competitive process. Sunk cost on the customer's side lower cross demand elasticities with prices of other outside suppliers. Such switching costs may result in a lock-in situation in supplier relations. These factors give the existing supplier an advantage over competitors.

Given the low investment-related entry barriers in many BS branches, how is it possible for incumbent firms to defend their market positions vis-à-vis newcomers that would gladly buy

[19] Exemplary perhaps is a statement by the top manager of CMG, a leading Anglo-Dutch computer services group: "*Our tariffs are not up for discussion; they are sacrosanct*", while he announced the redundancy of 470 employees, cost-saving programmes and a salary freeze as measures to stave off the effects of stagnating demand (Financieele Dagblad, October 22nd, 2001).

[20] Cf. Tordoir (1993, Ch.4)

themselves into the market by charging somewhat lower prices than incumbent firms? The answer is to be found in the market reputation mechanism. Because of their knowledge-intensity, many BS products are 'credence goods' for the clients. Before and perhaps even shortly after purchasing the service, the client firm may not be able to judge its quality adequately. This severely limits market transparency. A client firm has to rely on information on the BS firm's past performance. The market-based correction mechanism for this problem is the reputation premium. Basically, a reputation is nothing else than the expectation that an economic agent will act in the same way as he did in the past. BS firms with a proven reputation for being able to supply a high-quality service product can earn a price premium. The premium is a reward for time-consistent behaviour by the BS provider.[21] Building up a broad reputation for being able to supply high-quality services products is a difficult, lengthy and costly process. Advertising effort may support the reputational process, but is pointless without being backed by visible cases or the availability of hear-say experience from comparable client firms. Hence, for newcomers in the market it mostly is not sufficient to offer a lower price than established competitors. One needs to build up a track record of expertise and quality. The reputation mechanism protects incumbent BS suppliers from tough price competition by newcomers in the market.

Segmented BS markets

Market reputations, and the importance of hearsay information to support them, give rise to a segmentation of BS markets. The segmentation is related to the geographic scope of a firm's market reputation. Across most branches of the BS industry we can distinguish four company segments or 'business models':

- The overwhelming majority of small firms only have local reputations, known by existing clients and perhaps a small geographic circle around them. They cannot position themselves in the market with a brand name or innovative services concepts. From a marketing perspective, their products have low profiles. Many often work for a small and relative fixed group of clients, in the context of repetitive contracts. These clients are often small- or medium-sized firms themselves.
- Next, there is the small or medium-sized specialist firm. Mostly created from some innovative idea, it has built up an international reputation. It offers its specialist services in low-volume

[21] The price premium has two origins. Firstly, it reflects switching costs on the side of existing customers. They incur costs of gathering information (perhaps even by trial and error) on the quality of a BS service providers. Such sunk costs can make switching unattractive. The price premium also originates from 'herd' behaviour by other potential BS clients. By 'free riding' on the already incurred information costs of incumbent BS clients, they support the demand base for levying a premium price. The price premium creates a strong incentive for the BS firm to protect its reputation, certainly in a market where there is much information exchange between BS users (e.g. Drazen 2000, pp. 183-7).

international niche markets at relatively high prices. These firms are attractive targets for being taken over by large international firms.

- A group of medium-sized to large firms have grown successfully in a national market. They have built up national reputations for being able to deliver a qualitatively good services product. Their clients use to be medium to large firms. These firms are most likely inclined to look 'outwards' in order to repeat their national success in foreign BS markets, either through exports, joint ventures or through setting up local agencies.
- Finally, there is a very small top segment in each branch market. It is made up of large transnational firms with strong and well-established reputations. Their products got the state-of-the-art image with respect to thoroughness of analysis, creativity and quality. In BS industry - and particularly in markets for client-specific services - brand names hardly play any role as reputational mechanism, but some of these top firms form the exception to that finding (see text box). Their clients use to be large and transnational firms as well. Most of the top firms have local subsidiaries in the main national markets. Their reputation and international coverage allows them to charge premium prices.[22]

Few top brands in business services

The accountancy world is trying to get to grips with the value of intangible company assets like brand names and market reputations, since these assets are regarded increasingly important in the competitive process. Business Week magazine (August 6, 2001) in cooperation with Interbrand and Citigroup calculated and ranked the value of the world's most valuable brands. The brands were selected according to two criteria. They had to be global in nature, deriving one-fifth or more of their sales from outside the home country. And there also had to be publicly available marketing and financial data on which to value the calculation. Among the top-100 brands with brand values of one billion dollar or higher, we encounter just four BS firms. Three of them are software firms: Microsoft (in 2nd place with $65 bn), Oracle (in 25th place with $22 bn), and SAP (in 43rd place with $6 bn). Car rental firm Hertz (in 71st place with $4 bn) is the fourth one.

A stylised picture of the segmented market structure in markets for knowledge-intensive BS products is given in Table 2.4. The competition structure implies that not all firms enter into direct competition with each other. They work for different types of clients and at different prices. Market structure, type and intensity of competition tend to differ between the distinguished market segments.

[22] Companies like McKinsey, Accenture (ex-Andersen Consulting), Price Waterhouse Cooper or Cap Gemini put much effort (marketing, working routines, recruitment policy) in sustaining once-acquired market reputations.

Table 2.4 General characteristics of company segments in BS markets

	Company segments			
	A Small non-specialist firms	**B** Small and medium-sized specialist firms	**C** Medium and large national firms	**D** 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

Within the small top segment, the interaction form between competitors is probably best described as oligopolistic. The competitors meet each other in several national markets. Firms in this market segment tend to behave strategically in order to improve their long-term international profitability interests.[23] They compete with each other and with large national-oriented BS providers to improve their share in the 'premium' market sustained by large client firms and government commissions. This small oligopolistic market segment is, however, nested in a wider market framework where the small firms are overwhelmingly dominant, and where - due to product differentiation and reputations - the market form can best be described as monopolistic competition.[24]

Large-company segment most competitive

An EU-commissioned survey among BS firms found the large-company segment of the BS market to be the most competitive one: '[...] Larger business service providers tend to regard their domestic markets as more competitive than smaller providers. This is not surprising and largely explained by a further finding, namely that the smaller the business service provider, the more likely it is that competition in domestic markets will come primarily from other local firms. Conversely, larger providers tend to compete more with rivals from other EU member states or from outside the EU in their domestic markets' (CSES 2001, p. 30).

[23] This has been analysed *inter alia* in Knickerbocker (1973); Enderwick (1989; 1992); West (1996); Nachum (1999).

[24] Monopolistic competition is due to the market characteristics (like product differentiation) described earlier in this section. Suppliers of client-specific products in particular normally can apply cost-plus pricing. The magnitude of the monopolistic mark-up in a BS branch is presumed to be a positive function of the share of tailor-made, client-specific products in total demand of the branch.

The most competitive segments in the BS markets are those in which the large national-oriented BS providers operate. They face competition from medium-sized national firms, local subsidiaries of transnational firms, and sometimes even from small international specialists (see text box).

Table 2.5 provides some empirical evidence on the relation between market concentration and market fragmentation in European BS branches. The data show the market position of the leading firms (at EU level) versus the position of all other companies. The market hybridity factor measures the gap between the average leading firm and the average 'other' firm.[25] A salient difference emerges between the branches with client-specific and standardised BS products. When judged by the relatively small combined market share of the leading firms, markets for client-specific are far more fragmented. Apparently, firms in the standardised BS branches are better able to exploit some scale economies.

Input quality as basis for market reputation

A supplier's competitive advantage in a market for client-specific business services depends on the market's perception of the quality of inputs he used in his product. The quality of a client-specific BS product is closely related to the qualities of the inputs into the product. Not all inputs are important in this context. All services firms use standard inputs like finance capital, non-skilled or low-skilled labour, and office supplies. Competing on the basis of such non-distinctive inputs can only take the form of price competition. Non-distinctive inputs are available in the market, i.e. they can be bought in the short term, in any desired volume, at market prices.

Distinctive knowledge-based inputs form have come to be the key element in the reputations and competitiveness of BS firms.[26] Distinctive assets often are intangible in nature, and as such it is difficult to separate them from the organisational fabric of the company and its workers. It is useful to distinguish between firm-owned and employee-owned distinctive inputs (cf. box). What makes them different is the power to dispose of these inputs. Firm-owned distinctive inputs can be freely leased, stocked or traded by the firm-owner, subject only to the constraints of the law. Employee-owned assets are far more difficult to control by the firm owner.[27] They are inextricably bound up with and embodied in employees.

[25] Comparing the data with the market segmentation model of Table 2.4, the group of large, leading firms more or less converges with our segment *D* (including some part of *C*), while the group of 'other' firms consists of our segments *A*, *B*, and partly also *C* (large national firms are not necessarily large at EU level).

[26] E.g. Eustace (2000).

[27] Another case arises when the firm owner himself has proprietary information that can be released to employees in portions or at strategically chosen moments in time, in order to maximise his profits. Cf. Huizinga (2000) and Rodriguez (2001).

Table 2.5 Hybrid market structure in European BS industry, selected BS branches, 1992

	Number of firms	Leading firms		Other firms	Market hybridity factor[a]
		No. of leading firms[c]	Combined market share[b]	Combined market share[b]	
			%	%	
Client-specific services					
Management consulting	8,000	20	8	92	35
Legal services	200,000	15	2	98	272
Accounting/auditing services	150,000	6	10	90	2778
Industrial engineering	15,000	10	7	93	113
Computer services	16,000	10	9	91	158
Market research	1,500	10	.	.	.
Advertising	20,000	13	55	45	1880
Standardised services					
Inspection and control	5,000	16	18	82	69
Temporary work agencies	7,600	6	35	65	682
Security services	5,000	7	62	38	1165
Cleaning services	40,000	200	35	65	108
Care hire	12,000	5	50	50	2400
Other equipment rental	72,000	47	20	80	383

[a] The market hybridity factor is calculated as the average market share of a large, leading firm divided by the average market share of the small firms.
[b] Market share is based on turnover value.
[c] Details on leading firms by branch can be found inter alia in Kox (2001b, Annex 4).
Source: derived from Rubalcaba-Bermejo (1999,p. 46,430). Data stem from EU, *Panorama of the EU Industry* (latest available year) and industry sources.

Labour relations

Many business services are supplied on-the-spot, at the premises of the client firm. This locational separation between the work place and the BS firm itself has its implications for work organisation and labour relations. The first consequence is that work supervision by the owner of the BS firm is far more loose than, for instance, in manufacturing or in retail trade. The supervision is often in fact delegated to the work organisation of the client firm. The second consequence of spatial separation is that BS employees, especially in the client-specific BS branches, have a stronger position vis-à-vis their employer. This gives rise to the phenomenon of key employees, i.e those BS employees whose perceived qualities are crucial to the market reputation of the BS firm. These key employees may have strong intra-company bargaining positions. They are the carriers and owners of tacit knowledge and intangible competences that are essential in the competitive process. Figure 2.9 sketches the relation between market reputations, competitive advantage and input structure in knowledge-intensive BS industries.

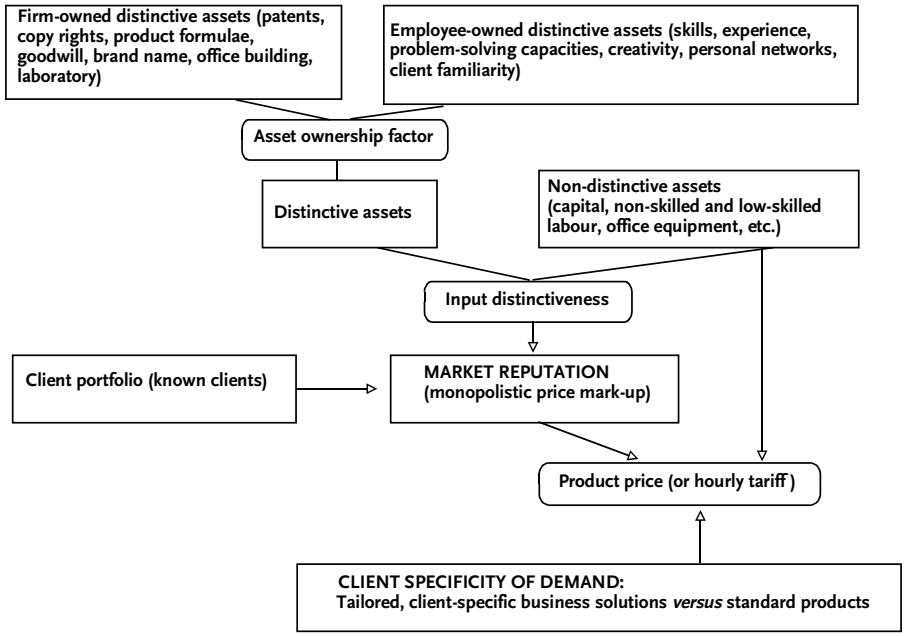
Firm-owned distinctive inputs	Employee-owned distinctive inputs
* patents, licenses	* marketing competences
* copyrights on products/ software /designs	* creativity and innovation capacities
* trademarks and brands	* problem-solving capabilities
* test laboratory facilities	* contactual skills and personalised networks
* mainframe computer systems	* personal reputation within client firms
* credit lines / ratings	* client-specific knowledge

The product price for client-specific products partly depends on the input costs for traditional, non-distinctive inputs, and partly on the supplier firm's market reputation. The latter primarily depends on distinctive inputs in the firm's services product. The internal relations in the BS firm are affected by the question who owns these distinctive inputs.

The intra-firm position of key employees

Key employees work under incomplete or inefficient monitoring, and under incomplete contracts. Marginal output increments that results from their work may only be observable after considerable time lags, if at all. It leaves them considerable discrete decision power about the

Figure 2.8 External market structure, competitive advantage and input structure in knowledge-intensive BS industries



way they do their jobs. Physically, this is so because services jobs may entail activities that are implemented outside the 'home' office, e.g. at the client's premises.[28]

Client-specific BS products often are complex and non-standardised, which makes it difficult to control them by disciplinary routines. Information asymmetry makes it difficult for a firm owner to control or check the work intensity of a key employee. 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).

The intra-firm 'market' for the services of key employees displays monopolist characteristics. The firm-owner has a demand monopoly, of course, but he is also confronted with a monopolistic supply of labour services. The 'entry barrier' in this intra-firm market is constituted by the costs of training employees with equal skills and expertise, client familiarity and personal networks. Many key employees offer labour services, of which they are the sole provider in the short term. On-the-job training is costly because it takes time. Moreover client firms may be attached to 'familiar faces', so that switching costs are involved.[29] Because they cannot easily be substituted by other employees, key employee are monopolistic providers of intra-firm services, at least in the short term.

Key employees are in the position to negotiate periodical improvements of their salaries and other labour conditions. Their negotiating position derives from the impact of their expertise and efforts on the BS firm's financial results. Firm owners use a range of financial and moral incentives - carrots as well as sticks - to influence the outcomes of the renegotiating process. Loyalty of key employees is stimulated by offering relatively high salaries and various fringe benefits. Some firms may offer key employees 'efficiency wages'. These salaries include a rent element, meant to induce effort and to suppress shirking (cf. Prendergast 1999, p.44-5).[30] Apart from such financial incentives, rule books and company routines may be used as formal minimum constraints for key employees. Larger firms may constrain the exclusive position of key employees by setting up perpetual trainee schemes, or by obliging senior key consultants or accountants to have themselves always accompanied by a junior employee. BS firms also use

[28] Client-specific knowledge is particularly important in software maintenance, software design, legal services, management consultancy, engineering services, and accountancy. See e.g. Mewissen (1999) and Van Lent (1996) on the accountancy branch.

[29] So that the costs of losing client goodwill can also be interpreted as a monopolistic entry barrier.

[30] Prendergast (1999) notes that the efficiency wage idea, in spite of having drawn much theoretical interest, resulted in few empirical assessments of its validity. In an experimental game setting, Keser and Willinger (2000) find that principals typically offer higher than perfect equilibrium rewards to their agents when the agents' actions cannot be monitored. Another experiment by Fehr and Gächter (2001) finds strong evidence that incentive contracts with (key) employees tend to crowd out traditional reciprocity-based contracts that the firm-owner has with other employees.

moral incentives, like employee training programmes around the corporate mission and vision statement. Overt profit-sharing schemes form a further method for achieving goal congruency. And finally, they may use 'up or out' promotion schemes, through which key employees after a fixed number of years either become partners in the firm or have to leave.[31] The incentives are used to prevent that key employees underperform, maximise private rather than company goals during job performance, or leave the firm.

When key employees quits, they may head for competitors, taking client-specific knowledge and contacts with them. In some information-sensitive jobs, this option is made unattractive by including a non-competition clause in labour contracts. Key employees have an option to start up their own firms, and reap the full financial benefits of their work.[32]

Implications of the key-employee mechanism: small is beautiful

BS branches with knowledge-intensive products and a high incidence of key employees have a smaller average firm size than other parts of BS industry.[33] As Figure 2.9 indicates, this pattern is strongest in the Netherlands, France and Austria, but is also found in other EU countries for which branch data were available. Additional details on average firm size per branch in the benchmark countries can be found in Appendix II. It can hardly be over-emphasised that the size data are averages. Some 90 per cent of Dutch BS firms have less than 10 employees (cf. Table 6.2), so that the distribution of firms by size is very skewed. A few very large firms per branch may already lift the average.[34]

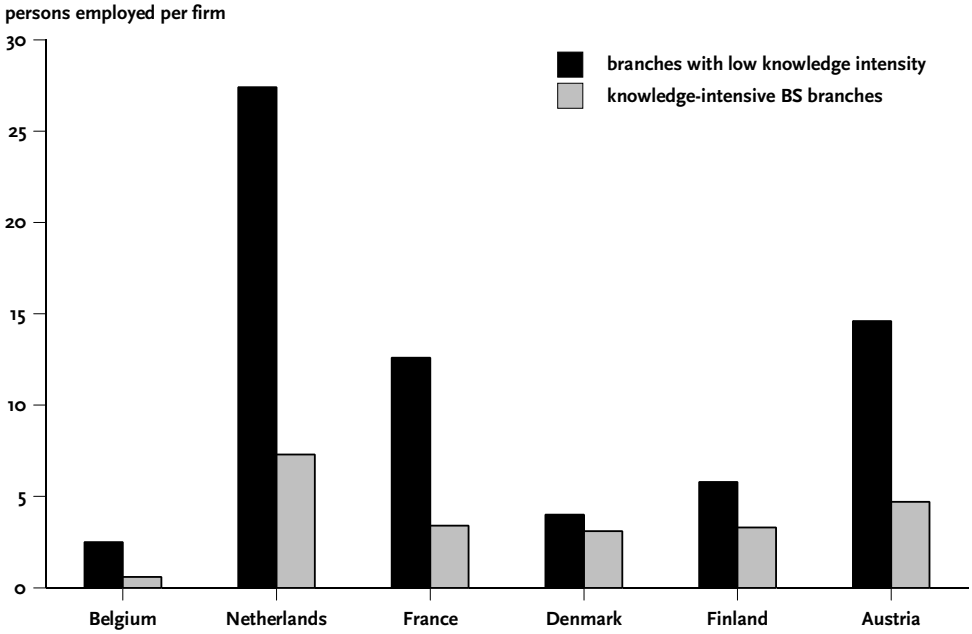
[31] The 'up or out' schemes are frequently used in accountancy, law and consultancy firms (e.g. Gilson and Mnookin 1990; Mewissen 1999).

[32] Business-cycle influences affect this process. Outside job opportunities for key employees increase in the business-cycle upswing, but the same happens with the overall market size for BS products, so that also the expected income from starting-up a new firm increases. It is a matter of empirics which of both effects dominates.

[33] This holds for branches with highly-skilled employees that produce an important part of their services at the premises of clients. This situation pertains, inter alia, to branches like software consultancy, accountancy, tax consultancy, engineering, management advice, PR consultancy, legal consultancy, and marketing. In Figure 2.9 the two industry groups have been distinguished on the basis of industry data at a 2- or 3-digit level of detail. Ideally, however, one would need data at a 4- or 5-digit level of detail, because some parts of an industry may produce rather standardised products while other parts produce client-specific, knowledge intensive services.

[34] If large international differences exist in the size distribution of firms, Figure 2.9 only has a limited information content.

Figure 2.9 Difference in average firm size between BS branches, selected EU countries, 1997



Note: Branches with low knowledge-intensities include NACE categories 745 (labour recruitment), 746 (security services), 747 (cleaning) and 748 (miscellaneous business activities). The group of knowledge-intensive branches includes NACE categories 72 (computer services) and 74 (other business services, excluding 745, 746,747 and 748). Data source: Eurostat (2000).

The most obvious explanation for the variation in average firm size would be the presence of different scale economies and a different role for fixed costs. If this were to be the cause, knowledge-intensive BS branches should have less fixed costs than other BS branches. Yet, there is no evidence for this. As an alternative, this study proposes that the presence of key employees in the knowledge-intensive BS branches might partly explain this difference in average firm size. The reason is the occurrence of double marginalisation. Such a situation occurs when firms that themselves operate in monopolist markets are also confronted with monopolist conditions in essential input or factor markets.[35] BS firms in knowledge-intensive branches tend to operate in markets with monopolistic characteristics, while internally they have to deal with a monopolistic intra-firm market for the services of key employees. Each of both monopolist market agents optimises his supply by increasing his supply until the last (marginal) unit produced or supplied yields no longer an additional revenue. The key employee supplies additional work effort until he sees no additional reward in doing this, whereas the BS firm owner expands his production (or firm size) until the additional proceeds from doing this are no longer financially interesting for him.

[35] This phenomenon is well-known in theoretical literature, e.g. Spengler (1950), Scherer and Ross (1990, p. 522-527), Tirole (1988, p. 174-182).

Key employees and optimal firm size

A thought experiment may elucidate the impact of the key employee mechanism on optimal firm size. The owner of a small BS firm sees sufficient demand for expanding his business. Consider two cases, *A* and *B*, between which the only difference is that in case *A* the expansion requires the employment of a key employee, whereas in case *B* the expansion can be realised by employing an additional 'normal', firm-bound employee. The base wage of both employees is the same. The key employee, like a quasi-partner, is in the position to negotiate a share in the profit that the firm owner expects from the expansion. The marginal benefit from expanding clearly is smaller in case *A* than in case *B*. With the key employee, the firm owner will earlier be inclined to refrain from expanding. Even when the marginal benefit generated by expansion in case *A* is not completely zero, this may not weigh up against the risk that the key employee quits, taking vital client knowledge and client contacts with him.

The strategic position of key employees may put them in a position of quasi-partners, thus lowering or diluting the overall profits of BS firms. Firm expansion in the short run implies that the firm owner has to rely more intensively on additional efforts of key employees, but he receives a smaller part of the marginal profits from production expansion. Diminished profitability perspectives lower the optimal size of the firm, i.e. optimal from the perspective of the firm owner. An inverse relation arises between the wage mark-up of the key employee and the firm's optimal output rate (see text box).[36]

Stating it otherwise, with a larger firm size, the additional profits from getting large shift from a reward for firm-owned inputs towards a reward for employee-owned inputs. The benefit of becoming large is thus pre-empted from inside the firm. The double marginalisation issue functions as a drag on firm size and output level in the BS industry. Firm owner(s) that already earn a handsome income may not feel a strong incentive for growing. Under present monopolistic market conditions, optimal firm size thus may well be quite small.

Consistent with this picture is the finding that price-cost margins of small Dutch BS firms are systematically higher than for larger firms. In Dutch BS industry, firms with less than 10 employees invariably had a higher price-cost margin than larger firms.[37] Noyelle (1991) explains the higher price-cost margin of small BS firms from their capacity to 'personalise' relations with client firms.

Apart from the key employee mechanism, non-economic factors may play a role as well in explaining the relatively small average firm size in knowledge-intensive BS branches. Empirical

[36] Kox (2000) presents a formal model of the small-is-beautiful effect in client-specific BS branches.

[37] Data on price-cost margins for several Dutch BS branches are presented in Annex VI of this report. Results from work-in-progress micro-research on a panel of 344 Dutch BS firms, followed through the period 1987-1996, strongly confirm that BS firms with less than 5 employees have higher price-cost margins. Also firms with less than 20 employees have higher price-cost margins than those above 20 employees. The difference persists after adding an imputed salary for the self-employed firm-owner to total salary costs. Further details will be available in Van der Wiel, Van Leeuwen and Kox (2002, forthcoming).

surveys indicate that starting small firms in Dutch BS industry often have no intention to grow, and that they rather prefer to remain small (Hulshoff et al 2001). Sometimes, firm owners prefer to work outside an employer-employee relationship (Vroonhof et al. 2001).

2.4 Growth in domestic or foreign markets?

Growth of BS industry can stem from domestic or foreign markets. This section investigates the role of foreign markets in the growth process of BS industry. Related to this is the role of foreign competition and the contribution of foreign supply in the domestic markets. The two main forms of supplying BS products across borders are international trade and international investment. Both aspects will be dealt with in this section.[38]

A BS firm that wants to exploit the potential of foreign product markets has the choice between exporting, licensing one's product to an independent foreign supplier, or setting up own production in a foreign subsidiary. Technological developments, especially in the ICT area, improved the possibilities for exporting services products from a home basis, but this still applies to a small share of BS products. Many products cannot easily be exported, because production and consumption of the services have to be done in the same place. In several BS branches, government regulations require that services are provided locally. This can be another reason for firms to opt for setting up a foreign representation. It still leaves BS firms the choice between licensing one's product to an independent foreign supplier, or starting an own subsidiary in the foreign market through direct investment.

Firms in BS branches that are highly dependent on intangible knowledge assets, tend to opt for direct investment rather than licensing. If the competitive knowledge asset is licensed to an independent foreign supplier, the risk is real that the licensee after some time breaks up the relationship and starts exploiting the knowledge assets for his own benefits.[39] Only a small part of the knowledge assets in BS industry is codified and protected through proprietary ownership titles like copyrights or patents. For other exclusive knowledge assets it holds that once the BS firm shares them with the foreign licensee, it has few options left for preventing that the licensee uses them for his own benefit. This the reason why BS firms generally prefer direct investment over licensing agreements with foreign firms.[40]

[38] For a more detailed analysis, see Kox (2001b).

[39] Cf. Markusen (1995); Ethier and Markusen (1991).

[40] An intermediate foreign expansion form, used by some large national-oriented firms, is to engage in association agreements with similar nationally-oriented firms in other countries. The firms use such international networks to serve clients that operate internationally. The networks only are stable until some participating firms have sufficient foreign demand to start their own foreign subsidiary.

Table 2.6 Internationalisation characteristics of company segments in BS markets

	Company segments			
	A Small non-specialist firms	B Small to medium-sized specialist firms	C Large national-oriented firms	D Large transnational firms
Internationalisation characteristics				
Export share in production	Absent or low	High	Low to medium	Low
Having foreign subsidiaries	No	Hardly	Few	Many

A present, foreign operations of most BS firms – either through exports or through direct investment – are still limited. The same holds for the exposure of local BS firms to world market competition. Table 2.6 distinguishes the dominant forms of business internationalisation in four BS company segments.[41] The majority of small non-specialised firms (segment **A**) will remain too small for venturing into foreign markets through exports. They neither have the appropriate staff resources nor the critical mass for exporting, and certainly not for setting up foreign subsidiaries.[42] Table 2.7 confirms the picture that large firms account for most of the BS exports.

Table 2.7 Share of large firms in BS imports and exports, average worldwide,1997

	Exports			Imports		
	Share top-5 (%)	Share top-10 (%)	Number of countries reporting	Share top-5 (%)	Share top-10 (%)	Number of countries reporting
Computer and information services	64	94	45	45	66	43
Other BS	38	60	107	37	54	112

Note: Based on balance of payments data. Source: WTO (1999, p. 24).

Three factors limit the extent of foreign competition in national markets.

First, for technical reasons, not all business services products can be traded internationally. While the ICT revolution makes it possible to send some products electronically, other products really have to be delivered abroad by the provider. Operating in export markets is thus hindered by the distance factor and by unfamiliarity with local markets conditions.

[41] The four segments correspond with those in Table 2.4.

[42] In a survey among a large number of BS providers in the EU, 44 per cent of the firms mentioned costs as a "very important" barrier to setting up a local operation in other countries (CSES 2001, p.43). Those firms that were able to estimate the size of the setup costs estimated the latter to be of the order of 6 months sales proceeds (ibidem, p.191).

A second limit to foreign competition stems from the importance of business reputations in the market for business services. Since products often are not standardised and prices are difficult to compare, the purchasing decision often builds on hearsay experience from comparable firms. For small and medium-sized firms it is not easy to break through this information barrier in a foreign market.

National market regulations form a third limiting factor to foreign competition. This is especially important in the markets for knowledge-intensive professional services like accountancy, legal and tax consultancy, architecture and engineering. Countries still specify many regulations, for example on qualification requirements for service suppliers, standards of professional competence, and regulations with regard to competitive conditions. The fact that these regulations differ considerably between countries, acts as a barrier to international competition.[43] Moreover, foreign providers of professional services often are subject to additional requirements, like the need to have a local office, nationality and re-qualification requirements for personnel, and restrictions on foreign ownership. Though often unintended, such regulations effectively hinder foreign imports and the establishment of foreign subsidiaries. The importance of regulation-based trade barriers is shown in Table 2.8.

Table 2.8 Main regulation-based barriers to sales of business services in foreign markets - the view of BS providers

		Percentage of BS-providers saying this barrier is 'very important' [a]
(1)	Imposition of national standards	30
(2)	Complexity of foreign legal system	25
(4)	Requirement to have a specific legal form	22
(5)	Absence of transparency in regulations	21
(6)	Absence of transparency in implementation of regulations	15

[a] The total population of the survey was 307 firms. Of them, 124 firms indicated that they had (had) export activities. The percentages in the second column refer to the 124 exporting firms. Source: CSES (2001, p. 53-4)

International BS trade in BS products

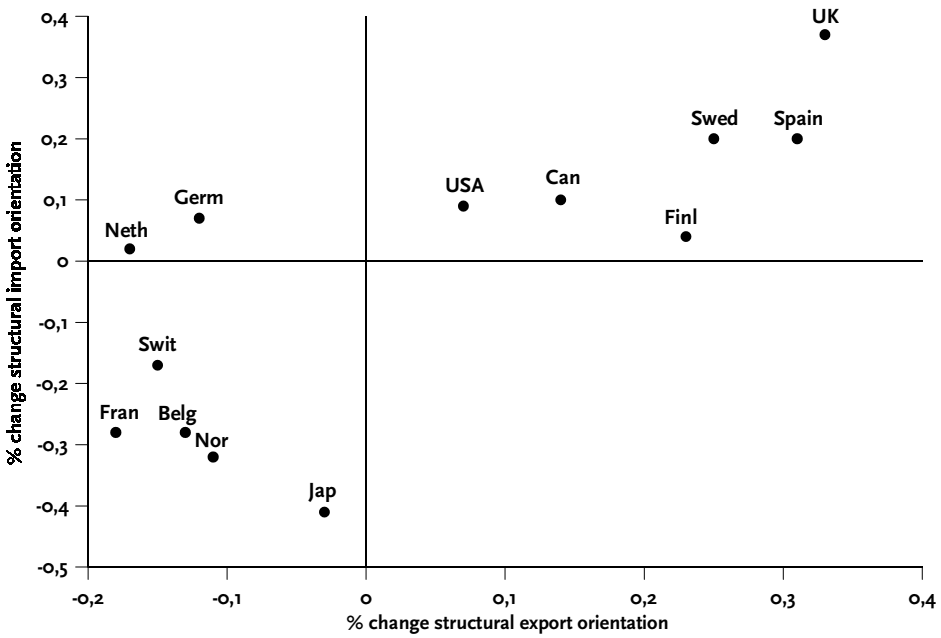
World trade in business services represents a growing share of total world services trade. OECD countries account for an increasing share of world trade in business services, both as origin and as destination of BS trade flows. Five OECD countries supply two-thirds of all BS exports. During the 1990s, the USA strengthened its leading position. In most countries, business

[43] Hoekman (1995) quantified the non-tariffary import barriers (NTB) as percentage of import prices. For BS and financial services, he found NTB tariff equivalents in the range of 20 to 28 per cent in most countries. Lejour et al. (2001, p. 16) estimate the value of NTB's to amount 6.5 per cent in EU countries (for BS and all services other than trade, communication, transport, communication and financial services).

services represent an increasing share of total country exports and imports.[44] Of course, this is partially caused by the growing share of BS industry in the national economies. Correcting for that, we get an insight in the structural change in trade openness of national BS markets. This is done in Figure 2.10. The graph shows substantial differences among benchmark countries as to the change in their structural trade openness. The BS markets of the countries in the first quadrant (e.g. USA and UK) became structurally more open to imports and also more export-oriented. The BS markets in the third quadrant (e.g. France, Japan, Belgium) became structurally more closed to imports and less export-oriented. Germany and the Netherlands form a third group. Their BS market became structurally more open to BS imports, while the structural export orientedness of their BS industries decreased. Since a shrinking structural import or export orientation often goes along with growing foreign direct investment in the BS industry, this may indicate a shift in the form of international expansion, namely from border-crossing trade towards direct investment in local subsidiaries.[45]

When a certain national BS market grows fast, it becomes more attractive for foreign firms to set up own production facilities in that market. The empirical evidence indeed shows that

Figure 2.10 Change in structural import and export orientation of BS industry, 1991-1996



Note: The changes are in percentage points. For calculation method : Annex V

[44] Cf. Annex V for data on international trade in BS products.

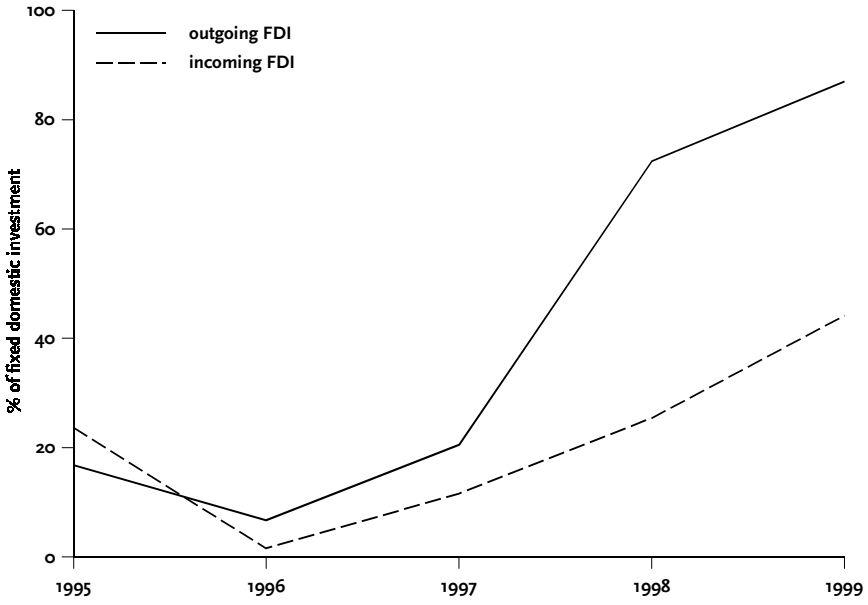
[45] It was investigated whether changes in (revealed) comparative advantage of countries could explain the BS trade specialisation patterns. For an important group of benchmark countries, this explanation did not stand up to an empirical test (Kox 2001b, Annex V).

import shares in domestic BS markets fall more when this market grows stronger. It was also found that increased trade openness of a country has an above-proportional effect on export and import intensities of the BS industry in that country.

The role of foreign direct investment in BS industry

In the mid-1990s, FDI in the BS industry did not yet have the same relative importance as in manufacturing. Since 1985, incoming direct investment flows in services industry in almost all benchmark countries increased stronger than services imports (see Table AV.2 in Annex V). The same result is found for outgoing internationalisation flows: direct investment outflows of the services industry have grown stronger than services exports. Intangible assets are more important for competition in client-specific and knowledge-intensive BS branches than in BS branches that produce more or less standardised services products.

Figure 2.11 Foreign direct investment (FDI) as percentage of domestic investment in fixed assets by the Dutch BS industry, 1995-1999



Data : DNB, CPB / CBS

Theory predicts that a high incidence of intangible assets makes it necessary to have a local presence in foreign markets (e.g. Markusen 1995). Local production of foreign subsidiaries indeed appeared to be more important in BS branches with client-specific and knowledge-intensive products than in BS branches with standardised products. The share of services industry in incoming and outgoing FDI flows increased in most countries. Foreign-owned BS subsidiaries in host countries over time reduced rather than increased their dependence on intra-company trade, meaning that BS multinationals generally do not (yet?) use intra-company

sourcing to cut production cost levels. The growing importance of direct investment can be seen by comparing annual FDI flows with domestic investment. In the second half of the 1990s, the importance of incoming direct investment increased steadily (Figure 2.11). In 1999, it represented 44 per cent of total domestic investment by the Dutch BS industry. The same trend, but even stronger, can be seen with outgoing direct investments done by the Dutch BS industry. Outgoing FDI flows were in size equal to 87 per cent of domestic investments. Hence, setting up foreign subsidiaries has become an important channel of foreign expansion for Dutch BS firms.

2.5 Conclusions on BS growth characteristics and industry structure

The conclusions from this chapter on the growth sources and growth characteristics of BS industry can be summed up in the following points.

Magnitude and sources of structural BS growth

- BS employment grew faster than overall employment in the market sector. This also held for value-added growth. The structural growth pattern was found in all benchmark countries, but in the Netherlands stronger than elsewhere.
- Outsourcing of in-house service activities by private firms was a major source of structural growth. The nature of outsourcing changed over time, from pure replacement outsourcing to service-upgrading outsourcing with increased high-skill inputs from the BS industry. Especially BS branches that produce client-specific products have benefited from this outsourcing wave since the mid-1990s.
- The increased weight of BS industry in the system of intermediate deliveries is partly caused by technological change in the form of product innovation and product specialisation. In the 1990s, final demand for some BS industries - software and ICT-related services - has grown more than final demand for the rest of the market sector.
- Deregulation contributed positively to the growth difference between BS industry and the rest of the market sector. Privatisation of in-house service activities by governments probably also contributed to structural growth of BS industry.
- Structural growth of employment in BS industry vis-à-vis other market industries is to a considerable extent caused by a stagnating labour productivity development in the BS industry, relative to the rest of the market sector.

Characteristics of BS growth

- BS industry is dominated by small firms, often with less than 5 employees. Fixed investment hardly forms an entry barrier for new start-ups. Branches where products are relatively standardised, have a somewhat larger average firm size.

- Product markets in knowledge-intensive BS branches are characterised by a strong degree of product differentiation. The competitive position of incumbents is based on market reputations with regard to quality. The reputation mechanism causes market segmentation. Segmentation is based on the geographic scope of the market reputation and the type of clients a firm has. Monopolistic competition is ubiquitous due to the combination of market segmentation and product differentiation.
- The quality of knowledge inputs forms the basic element for market reputations. An important part of such inputs is embodied in key employees. The latter often work at the premises of the clients, having much discretionary freedom in their daily operations. If they quit, they may take expertise and client-specific knowledge with them.
- The strong position of key employees yields them a share in the company's monopolistic rents, thus lowering the profit share of the firm owner. This mechanism inside the firms pre-empts the benefits of becoming large.
- Export markets contributed to the growth of BS industry. In all benchmark countries, BS exports and BS imports represented an growing share of total exports and imports. If this effect is corrected for the fact that also the share of BS industry in the total economy has grown, strong country differences emerge. Some countries appear to have become structurally more open or more closed to international BS trade. The situation in the Dutch BS market is mixed; while it became structurally more import-oriented, while its structural export orientation diminished.
- Exports in the BS industry tend to be substituted by direct investment as soon as the foreign market becomes large enough. The limited tradability of some BS products plays a role here, but also government regulations that in some BS markets require the provider to have a local subsidiary. Licensing in BS industry is not a preferred form of internationalisation, since intangible assets , the heart of a BS firm's competitive advantage, are too vulnerable.

3 Contributions of BS industry to macro-economic growth

This chapter deals with the impacts of BS industry on the growth capacity of other industries. Section 3.1 discusses how intermediary BS inputs can put other industries on a higher growth path. Section 3.2 concentrates on the contribution of knowledge-intensive BS branches to the dissemination of best-practice knowledge and innovations throughout the economy. The poor productivity performance of a growing BS industry may form a drag on macro-economic growth. Section 3.3 investigates the conditions under which this could be the case. The final section summarises the results.

3.1 BS industry and vertical fragmentation of value-added chains

This section sketches the conditions under which growing use of intermediary BS inputs contributes to macroeconomic growth. Especially the part of BS growth that is caused by outsourcing from other industries deserves closer attention.

A popular view is that outsourcing[1] is just an administrative replacement of a particular activity from one industry to another, without any effect on economic growth. In the discussion of this view, it is useful to draw a parallel with a familiar problem in international trade theory, namely the question whether economic integration leads to trade diversion or to trade creation.[2] The difference here is that we are not concerned with countries, but with industries. Analog to Viner's distinction we can distinguish two types of BS growth:

- Displacement growth (trade diversion) occurs when services that thus far were produced in-house by other industries are outsourced to BS firms, without a change in the nature of the services. Such displacement only contributes to macro-economic growth if it makes the outsourcing industries more efficient,[3] or if it generates scale economies in the BS industry.
- Trade creation occurs when outsourcing goes along with upgrading, specialisation or innovation of the services product. Additional macro-economic growth is generated when service provision by the BS industry allows more complex and/or more efficient production constellations than was the case before.

The macro-economic growth contribution of outsourcing can be illustrated on the basis of macro-economic production functions. A macro-economic production function is defined as a specific national production constellation, i.e. a particular relation between industries that together form the national economy. Figure 3.1 plots total value added of all industries against

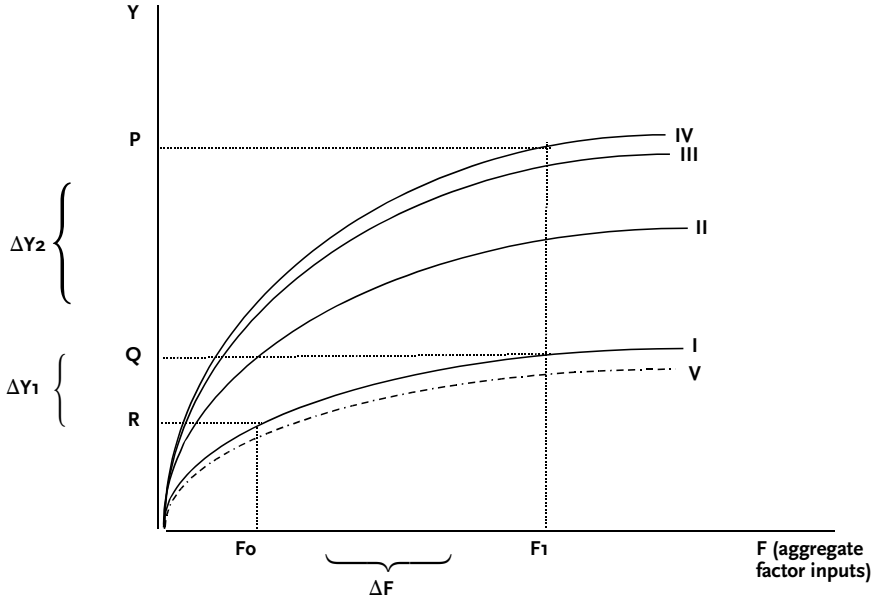
[1] Outsourcing has a wide meaning here: it stands for the process of increasing intermediary input coefficients, while at the same time direct labour input coefficients in the outsourcing industry fall.

[2] Cf. Viner (1950); Meade (1955).

[3] E.g. by allowing concentration of management capacity and other resources to core activities.

aggregated factor inputs. It is assumed that diminishing returns to scale are dominant in each macro-economic production function. Suppose that the initial relation between industries is reflected in production function I. With a given amount of factor inputs ΔF (that is: F1-Fo) only value-added growth ΔY1 can be attained. The full growth potential ΔY1 + ΔY2 can only be achieved after rearranging the relations between industries in such a way that the higher-order production function IV is reached.[4]

Figure 3.1 Macro-economic growth potential and structural change through intermediary BS inputs



Suppose now that ΔF are the factor inputs used in the in-house production of services by one of the non-BS industries. When these factor inputs - through outsourcing - are transferred to a company within the BS industry, this only yields a positive macro-economic growth contribution when a higher-order - hence more efficient - aggregate production function can be reached.[5] The litmus test for the economic-growth effects of outsourcing is whether the following condition is fulfilled:[6]

$$\Delta Y_{BS} \geq | \Delta Y_{N} | \qquad (1)$$

in which:

ΔY_{BS} : net change in value added of BS industry

[4] In growth accounting, this jump effect ends up in the change of total factor productivity (TFP).

[5] In a cross-country sample of social accounting matrices Francois and Reinert (1995) found a strong and significant correlation between the share of producer services in manufacturing's demand for intermediate deliveries and GDP per capita.

[6] Both net effects include indirect inter-industry effects of the services transfer.

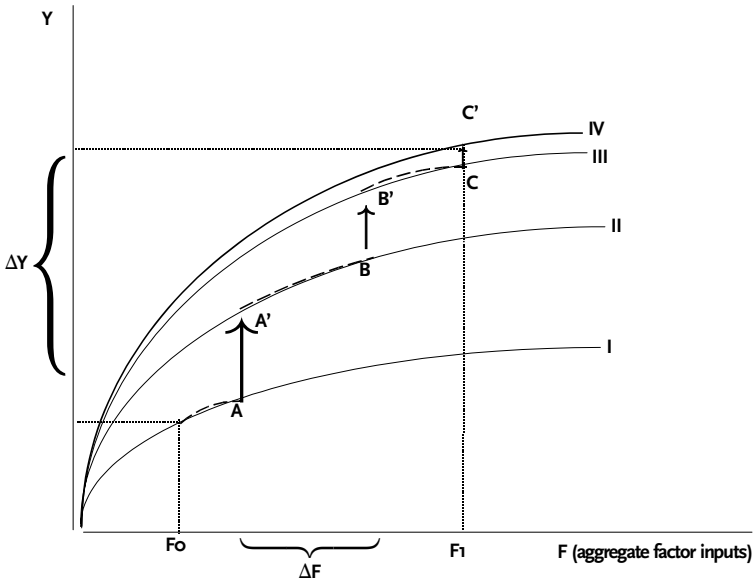
ΔY_N : net fall in value added in the outsourcing industry as a result of discontinuing in-house production of the business service.

If condition (1) is not met, it must be concluded that outsourcing results in a less efficient macro-economic growth path. From macro-economic growth perspective, production constellation V can be considered as inferior. In Figure 3.1 this possibility is represented by production function V. In this case, we probably find a difference between micro-economic and macro-economic rationality. The average value added per remaining worker (factor input) in the outsourcing industry probably has increased; otherwise, they would not have outsourced the activity. At a national level, value added decreases if the same activity generates less wages plus 'other income' in the BS branch that has taken over the activity. This is conceivable in case the BS branch has lower wages and its employers accept lower profit rates than in the outsourcing industry. Such situations could well be found in parts of the cleaning branch, for instance. Cleaning firms are characterised by a high incidence of low-wage female part-time workers and immigrant workers, while cleaning firms often have a strong dependence on a just a few large clients (Björnsson 1999). However, outsourcing of low-paid, low-profit jobs to foreign countries can increase income in the outsourcing country. Feenstra and Hanson (1999) found a positive effect of outsourcing (abroad) on US wages.

Indivisibilities and scale effects

Outsourcing can be governed by indivisibilities, so that not the entire ΔF can be split-off by the outsourcing industry to BS industry according to production constellation IV. The outsourcing industries may, for instance, need to keep certain elements of the outsourced activities in-house, like quality control and planning, while additional new management effort may be needed for intermediary purchases and its monitoring. The effect of indivisibilities is illustrated in Figure 3.2. Outsourcing is only possible from A onwards. The graph depicts the possibility that additional macro-economic growth contributions can be realised by further production fragmentation so that more complex outsourcing constellations (sub-contracting, sub-sub-contracting) become feasible. Such additional jumps are possible at points B and C. The bold dotted line in Figure 3.2 represents the optimal growth-through-outsourcing path. The optimal growth path corresponds with growing specialisation and fragmentation of value-added chains. The production cycle is being spread over more intermediate production layers. According to Grubel (1995), a substantial part of the growth in total factor productivity (TFP) can be understood from increased specialisation in production inputs, and this particularly applies to business services. He regards the development of highly specialised branches of human- and knowledge-capital intensive services as a form of human-capital deepening or 'increasing *roundaboutedness* of production (in Dutch: *omwegproductie*).

Figure 3.2 Optimal expansion path for intermediary BS inputs in the presence of indivisibilities



The optimal outsourcing path corresponds with a particular state of technology (e.g. communication costs, technical indivisibilities) and with a particular state of environment variables like government policy, inter-industry wage differences, and transaction costs. Business cultures like attitudes towards company outsiders, also play a role here.[7] Technology and environment variables therefore dictate the optimal outsourcing path.

Diminishing returns to outsourcing and micro-economic profit maximisation ensure that first those activities will be outsourced that generate the largest macro-economic efficiency gains, then those with somewhat smaller gains, and so on, until further outsourcing comes to a halt. The diminishing efficiency gain along the outsourcing path can be expected to translate itself also in profitability at micro-economic level in BS branches. Those BS branches that typically operate on the margin of the optimal outsourcing path (i.e. generating minimal cost savings for the outsourcing firms and industries) will have to accept lower-than-average profit margins.

Outsourcing is a way of overcoming indivisibilities in client industries, especially for small client firms. The expertise of professionals in branches like law, science, engineering, public relations, logistics, marketing or security sometimes have become so specialised that even the largest manufacturing companies do not need these specialisms on full-time basis, let alone the small firms. The setup costs for departments that sustain such specialists are simply too high. However, these professionals can be employed fully by specialised BS firms catering to clients throughout a region, country or even the world. In this way, their services also come available to

[7] E.g. Tordoir (1993, Ch.4).

small firms in more localised markets or local governments that otherwise would have continued without such specialised knowledge inputs. Since the decision to hire such BS specialists is governed by cost-benefit considerations, it can be taken for granted that the increased market availability of specialised BS knowledge competences must have increased production possibilities of client industries.[8] Ceteris paribus, such human-capital deepening must increase macro-economic growth opportunities. Edwards and Starr (1987) showed in a formal model that labour specialisation of the aforementioned type induces additional macro-economic growth.[9]

Empirics of increasing roundaboutedness

The important role of BS industry in the process of growing roundaboutedness can be traced in the structure of intermediate deliveries. Since the 1980s, an increasing share of intermediary BS output is destined for services industries, while the share of manufacturing industry is clearly sinking. BS industry in the Netherlands nowadays consumes the same amount of business services as the manufacturing industry does (cf. Figure 3.3).

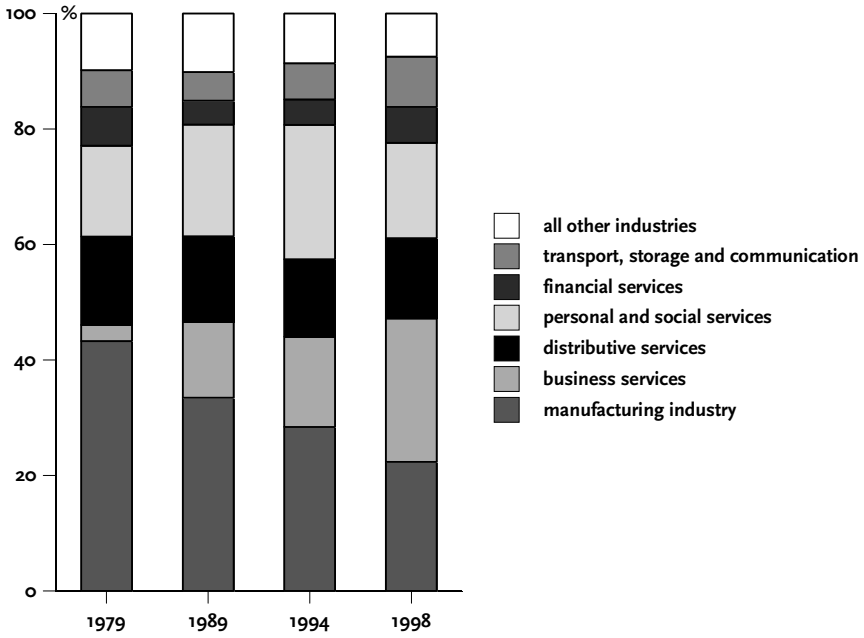
The increasing intra-industry use of BS products in the BS industry itself hints at a steep increase in the division of labour and product specialisation. Personal and social services[10] increased their share in intermediary BS output until 1994, but their share is receding since then. The same holds for distributive and financial services. Figure 3.4 displays as a general pattern that, over time, BS products become more important in the intermediary input of all Dutch sectors. But the most spectacular increases occurred in BS industry itself, followed at some distance by distributive services, transports & communication, and financial services. Hence, it can be concluded that the BS industry itself is fully engaged in a process of growing roundaboutedness.

[8] Robson and Benett (2000) find in a large survey of British small- and medium-sized enterprises that 95 per cent of respondents use some form of external economic business advice. Accountants are most widely used (partly because this is obligatory), followed by advice from banks and lawyers.

[9] This is due to increasing returns to scale, even if each additional layer of more specialised activities (BS branches!) operate under constant returns to scale. The increasing returns to scale result from nonconvexities like setup costs and indivisibilities in labour use. Francois (1990a, 1990b) elaborated on this aspects with regard to the growth contribution of producer services.

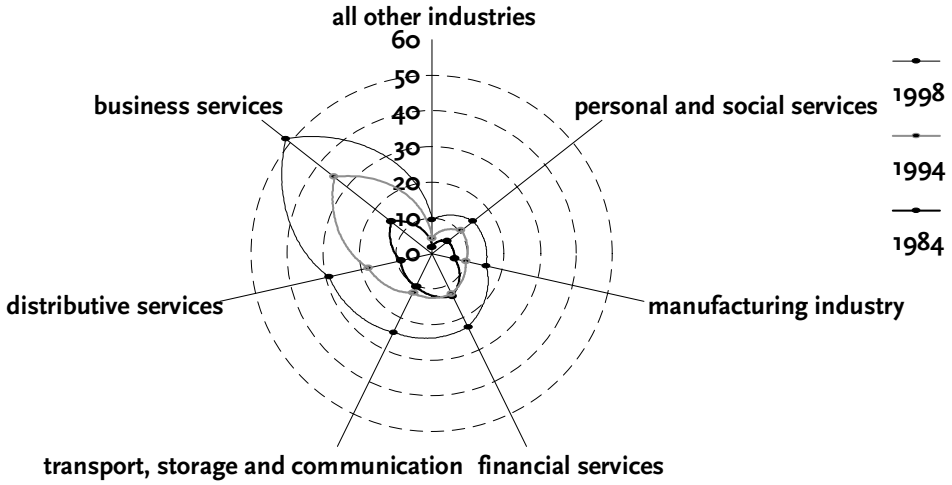
[10] Including government, health and cultural services.

Figure 3.3 Sectoral shares in total intermediary use of business services, Netherlands, 1979-1998



Note : National Account revisions took place in 1987, 1993 and 1995. Data source : Statistics Netherlands, input - output tables

Figure 3.4 Share of BS inputs in total intermediary inputs of selected sectors, Netherlands, 1984-1998



Data : Statistics Netherlands, Input - output tables

The growing roundaboutedness of production is also related to the changing internal structure of BS-using firms. Tordoir (1993, p. 131-44) found a strong correlation between the use of knowledge-intensive BS expertise and the development of internal professional competences in the BS-using firm.[11] If this result is extrapolated, increasing average levels of employee education throughout the economy could result in higher average degrees of professionalisation in firms, thus generating further demand for knowledge-intensive BS expertise.

Conclusion

The position of BS industry reflects increasing labour specialisation. National production systems can be interpreted in terms of macro-economic production functions. The growing role of BS industry in the system of inter-industry deliveries corresponds with higher-order production functions. The macro-economic growth contribution of BS industry derives from its role in allowing ever more complex, yet at the same time more efficient combinations of production factors. The result is that vertical value-added chains get increasingly fragmented over different production layers. The BS industry plays a strong role in this process of growing roundaboutedness of production. It helps firms in all industries to surmount indivisibilities in the process of labour specialisation. This function is particularly important for small and medium-sized companies. Empirical data for the Netherlands indicate that the BS industry plays a central role in the process of growing roundaboutedness and division of labour.

3.2 Contribution of BS industry to national innovation systems

This section concentrates on the contribution of BS products to innovation processes in other industries. Emphasis is put on the role of knowledge-intensive BS branches.

Knowledge resources are increasingly acknowledged as a basic resource for economic growth (e.g. Nahuis 2000). For decades, capital was considered as the most scarce production factor, and therefore, the main bottleneck in economic growth. This is changing due to several factors. Scale economies based on high stocks of physical capital tend to become smaller as technological progress makes it possible to run smaller production units.[12] This means falling investment requirements per unit of output. Also, the growing services sector demands less capital per unit of production than manufacturing did. In the aftermath of the 2001 'technology bubble', large volumes of capital resources hang over the investment market on the look for

[11] This held for all types of knowledge-intensive BS, except for accountancy and legal services. The reasons are that each firm has its own accountancy/bookkeeping department, whereas legal services are almost always externally provided.

[12] The development of efficient small-scale steel mills, flexible programmable robots, and the shift from mainframe computer centra to decentralised PC-based computer systems are examples of this tendency.

profitable investment outlets. Conversely, good ideas for innovative and commercially viable products and production processes probably have become the most scarce production factor.[13]

The knowledge-intensive BS branches play several important roles in the modern knowledge infrastructure.[14] Three aspects deserve to be distinguished:

- *Original technological innovations.* High-tech branches like software houses, engineering firms and institutes for contract research create own technological innovations that have a wide reach in national innovations systems. Van der Wiel (2001, 2001a) found on the basis of firm-level data that some 70 per cent of Dutch firms in computer services and engineering reported to have introduced technological innovations between 1994 and 1996.[15]
- *Original non-technological innovations.* Other branches are innovators in non-technological areas, e.g. in areas like company strategy, market concepts, product design, IT-implementation, human resource management, e-commerce or accounting systems. Table 3.1 gives an overview of the important competence areas to which individual BS branches contributed their technological and non-technological innovations. Many of the basic BS innovations are adapted for client firms on a case-by-case basis.
- *Knowledge diffusion.* All knowledge-intensive BS branches are active in the dissemination of best-practice knowledge to client firms regarding particular competence areas. Even if the BS firms are not the original innovators in this case, they have an important contribution to overall upgrading of knowledge and efficiency in client firms and industries. Some BS firms also are engaged in assisting their client firms in the operational application and implementation of the best-practice knowledge.

A framework designed by Antonelli (1999) may elucidate the role of knowledge-intensive BS branches in innovation processes. The author distinguishes between technological information and technological knowledge. *Technological information* is a public good, often codified in publicly accessible sources. The production and use of technological information require certain minimum education levels. Once these education levels are attained, technological information

[13] Up to the stock market slump in ICT-related shares (beginning April 2001), almost any entrant with innovative ideas could easily attract new capital, even without having a profitability track record.

[14] A host of literature focusses on the role of knowledge-intensive business service. Cf. Antonelli (1999); v. Ark et al. (1999); Barré (2000); Beije (2000); Bilderbeek and Den Hertog (1998); Cave (1998); Cowan and Van de Paal (2000); Green, Howells and Miles (2001); Den Hertog (2000); Hauknes (1999a; 1999b); Hulshoff et al. (1998); Leiponen (2001); Manshanden et al. (1997); Miles (1999); Muller and Zenker (2000); Preissl (1998); Steiner et al. (2001); Tordoir (1993); Windrum & Tomlinson (1999).

[15] Van der Wiel (2001, p. 31) finds that innovation activities of Dutch firms in computer-related services and engineering are remarkably in line with those of similar firms in Germany, France, UK and Denmark.

can easily be transferred and learnt, at relatively little cost. Because of the public good character, innovators have difficulty in appropriating all benefits. *Technological knowledge* is not a public good; it is localised in well-defined technical, institutional, regional and industrial situations (a firm, industry, region, or working team). Localised technological knowledge is often highly

Table 3.1 Contributions of BS industry to innovation in client firms

	Competence areas	BS branches involved
Innovative functions		
Technological innovation	★Greater integration of technology ★Use of existing technology ★Adaptation of technology to business needs ★Efficiency in the advanced processes of ICT ★Automatisation of routine processes ★Flexibilisation of productive structures ★Quality improvement	★ Computer-related services (IT) ★ Engineering services ★Design services ★Quality control services ★On-line services of electronic communication ★Patenting services
Organisational innovation	★Efficiency of internal organisation ★Articulation of control and co-ordination processes ★Manpower recruitment, selection, training ★Improvements of internal services and competences ★Project management	★Management consulting ★Interim management services ★Auditing and legal services ★Temporary work, recruitment services ★Outplacement, manpower training ★Engineering services
Strategic innovation	★Flexibility for dynamic environments ★Positioning in complex markets ★Strategic information regarding alliances ★Information regarding product adaptation ★Location choice ★Definition of core activities ★Defence in conflicting legal environment	★Management consulting ★Audit services ★Legal consultancy ★Market research ★Marketing services
Commercial innovation	★Competitive product design ★Innovative commercialisation ★Product launch campaigns ★Improved client awareness ★Improved company image	★Fairs and exhibition services ★PR services ★Market research ★Advertising agencies ★Direct marketing / call centres
Operational innovation	★Functional division of labour ★Human resource management ★Extended international operations ★Operational capacity concern	★Security services ★Courier services ★Cleaning and maintenance services ★Linguistic services

Source: adapted from Rubalcaba-Bermejo (1999)

specific and idiosyncratic. It is developed in a specific context and cannot readily be applied in another context. The localised character of technological knowledge makes it easier for firms to appropriate rents from such knowledge. Technological knowledge draws upon four different knowledge sources and four different knowledge-generating processes (cf. Table 3.2). Internal

tacit knowledge consists of little-articulated skills and rules, generated by learning-by-doing and learning-by-using. External tacit knowledge is acquired through informal exchanges and socialisation. Codified technological knowledge can result, for instance, from own or joint R&D activities, or from participation in formal external networks.

Table 3.2 Four components and acquisition modes of localised technological knowledge

	Tacit	Codified
Internal	A. Learning-by-doing, learning -by-using, idiosyncratic capabilities	B. Formal R & D activities
External	C. Socialisation, informal exchanges, 'club' membership, proximity, hiring KIBS[a]	D. Recombination of bits of generic technological information, formal R&D co-operation, standardisation agreements

[a]KIBS: knowledge-intensive business services. Adapted from: Antonelli (1999).

Referring to Table 3.2, knowledge-intensive BS firms operate as active interfaces between codified and tacit knowledge sources. BS consultants typically diminish the domain of knowledge acquisition mode *A*, while enlarging the domain of acquisition modes *C* and to some extent also mode *D*. BS industry itself derives its knowledge from three types of origins.

The first of them is formed by public knowledge sources like education, universities and professional literature. Forty per cent of all workers in total Dutch BS industry had higher education or university degrees (cf. Figure 2.3). In knowledge-intensive BS branches this percentage is higher still.

The second source is formed by own research and development activities. Some BS branches like the software and engineering branches have substantial own R&D activities. Table 3.3 shows that the world's leading IT services firms often spend between 15 and 20 per cent of their sales revenues on research and development. Outside the branches computer services, engineering and contract research, other parts of BS industry are far less active in technological innovation on the basis of own R&D or innovation expenditures. Own R&D expenditure generates proprietary knowledge such as copyrights, patents and non-codified knowledge.[16] Such firm-specific knowledge assets that can be used for carving out a strong market reputation for the firm's client-specific products.

The third information source of BS firms is – as already mentioned –formed by its clients, where best-practice information is distilled from all-day working practices of clients, and where best-practice information is 'tried out'. BS firms visualise, articulate, and 'objectify' tacit knowledge in client firms with regard to a particular competence area, and then confront this

[16] Some 6 per cent of all Dutch BS firms held patents in 1996; a similar figure (5%) applied in Austria (Steiner 2001). In the Dutch computer services and engineering branches, 3 respectively 12 per cent of the firms held patents in 1996 (Van der Wiel 2001).

Table 3.3 R&D intensities of selected IT services firms, 2000

Firm, country	R&D expenditure per employee	R&D expenditure per sales unit
	in US $1000	% of sales
SAP, Germany	26.1	15.5
Computer Associates, USA	25.6	16.6
ADP, USA	7.7	8.0
Electronic Arts, USA	74.4	29.4
Peoplesoft, USA	27.1	18.7
Cadence Design Systems, USA	38.0	25.1
Sybase, USA	33.6	25.4
Adobe Systems, USA	53.5	19.0
BMC Software, USA	21.4	15.6
Novell, USA	32.1	20.2
Veritas Software, USA	24.6	14.6
Baan/Invensys, The Netherlands	23.7	27.6
CMG, The Netherlands[a]	1.5	2.1

[a] 1999. Source: R&D Scoreboard (Financial Times, September 27, 2001), CMG Annual Report 1999.

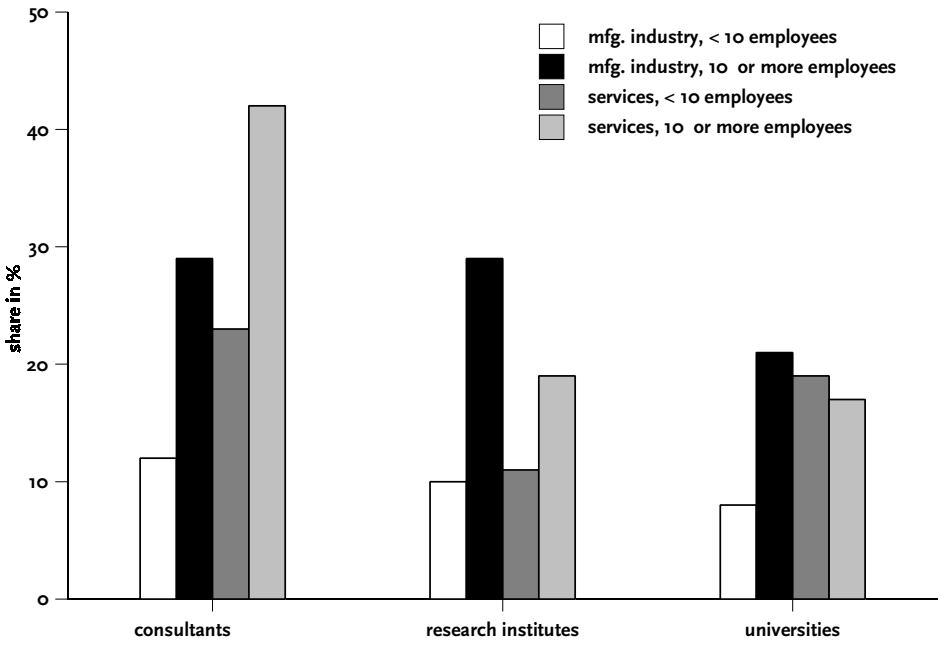
with best-practice examples derived from public sources (codified information), or from previous consulting activities by the BS firm in other client firms.

The important role of BS industry in national innovation systems clearly pops up from survey research among innovating firms. Innovators in all industries were asked about their information sources outside the own industry and outside their own clients. BS firms appear to be more important information sources for innovating Dutch firms than universities as Figure 3.5 displays.[17] Innovative service firms are most oriented towards using BS firms as innovation source. The graph also brings out that small innovators still make relatively little use of advice from outside information sources.[18] This may be caused by scale thresholds, and uncertainty on the potential quality of the external information sources (information asymmetry).

[17] A. Leiponen (2001) found a similar picture for Finland.

[18] Research based on Eurostat's Community Innovation Survey (C.I.S). With regard to their applicability on BS industry itself, the results of CIS must be interpreted with caution. There could be a nasty firm-size bias in the survey results. Firms of less than 10 employees are absent in the CIS-2 innovation survey database. Consequently, the overwhelming majority of BS firms falls without the scope of the survey. See also Cornet and Gelauff (2002).

Figure 3.5 Information sources for innovating Dutch firms (outside their own industry), by information source and industry, 1996-1998



Note: institutes for contract research (NACE 73) also form part of BS industry. Sources: CBS (2001, p. 117); Klomp and Meinen (2001).

BS knowledge contributions and macro-economic growth

How do BS knowledge activities contribute to macro-economic growth? The first contribution of BS industry is that it streamlines the acquisition of tacit knowledge by client industries, and the upgrading thereof through an infusion of more codified knowledge sources from outside. It makes it possible for BS clients to avoid the unnecessary pitfalls and 'reinventing the wheel', or following too long unproductive intra-company knowledge trails. Doing so, knowledge-intensive BS firms contribute to the removal of X-inefficiencies, bringing firms closer to the technological production frontier on several competence areas.[19]

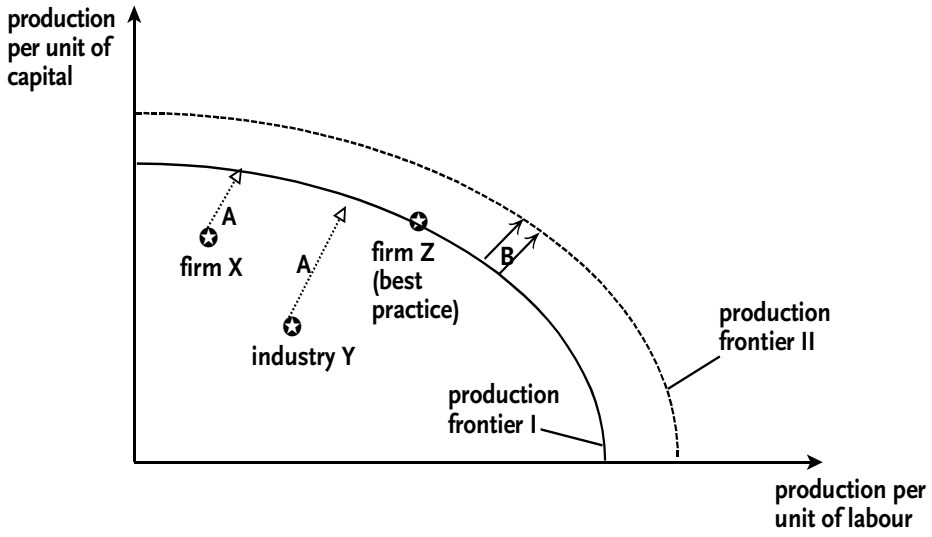
The knowledge diffusion by BS firms speeds up technological imitation. Most client firms are not original innovators and will be happy to adopt technologies that have proven to be effective elsewhere. Adopting such innovations can be highly cost-effective. It avoids less gainful innovation avenues in which each original innovator find himself every now and then. The imitator avoids the failure risks of in-house R&D effort. Imitating firms swiftly get closer to the production frontier in the industry. During this process of catch-up growth, catalysed by the

[19] The availability of BS services also has regional development effects, but this line will not be developed further in this report. See for example: Daniels (1991); Gago (2000);Hansen (1990); Martinelli (1991); Moyart (1997); Rubalcaba (1999).

intervention of BS firms, client firms may attain high growth rates. Much of the output of computer-related BS services is an embodiment of such technological imitation.

Firms receiving knowledge-intensive BS inputs can better exploit these inputs when they already have well-developed knowledge capacities in the firm. Effectiveness of catch-up growth due is determined by the prior presence of knowledge-intensive inputs in the receiving firm, i.e. the knowledge-receptor capacity.[20] High BS inputs may bring client firms swiftly to the production frontier within an industry, or the international production frontier for operational aspects like financial or marketing practices.[21] Governments increasingly acknowledge this contribution of knowledge-intensive business services to innovation and technological capabilities of small- and medium-sized companies.[22]

Figure 3.6 Economic growth contributions derived from the role of knowledge-intensive BS firms



To conclude, Figure 3.6 sums up the contributions of knowledge-intensive BS branches to national innovation systems and to economic growth. The figure shows - for a particular

[20] Tordoir (1993); Perez and Soete (1988).

[21] In a survey of British small and medium-sized enterprises Robson and Benett (2000) found that the use of lawyers correlated positively with the company growth rates. The authors found that (irrespective of the source of advice) a positive correlation could be established between the company growth rates and advice sought in three areas: business strategy, staff recruitment, and taxation/financial management. Comparable findings were done in Germany and France by Muller and Zenker (2000).

[22] Cf. OECD (1999, 2001d); Commission of the European Communities (1998, 2001).

competence area - the production frontier, i.e. the maximum production volume that can be attained with a certain volume of capital and labour resources. This is the efficiency level at which the best-practice firm operates (in this case firm Z). This is a major innovation/growth contribution of BS industry. Apart from that, BS innovations – both technological and non-technological – cause the technological frontier to shift outwards (arrow **B**). At production frontier II, with a given amount of labour or capital resources a higher production volume can be attained. The graph also shows that such a frontier shift again creates a new work area for other BS firms, bringing clients to the new frontier II. Macro-economically, the importance of all this is that efficiency gains allow lower prices per unit, hence more consumption and a higher welfare level.

Constraints to the knowledge role of BS industry

Knowledge diffusion may achieve additional macro-economic growth because it activates catch-up processes throughout the economy. However, these activities are subject to diminishing scale effects. Typical for catch-up growth is that growth rates will diminish to the extent that the client firms approaches the production frontier.[23] Hence, the growth contribution from further BS inputs from some point onwards may diminish sharply. These considerations also pertain to the growth contribution of knowledge-intensive business services. Unless followed by new, original innovations, fresh innovations or new knowledge resources the contribution of knowledge-intensive BS firms to economic growth dry up. Client firms would get less interested in additional BS knowledge inputs.

What incentives do BS firms have for putting additional efforts in innovation? The classic incentive is that the innovator enjoys a temporary monopoly on the financial benefits of the innovation. This temporary monopoly may be safeguarded by exclusive ownership titles (patents, copyrights), company secrecy, or entry barriers pertaining to implementation of the innovation (scale economies). The latter factor plays hardly a role in BS industry. Hence, only intellectual property rights and company secrecy remain as factors that may provide the original innovator a temporary monopoly right on the benefits of the innovation.

In the European Union, patents can only apply to technological innovations, meaning that perhaps the largest part of BS innovations –the non-technological innovations – cannot be protected by patent law. US patent law has a wider applicability, allowing to ask patent rights, for example, on new services concepts and a new business model. Excluding non-technological

[23] The catch-up growth process is generally described by a logistic curve (e.g. Welfens *et al.* 1999; Fagerberg 1988; Perez and Soete 1988). Applied to BS industry, one would expect that, in clients industries with intensive BS use, the dispersion of firms around the industry's productivity average diminishes over time (falling standard deviation).

innovations from European patent law means that intellectual property rights offer *no* incentive for knowledge-intensive BS firms to come up with original non-technological innovations.

Once a patent rights is granted, it still has to be juridically defended against open imitation and counterfeiting. The patent procedure, nationals differences in patent laws, and the possibility of ensuing juridical quarrels can form a tough barrier for small innovative companies. Copyrights give less protection to an original innovator than patents. In the software industry, innovation often has a high pace and an incremental character, making the time-consuming and administration-intensive patent registration procedure to an unwelcome burden for the many small firms in the industry.[24]

The remaining method for original innovators to safeguard a temporary monopoly on the financial benefits of an own innovation is company secrecy. The strategy can be used when the firm owner himself has proprietary information that can be released to employees in portions or at strategically chosen moments in time (cf. Huizinga 2000), but in BS industry such cases are scarce. The secrecy strategy is predominantly used in branches where knowledge is to a large extent produced and implemented in-house, e.g. production of stand-alone software products (cf. Blind et al. 2001, Rodriguez 2001). However, in branches with a high incidence of key employees and/or job-hopping, putting all trust in the protective role of company secrecy may be a risky strategy. Maintaining secrecy is difficult when the firm's knowledge resources are mainly embodied in an innovative firm's employees.

The conclusion of this section is that the incentive structure for knowledge-intensive BS firms to come up with a steady flow of new, original innovations might become insufficient once catch-up effects are exhausted.

Another potential constraint for the future innovation role of BS industry arises on the input side of its knowledge resources. BS firms use to have a relatively free access to information and local, tacit knowledge built up by clients. It distils best-practice information from such knowledge and use it as an input when they serve other clients. The activities of BS industry thus speed up the imitation process. Other things equal, monopoly rents that the original source (the client) derived from these innovations and new business ideas will – due to activities of BS firms –become shorter-lived. Once it becomes common-sense knowledge how the imitation channels run, it might lead to an attitude of *keeping BS firms out of the kitchen*.[25] BS industry might need new professional codes of conduct to prevent that the aforementioned client attitude

[24] See, inter alia, Ministry of Economic Affairs (2002, p. 104-5). A relatively low use of patents in computer services industry can partly be explained from the fact that detailed patent registrations form a rich information source for competitors. Software developers often use other measures to protect the fruits of their R&D and innovation efforts, e.g. company secrecy measures (Blind et al. 2001).

[25] Empirical research in Denmark found that this attitude explained an important part of the reluctance of client firms to hire knowledge-intensive services (Ministry of Trade and Industry, 2000, p.80).

becomes an intrinsic constraint for the future innovation diffusion role of knowledge-intensive BS branches.

Conclusion

BS industry contributes actively to economic growth by developing original innovations, and by bringing clients to the efficiency frontier in many competence areas. BS industry has a strong role in the knowledge catch-up process of client firms. The growth contribution yielded by a catch-up process is subject to diminishing returns. If BS industry is to hold its knowledge diffusion role in the future, it will need new waves of original innovations, both technological and non-technological. The incentive structure for original innovations by the BS industry shows some flaws and constraints.

3.3 Macro-economic effect of a growing BS industry with stagnant productivity

The preceding sections have indicated that the BS industry strengthens efficiency and productivity in clients industries. In doing so, the BS industry positively contributes to macro-economic productivity. But the story does not end here. There is a second major impact on macro-economic productivity, because BS industry itself has a sluggish productivity-growth record. Given the increasing macro-economic size of the BS industry, the low productivity growth of BS industry gets an increasing weight in national labour productivity development. What will be the future balance between these two different forces? This question forms the subject of this section.

Problematic labour productivity growth

Earlier in this study it was shown[26] that: (a) labour productivity in BS industry grows much slower than in the rest of the market sector; (b) productivity growth rates have been falling in the course of the 1990s; en (c) this pattern is discernible in the Netherlands and all benchmark countries alike. A few possible explanations can be offered for the observed productivity development in BS industry. Two of them have a more or less structural character, while last one puts emphasis on factors related to business-cycle development. The three explanations do not exclude each other.

The first explanation concentrates on the role of knowledge-intensive BS branches. The downward trend in BS labour productivity growth coincides with a shift in the composition of BS industry, from branches with standardised products towards branches with client-specific,

[26] Figures 2.5 and 2.6. See also the underlying data in Annex VII

knowledge-intensive products.[27] In these BS branches, a lack of competition and the presence of a majority of very small firms hold back productivity growth. Technically speaking, production in these BS branches does not allow much product standardisation, nor much efficiency gains through internal division of labour. A strong, rent-sharing position of key employees, moreover, exerts a downward influence on optimal firm size, thus suppressing potential economies of scale. Finally, market conditions in these branches fail to provide sufficient incentives for increasing efficiency levels. Non-perfect competition with segmented markets –some oligopolist, some monopolistic– typifies many of the BS branches with client-specific products. The latter factor may explain why stagnating productivity is not penalised by market forces.[28] Under perfect competition, firms could not raise their prices, so that the most inefficient firms would be shaken out of the market, because of falling profits. In non-competitive markets, even low-productive firms can shift cost increases to their customers in the form of a higher product price. This interpretation is consistent with the development of relative prices for BS products in the Netherlands (cf. Kox 2000).

Do measurement problems in BS industry affect macro-economic productivity?

Measurement of productivity in BS industry could be strengthened by introducing more physical output indicators. Nowadays, productivity in BS industry is measured in an indirect way, based on registration of turnover, value added and inputs costs, particularly wages. This can be the cause of some biases in the data. One possible bias is that wages in case of key employees contain a rent or profit element; if such wages are used to measure labour input, it would result in underestimating labour productivity. Another bias, working in opposite direction, is that the wage structure in some sections of BS industry (e.g. consultancy, software) is based on the willingness of employees to provide more working hours than is formally agreed in collective labour agreement. Although European statistical offices – cooperating in the so-called Voorburg Group – are working on ways of improving the registration of services activities, there is still a long way to go.

Do potential measurement problems in BS industry also lead to underestimation of macro-economic productivity? This is not the case. Since BS is an intermediary industry, any bias in its measured productivity would mean that measured inputs of BS clients are either smaller or larger. It also means that measured productivity in the client industries is either too high or too low. Macro-economically, these two measurement biases cancel out against each other.

A second explanation for the stagnating productivity growth builds upon Vernon's concept of product life cycles. Many knowledge-intensive BS products are in their early development stage. Production methods, products and product markets are not yet standardised (see text box). In this stage, producers are not (yet) geared towards price competition or cost efficiency. This

[27] The latter group of branches is characterised by high productivity *levels*, while their productivity growth is at best modest, but often stagnant or even falling.

[28] As the data in Annex VI show, the price-profit margins of Dutch BS branches hardly changed between 1987/88 and 1994/95, despite the stagnating labour productivity growth.

might explain low productivity levels. If this explanation holds, one would expect labour productivity to rise when the BS industry mature and products become more standardised.[29]

BS products in early stage of product life cycle?

BS industry is a relatively new industry, and at least some of its branches did hardly exist 20 years ago. Many of its products, particularly knowledge-intensive BS products, are even newer. According to Vernon's seminal article (1966) on product life cycles, products in an early stage of their development tend to be quite unstandardised. Since products are new and highly differentiated, price elasticity for the output of individual firms is comparatively low. Production methods also still have a learning-by-doing character, and producers have a large degree of freedom in changing their inputs. Small cost differences count less in the calculation of the entrepreneur than they are likely to count later on. The need for swift and effective communication between the producer and his clients is especially high in this early product development stage.

Once demand for a product expands, a certain degree of standardisation (commonly accepted product standards) takes place. Efforts at product differentiation do not come to an end, since competitors try to avoid the full brunt of price competition. Moreover, more product variety may arise due to specialisation. However, concern about production costs begins to take the place of concern about product characteristics. Uncertainties diminish about how the product should be produced, making it possible and useful to concentrate on cost projections.

Once standardisation also occurs in the product market, the price elasticity of demand for the output of individual firms increases. Firms that wish to survive, must give full attention to cost efficiency.

Finally, a third explanation is that strong demand growth during the business-cycle upswing since 1993 went along with excess demand for BS products (cf. Van der Wiel 1999b). A situation of excess demand means that the selection effect of competition is reduced, thus providing even the small, marginally productive BS firms with a place under the sun. A litmus test for this explanation is what will happen in the downward phase of the business cycle that set in during 2001. If excess demand for BS products diminishes, a shakeout of the marginal firms should follow, resulting in an improvement of average productivity in the BS industry.

Macro-economic impact of BS productivity stagnation: heading for Baumol's disease?

In 1967 Baumol wrote an alarming article in which he pointed to the consequences of a growing services sector that is characterised by stagnant productivity and an inelastic demand.[30]

[29] A policy implication would be that it makes sense to promote product standardisation in the BS industry, especially in the knowledge-intensive parts of it.

[30] Baumol's model (1967) supposes that demand for services is inelastic with respect to prices and inelastic with respect to income. As income grows, consumers demand more services. Because of this 'luxury good' status, services demand is relative price inelastic.

He supposes that the services sector – for pure technical reasons related to the nature of the product –is labour-intensive and has few opportunities for raising its labour productivity.[31] Hence, labour productivity growth in the services industry will be lower than in other industries. The result is that, over time, an increasing share of total population becomes employed in the services industry, while the price of services must become higher compared to the product price of other industries. Macro-economic productivity growth falls as the service sector gets a larger weight in the total economy. Further details on the Baumol effect are given in Annex VIII.

Is the Baumol model relevant in relation to BS industry? At first sight it seems to make sense. There are clear empirical indications of rising relative prices for producer services and BS products. Table 3.4 shows empirical data for the USA on the increasing relative prices of services inputs vis-à-vis the manufacturing industry. In the Netherlands, relative prices for BS products have risen as well (cf. Kox 2000).

Table 3.4 Growth rates of input prices and output prices in US manufacturing industry, 1979-88

	Capital	Labour	Energy	Non-energy material inputs	Input of producer services [a]	Manufacturing output
	compound average annual growth rates (%)					
Durable mfg. goods	2.0	5.7	4.9	4.1	6.2	2.8
Non-durable mfg. goods	7.4	6.0	3.6	1.2	6.1	3.2
Total manufacturing	4.8	5.8	4.3	2.3	6.2	2.9

[a] includes business services and financial services. Source: Gullickson (1992).

For an analysis of the future macro-economic growth contribution of BS industry, the Baumol model is not sufficient, however. It is far too early to assume that BS industry for technical reasons has no opportunities to raise its productivity level. Moreover, BS produces intermediary rather than final goods as in Baumol's model. The implication of being a producer of intermediary products is that we must take into account how growing BS inputs affect the productivity of client industries. As argued in the preceding section, the knowledge inputs from BS industry tend to increase efficiency in client industries. The productivity effect in client industries may cancel out the impact of productivity stagnation in BS industry itself. Nonetheless, four stylised facts keep on pointing in the direction of the 'Baumol disease':

- BS industry is characterised by a low and stagnating productivity growth;
- BS industry is getting an increasing weight in the total economy;

[31] Baumol's own way of expressing this is that a concert audience would hardly be amused if a musicians for efficiency reasons decided to play a string quintet with four players.

- the indirect growth contribution of increasing BS use by client industries is – for a given state of technology – subject to diminishing returns to scale.[32] This means that productivity effects on macro-economic productivity that derive from growing use of BS inputs, may less and less compensate the effect of stagnating productivity in BS industry itself.
- BS industry is characterised by less-than-perfect competition, being able to pass on cost increases to its clients.

The interplay of these three elements leads to complicated economic interactions that can hardly be analysed intuitively. Oulton (2000, 2001) uses a simulation model in which he shows that growing BS inputs can have a positive impact on macro-economic productivity, even though BS industry has very low rates of productivity increase.[33] Oulton's enlightening analysis brings us a step beyond Baumol's preliminary analysis. However, Oulton does not account for diminishing returns to scale in the use of BS inputs. Nor does he analyse the implications of BS markets characterised by less-than-perfect competition. We followed a different line of analysis, using a simulation model to track the consequences of a macro-economic growth process characterised by the aforementioned four stylised facts.

A simulation modelling approach

A small general equilibrium model was used for the simulations. The full model is reproduced in Annex IV. Here we just give a brief summary of the structure of the model and the results.

Three sectors are distinguished, the BS industry (B) and two consumer goods industries, say the car industry (Z), and the food industry (N). The BS industry only produces intermediary products. All of them are used by the car industry which has a price-inelastic demand for BS inputs. The food industry makes no use of BS inputs. The food industry is mainly used as a reference industry. In the car industry, the input of BS products causes labour productivity to increase, but this effect becomes weaker at higher levels of BS inputs In the BS industry, labour productivity remains stagnant.

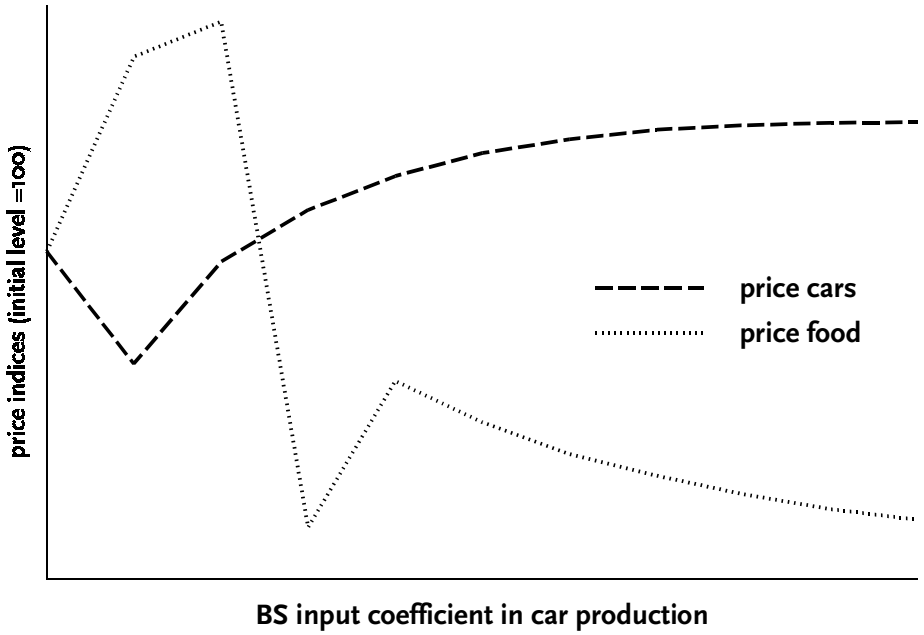
The economy is closed and all incomes are spent on cars and food. There are no savings. The economy does not run into capacity problems with regard to labour supply or capital stocks. BS industry applies cost-plus pricing, whereas the car and food industry are competitive. Profit rates in the car and food industry ensure that production and demand for these products are in equilibrium.

[32] For reasons elaborated in section 3.2.

[33] Oulton's result depends on three conditions: (a) BS industry has a strictly positive productivity growth rate; (b) all industries including BS industry are fully competitive; and (c) the entire economy is characterised by constant returns to scale. The latter condition implies that growing BS inputs always have the same productivity impact in client industries. Especially the conditions (b) and (c) are – at the least partially – at odds with empirical facts and the analysis unfolded in the present study.

The simulation procedure was quite straightforward. It was investigated what happens in this economy when the car industry makes more and more use of BS inputs.

Figure 3.7 Development of final goods prices (cars and food)



The two first results completely correspond with the familiar Baumol effects:

- Growing demand for products of the stagnating BS sector causes the relative price of BS products to rise.
- The share of the BS industry in total employment and value added increases. This shift is mostly to the detriment of the car sector, which has a falling share in total employment.

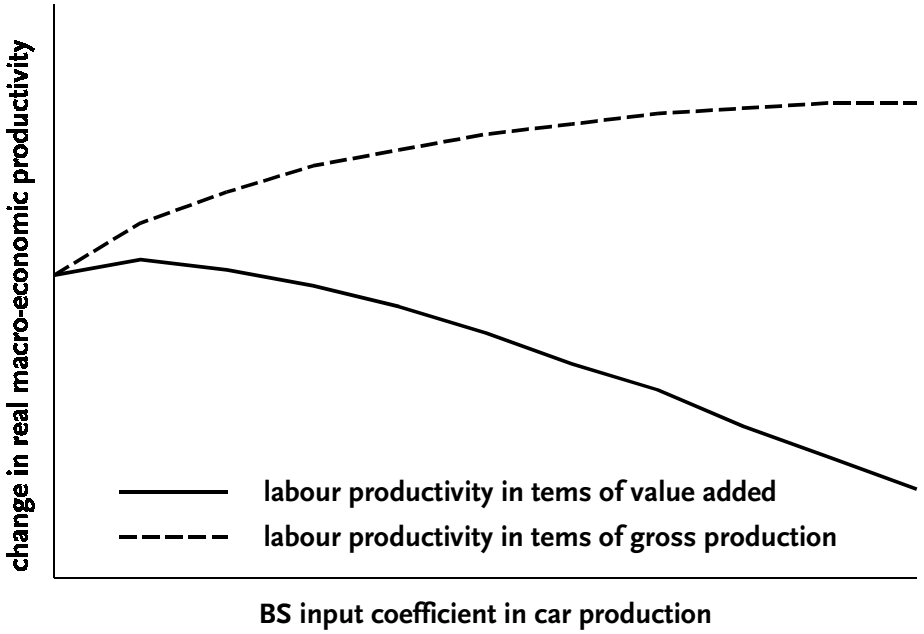
More interesting are the other impacts:

- An inflationary process also occurs in the car industry that makes more and more use of BS products that contribute less and less to productivity in the car sector. From some point onwards, the increase in BS input costs is no more compensated by price savings in other cost categories (labour, working capital). Figure 3.7 shows the development of final goods prices as BS input intensity increases.
- A marked difference arises between the labour productivity growth measured by gross total production per worker and labour productivity measured as value added per worker. This is picture in Figure 3.8. While in terms of gross total production per worker, macro-economic productivity keeps rising, value-added based productivity growth begins to fall once the labour-saving effects of additional BS inputs start to disappear, and the low-productive BS sector gets larger weight in the economy. A different development of value-added based and production-

based labour productivity is typical when the lagging sector is an intermediary sector (cf. Oulton 2000).

Two caveats are in place with regard to interpretation of the simulation results. In the first place, the approach adopted here was a comparison of static equilibria. The BS product had a constant quality. However, if the quality of the BS products shifts upwards,[34] this will lengthen the phase that additional BS inputs cause cost savings in its client industries. A possible policy implication is that support for product innovation and product quality in BS industry could be motivated on the basis of the expected macro-economic productivity gains.

Figure 3.8 Change in macro-economic labour productivity

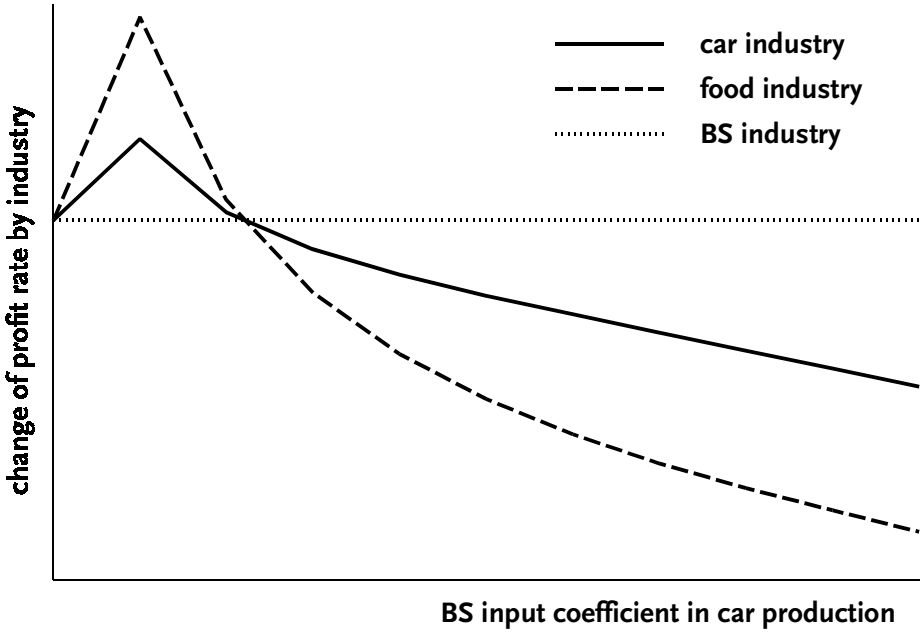


From some point onwards, further use of low-productive BS inputs causes a negative welfare effect, reflected in falling profit rates in all final goods industries (Figure 3.9).[35]

[34] Quality includes the capacity to achieve more labour saving or enabling product innovation in client industries.

[35] In the simulation model, the negative welfare effect only shows up in profit rates, because profits in the final goods market ensure the clearance of all markets. In real life, the negative welfare effect will be shared by profits and wages.

Figure 3.9 Development of profit rates in the three sectors of the economy



The second caveat concerns price formation in the BS market. We assumed that the demand for BS products is so inelastic that firms can apply cost-plus pricing. Better functioning and more competitive BS markets will slow down the increase of relative BS prices, and therefore also the negative welfare effects that arose in the model. Oulton (2000,2001) uses a perfect competition assumption for the BS industry, and reaches diametrically opposite conclusions. In this respect, his outcomes can be used as a normative model: if competitive relations in BS industry change in the direction of his assumptions, slow productivity growth in BS industry need not be a large macro-economic problem. If BS markets themselves do not automatically ensure demand-sensitive prices, then policy intervention could be required to achieve the potential welfare-enhancing effects.

Conclusions

A few conclusions can be drawn from this section. Macro-economic growth process with increasing BS inputs runs into problems beyond a point (say point Q) where the labour-saving effect in BS client industries does no longer compensate the rising unit costs of additional inputs from the BS sector. The relative price of BS products must rise because the labour productivity grows slower than productivity in the client industries. Productivity in terms of gross production shows a monotonous increase, but labour productivity in terms of value added diminishes from point Q onwards. Aggregate welfare effects become negative from that point onwards. A countervailing power to the negative effect on overall productivity growth and welfare effects could come from increasing BS product quality and more flexible prices. If BS

markets do not by themselves ensure these effects, and if labour productivity in BS industry does not improve, policy intervention would be called for.

3.4 BS and macro-economic growth contribution: empirical evidence

This section summarises empirical evidence with regard to the macro-economic growth contribution of a BS industry. Two contradictory effects have to be measured. One is the growth contribution of BS inputs in client industries. The other is the growth-retarding effect of an increasingly large BS industry with a sloppy productivity development.

Contribution of BS inputs to growth of client industries

Antonelli (1999) assessed the effects of BS inputs on output of specific industries, using the following macro-economic production function:[36]

$$Y_i = a + bK_i + cL_i + eBS_i \qquad (2)$$

in which:

Y_i	:	value added for industry *i* in a particular country
K_i	:	capital stock in industry *i* (estimated from investments)
L_i	:	labour costs in industry *i*
BS_i	:	flow of BS inputs into industry *i*
a	:	country constant
b, c, e	:	input elasticities, indicating with how many per cents output increases if the corresponding input increases with 1 per cent.

This production function was tested for France (1990), West Germany (1990), the UK (1990) and Italy (1988). The number of industries per country was between 23 and 33. Table 3.5 reports the results. BS inputs on average had a strong positive effect on value added creation in client industries. A one per cent increase in BS inputs caused production of client industries to grow with 2.6 to 4.2 per cents.[37]

These data measure the contribution of BS inputs to value added of client industries in a particular year. What we really want to know, however, are the dynamic rather than the static effects. Growth accounting measures the statistical relation between the growth of production

[36] All variables expressed in natural logarithms.

[37] Antonelli (1999) tested for robustness of his findings by pooling industry data for different years per country. For West Germany and France 1986 and 1990, for the UK 1984 and 1990, and for Italy 1985 and 1988. Pooled regressions did not affect his basic results.

and the growth in input use.[38] This method requires many data, and in particular a good set of price deflators. Antonelli (1999,p.217-20) tested a dynamic version of production function (2) for Italy over the period 1985-88. The results were in line with the cross-section estimate for Italy, as reported in Table 3.5. Similar empirical results for the other benchmark countries and for the Netherlands are not readily available.

Table 3.5 Production elasticities [a] for inputs of BS, capital and labour: cross section regression over different industries, selected countries 1988/90

	BS Inputs		Other inputs				
	BS input elasticity (*e*)	*t*-value for BS input elasticity	Capital input elasticity (*b*)	Labour input elasticity (*c*)	Country constant (*a*)	Correlation coefficient (R^2)	F-value (significance)
West Germany, 1990	0.29	– 2.21	0.22	0.47	3.95	0.90	231.2
France, 1990	0.26	– 3.81	0.62	0.27	3.95	0.89	76.9
UK, 1990	0.42	– 4.57	0.33	0.47	– 4.39	0.93	154.3
Italy, 1988	0.27	– 3.61	0.52	0.43	3.95	0.75	47.2

[a] Symbols for the elasticities correspond with equation 2 in the main text. Source: Antonelli (1999, p. 220-222).

The empirical data so far refer to the second half of the 1980s. BS industry in most countries grew at its fastest pace during this. As of yet, no empirical research is available for the 1990s. Obviously, such growth-accounting research applied to BS inputs is urgently needed for answering the question about BS industry's macro-economic growth contribution (e.g. Timmer 1999).

Some relevant partial information related to the growth contribution of computer-related services is available for recent years. During the last decade, their products had a significant and positive contribution to efficiency and overall economic growth (CPB 2000a). Growth accounting by Collechia (2001) found a clearly increasing contribution of software services to recent economic growth in several OECD countries, as is reported in Table 3.6. The effect is strongest in the USA, Finland and Australia.

[38] If one only distinguishes changes in capital stocks and employment, the standard result is that a large residual of the growth remains unexplained by these two inputs. From a theoretical point of view, having such a large unexplained residual, even though it got the fancy name 'total factor productivity' (TFP), is rather unsatisfactory. The way forward is to distinguish a more complete and refined range of production inputs. Knowledge inputs, like inputs from knowledge-intensive BS branches, form a major candidate for explaining the unexplained growth residual. Other alternatives are: education inputs (human capital), input of ICT services. Some of these inputs are strongly interrelated with each other and with the input from BS industry, as they measure different aspects of technology and knowledge inputs. For four large European countries, Antonelli (1999, Ch.11) found a strong correlation between each industry's input intensity of communication services and its input intensity of business services.

Table 3.6 Contributions of software capital to GDP growth, selected OECD countries, 1990-95 and 1995-99

	Finland	Italy	Australia	France	Japan	USA	Germany
	percentage points contribution to annual GDP growth market sector						
1990-95	0.1	0.0	0.1	0.0	0.1	0.1	0.1
1995-99	0.2	0.1	0.2	0.1	0.0	0.3	0.1

Source: Colecchia (2001), reported in OECD (2001a, p. 13).

For a longer time period, Jorgenson and Stiroh (2000) found a significant contribution of computer-related business services to US economic growth. The growth contribution accelerates in the most recent periods. This is reported in Table 3.7.[39]

Table 3.7 Contributions of computer-related BS products to US economic growth, 1973-99

	1973-90	1990-95	1995-98	1995-99[a]
	in per cents per year			
Growth in private domestic output	3.13	2.74	4.73	4.77
Contribution of selected output components:				
* Computer and software consumption	0.02	0.09	0.17	0.18
* Software investment	0.16	0.20	0.39	0.39
* Computer and software consumer durable services	0.02	0.09	0.19	0.20
Contribution of software capital services	0.07	0.15	0.19	0.21

[a] Preliminary. Source: Jorgenson and Stiroh (2000, p. 143).

Similar research, on the macro-economic growth contribution of the ICT services industry is available for the Netherlands.[40] A rough calculation of the effect of software investment on Dutch labour productivity is shown in Table 3.8; the effect is positive and growing, mostly, of course, in the ICT-intensive part of the market sector.

The available studies on the contribution of ICT services (including computer-related services) all show that this section of the BS industry contributed positively to macro-economic growth, partly through its own fast growth and partly through the efficiency effects of ICT inputs in other industries. An assessment of the recent contributions of the entire BS industry to growth in client industries remains yet to be done.

[39] They tested the sensitiveness of these findings for the change in relative prices of computers and software, but the growth contributions appeared to be robust.

[40] CPB (2000); Van der Wiel (2001a).

Table 3.8 Effect of software investment on Dutch labour productivity growth, 1991-2000

	1991-1995	1996-2000
	contribution in percentage points	
Total market sector	0.1	0.2
ICT sector	0.4	0.5
ICT-intensive industries	0.2	0.3
Non-ICT intensive industries	0.0	0.1

Source: Van der Wiel (2001a, p.35)

Macro-economic effect of a growing BS industry with sloppy productivity development

In terms of employment, the size of the Dutch BS industry is now larger than that of the entire manufacturing industry (cf. Figure 1.1). Similar developments are under way in other benchmark countries, but not yet to the same extent as in the Netherlands. The size effect creates a situation in which the growth characteristics of the BS industry attain macro-economic importance. A few studies quantified the contribution of BS industry to overall productivity development of national industries. Recent research by OECD, reproduced in Table 3.9, shows the stagnating contribution of BS industry growth to national labour productivity growth in France, Canada, the USA and Japan. In Finland and Germany, this point apparently has not been reached yet.[41] These results concern the contribution of *total* BS industry.

Table 3.9 Industry contributions to overall labour productivity growth (non-farm business sector), 1979-90 and 1990-98

	Canada		Finland		France		Japan		USA		West Germany	
	1979-1990	1990-1998	1979-1990	1990-1998	1979-1990	1990-1998	1979-1990	1990-1998	1979-1990	1990-1998	1979-1990	1990-1998
	average annual changes in per cents											
Finance, Insurance, real estate and business services	0.4	0.3	0.6	0.7	0.5	0.2	0.9	0.3	0.2	0.3	0.5	0.6
of which:												
BS industry plus real estate	.	0.1	0.3	0.4	0.5	0.3	.	.	0.2	0.1	.	.

Source: calculations on basis of OECD ISDB and STAN databases, reported in OECD (2000).

The research results by Pilat and Lee (2001) point towards a falling trend in BS industry contribution to macro-economic labour productivity since 1990. Interestingly, these authors present disaggregated data for the computer services industry and the rest of the BS industry.

[41] Note that the German, Canadian and Japanese data are not for BS industry, but for the combination of BS, banking, insurance and real estate. In France and the USA, the contribution for this aggregate moved in a different direction compared to the BS contribution.

The productivity contribution of the computer services industry is markedly more positive than for the rest of the BS industry, as is reproduced in Table 3.10. The Dutch BS industry had the worst performance of all countries for which data were available.

A few interim conclusions on the empirical data are in place.

- Available data are too fragmented for allowing an overall, up-to-date assessment of the macro-economic growth contribution of the BS industry. Only partial conclusions can be drawn.
- During the 1980s, BS industry had a marked positive contribution to macro-economic value-added growth in a number of benchmark countries. For the 1990s, no such studies are available yet.
- During the 1990, the computer-related services (ICT) - part of the BS industry - had a markedly positive effect on average output and GDP growth. This growth contribution increased rather than decreased in the late 1990s.
- BS industry itself – with its increasing macro-economic weight and its sloppy productivity development – had a decreasing contribution to overall productivity in most benchmark countries during the 1990s. The trend here is clearly downward. The 1995-1999 data for the non-computer BS industry show a negative contribution to overall labour productivity growth.

Table 3.10 Contribution of BS industry to overall labour productivity growth, selected countries 1970-1999

Country	Data type*	1970-79	1979-89	1989-95	1995-99
		percentage points contribution to overall labour productivity growth			
Computer-services (ISIC R.3 No.72)					
Denmark	a	0.00	0.04	0.15	0.01
Finland	b	– 0.01	– 0.02	– 0.01	– 0.05
Germany	a	.	.	0.02	0.12
Italy	c		.	.	0.04
Netherlands	a	.	.	.	– 0.06
Other BS-branches (ISIC R.3 No.74)					
Denmark	a	0.01	0.10	0.00	0.04
Finland	b	0.02	– 0.06	0.04	– 0.14
Germany	a	.	.	0.01	– 0.09
Italy	c	.	.	.	– 0.11
Netherlands	a	.	.	.	– 0.21

Notes: * The codes represent data types: **a** = Contribution to value added per person employed; **b** = Contribution to value added per hour worked; **c** = Contribution to value added per full-time equivalent. Source: Pilat and Lee (2001)

3.5 Conclusions on the contribution of BS industry to macro-economic growth

The macro-economic growth contribution of BS industry derives from its role in allowing ever more complex, yet at the same time more efficient combinations of production factors,

corresponding with an ever increasing division of labour and labour specialisation. The process can be described as growing roundaboutedness of production ('*omwegproductie*'). Falling transaction costs no longer render it necessary that specialised production layers are vertically integrated in a particular firm or even in a particular industry. A fragmentation of vertical value-added chains occurs, in which BS industry plays a role of increasing importance. BS industry assists other firms to surmount indivisibilities in the process of labour specialisation, a role particularly important for small and medium-sized companies. Dutch data confirm that BS industry plays a central role in the process of growing roundaboutedness of production.

Apart from their general role in the social division of labour, knowledge-intensive BS branches also contribute to national innovation systems. This they do through original innovation (e.g. by software and engineering industries), and through knowledge dissemination. In many competence areas, BS firms tend to bring client firms towards the technological frontier. In the case of the software and ICT industry, original innovations cause the technological frontier to shift outwards. The ensuing efficiency gains allow lower prices per unit, hence more consumption and a higher welfare level. By taking potential clients towards the technology frontier, the BS industry may become a victim of its own success. If BS firms are to have this knowledge diffusion role in the future, a constant flow of fresh innovations and knowledge renewal is required.

The relative price of BS products is bound to rise, because BS labour productivity grows slower than productivity in the client industries. A macro-economic growth process with increasing BS inputs runs into problems once the labour-saving effect in client industries no longer compensates the rising unit costs of additional BS inputs. Productivity in terms of gross production may still increase, but in terms of value added it must fall. Aggregate welfare effects get negative from that point onwards. A countervailing power could come from increasing product quality and more flexible prices. If BS markets do not ensure these effects by themselves, policy intervention might be called for.

The overall effect of BS growth on macro-economic labour productivity depends on two diverging effects. The positive effect runs through BS's impact on client industries. The negative effect comes from BS industry itself. A problem is that an increasing part of all BS output is absorbed in BS industry itself (cf. Figure 3.3). This means that the positive growth contribution through client sectors should outrun the negative effects of BS industry's own productivity stagnation.

At present, empirical data are too fragmented for an overall, up-to-date assessment of the macro-economic growth contribution of the BS industry. Only partial conclusions can be drawn from

the available research. During the 1980s, BS industry had a markedly positive contribution to macro-economic value-added growth in a number of benchmark countries. For the 1990s, no such studies are available yet. During the 1990s, the computer-related services – part of the BS industry – had a distinctly positive effect on average output and GDP growth. This growth contribution increased rather than decreased in the late 1990s. BS industry as a whole - with its increasing macro-economic weight and its sloppy productivity development - had a decreasing contribution to overall productivity in most benchmark countries during the 1990s. The trend here is clearly downward. The 1995-99 data for the non-computer BS industry show that it contributed negatively to overall labour productivity growth.

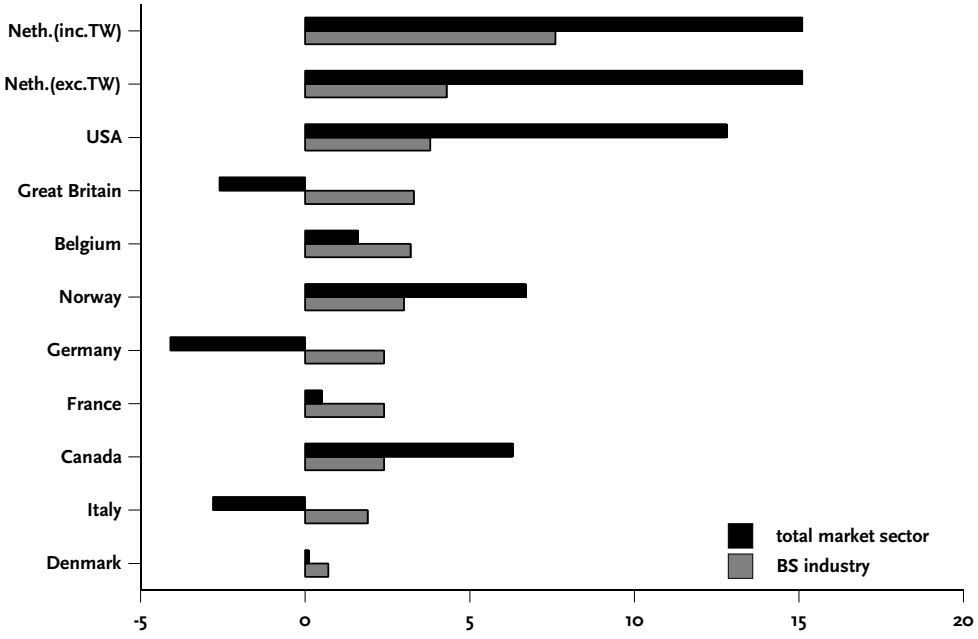
4 Strengths and weaknesses of Dutch business services industry

The development of BS industry in other OECD countries may serve to pinpoint the main aspects in which development of the Dutch BS industry differed from its foreign counterparts. Section 4.1 compares the growth performance of national BS industries. Sections 4.2 and 4.3 identify, respectively, the comparative strengths and weaknesses of Dutch BS industry. In section 4.3 some development bottlenecks for the Dutch BS industry have been included, that may also apply in some of the benchmark countries. Section 4.4 gives the conclusions.

4.1 Comparative growth performance in Dutch BS industry

A first point to assess in an international comparison is that during last decade the BS industry in the Netherlands has grown considerably faster than it did in the benchmark countries. This held for employment growth and for value-added growth (cf. Figures 2.1 and 2.2). It is noteworthy that the Danish Ministry of Trade and Industry considers the dynamic Dutch BS industry as its positive role model.[1]

Figure 4.1 Change in the number of jobs 1991-1998 by industry, expressed as percentage of total number of jobs in the market sector in 1990



Note: TW = Temporary work

[1] Cf. Ministry of Trade and Industry (2000a, 2000b).

The strong growth performance of Dutch BS industry is not just a matter of growth percentages; it also holds when we look at the magnitude of domestic employment shifts. In the Netherlands, BS growth represents a larger domestic employment shift than it did in all other benchmark countries. This is shown in Figure 4.1.

Exhaustion of the catch-up growth potential

Empirical indications suggest that the strong growth of BS industries in the Netherlands was partly caused by a catch-up effect. The concept of catch-up growth is associated with the process of growing towards a production frontier with respect to specific competence areas. The phase during which a firm or an industry moves towards the production frontier often goes along with fast growth, because one can imitate technology patterns of those firms or industries that already operate on the production frontier. Once being at the frontier, growth rates often drop because all easily adoptable gains have been exhausted, while further efficiency growth requires a more wearisome process characterised by experimenting, investigating, and trial and error. It will be argued subsequently that the Dutch BS industry may well be on the brink of the latter development phase.

A production frontier is associated with the best-practice production method, i.e. the most efficient combination of inputs to produce a given output. BS products are intermediary products for other industries. The latter will optimise the quantity of BS inputs used per unit of their gross output – say BS input intensity – like they do with all other types of inputs. In this sense, BS input intensity is also subject to a production frontier. Empirically identifying a production frontier is not easily accomplished, but a start can be made by comparing country performance with regard to BS input intensities.

Four large OECD countries have been chosen as benchmark: the USA, the UK, France and Germany. We compared BS input intensities for two years, 1990 and 1998 (or the most recent available year). Table 4.1 shows the results for 1990. In that year, Dutch industries used less BS inputs per unit of gross output than was the case in most benchmark countries. This particularly held for Dutch services industries: trade, transport, financial services and business services. Looking at the average BS intensity for all market industries, Dutch industries rank in the fifth place, behind all benchmark countries. It shows a potential for catch-up growth, especially in the Dutch services industries.[2] Much of this potential appears to have been materialised, when we look at the country rankings in 1995 and 1998.

[2] BS products are in some respects more akin to factor inputs than to material intermediate deliveries, allowing some substitution between in-house labour services and intermediary deliveries of BS products. We investigated this possibility with an alternative definition of BS input intensities, i.e. the value of BS inputs over value added of the client industry. It is shown in Kox (2001a, Annex 4) that this alternative measure yields even wider inter-industry disparities in BS-input intensities, but the relative position of the Netherlands hardly changes.

Table 4.1 International comparison of BS-input intensities in gross output, selected industries, 1990

	Rank Netherlands	Netherlands	France	Germany	UK	USA
	ranking[a]	value of BS inputs as percentage of gross output[b]				
Agriculture, forest, fishery	2	2.3	0.9	1.8	1.7	3.9
Food, beverages, tobacco	5	3.7	6.1	6.8	3.8	4.0
Textiles, clothing, leather prod.	3	5.0	7.0	7.9	3.6	2.6
Paper and printing products	3	6.2	6.1	7.2	9.5	5.8
Chemicals	3	4.4	6.8	5.5	3.2	3.2
Iron and steel	1	3.8[d]	1.4	3.5	3.1	1.7
Metal products	3	3.7	3.7	6.9	5.0	3.5
Non-electric machinery	3	5.8	15.4	9.0	4.6	4.1
Office, computing machinery	3	5.4[c]	14.0	12.3	3.3	1.2
Automobile industry	4	3.7	7.7	7.6	4.7	1.9
Construction	5	3.7	14.7	8.7	5.9	6.7
Repair, wholesale & retail trade	4	8.1	6.1	15.4	9.0	10.1
Transport and storage	4	4.6	5.9	7.2	7.8	4.3
Communication	3	2.9	1.9	1.6	5.4	4.6
Credit and insurance	5	5.2	11.6	16.5	19.9	11.9
Business services plus real estate	5	6.8	12.1	12.4	20.8	11.5
All market industries	5	4.8	7.8	9.0	7.5	7.2

[a] Gives the rank in BS input intensities for this group of five countries (5 = lowest BS input intensity).
[b] All in current prices.
[c] Electro technical industry.
[d] Base metals.
Sources: input intensities for France, Germany, UK and USA calculated from i/o tables in OECD database (all in ISIC Rev. 2 format); Dutch input intensities calculated from CBS i/o table (using industry aggregates of OECD).

Table 4.2 indicates that industries in all countries used more BS inputs per unit of gross output in 1998 than in 1990.[3] Even more interesting, however, is that Dutch industries accomplished a fast catch-up process with regard to the use of intermediary BS inputs. In the average ranking for all markets industries, the Dutch BS use intensity moved via the 4th rank in 1995 to the second rank in 1998. A remarkably fast increase in BS use occurred in the Dutch services industries. This, in combination with the fast output growth of these services industries themselves, may explain a good deal of the extraordinary strong growth of BS industry in the Netherlands during the 1990s. The flip side of the coin is that the catch-up growth potential for BS industry may have come to an end. A second look at table 4.2 suggests that on the basis of international comparison only financial services, agriculture and construction seem to offer further potential for catch-up growth with regard to intermediary BS use. These results suggest

[3] Note that both tables are in current prices, so that price divergence between BS inputs and gross output for all market industries may explain part of the change. The relative price of BS products tends to increase.

that – barred for a shift of the international production frontier with regard to BS use – future growth prospects for Dutch BS industry may have become bleaker than they used to be in the early 1990s.

Table 4.2 International comparison of BS-input intensities in gross output, selected industries, 1995-98

	Ranking [a] Netherlands		Netherlands	France	Germany	UK	USA
			1998	1995	1995	1998	1997
	1995	1998	value of BS inputs as percentage of gross output [b]				
Agriculture, forest, fishery	4	4	2.5	2.9	6.9	5.2	0.8
Food, beverages, tobacco	4	3	6.6	7.6	7.4	6.1	3.7
Textiles, clothing, leather prod.	2	2	5.6	6.5	4.2	5.1	3.9
Paper and printing products	2	1	8.5	6.5	8.2	6.4	4.2
Chemicals excl. pharmaceut.[c]	3	3	7.9	8.6	9.1	5.3	3.8
Iron and steel	2	1	4.6	3.5	3.9	3.1	2.3
Metal products	1	1	5.6	4.9	4.9	4.9	2.7
Non-electric machinery	3	2	7.2	14.3	5.9	6.4	2.6
Office, computing machinery	4	3	7.0	7.7	10.1	5.8	4.5
Automobile industry	2	2	5.6	9.4	4.3	5. 4	2.3
Construction	4	4	5.9	9.4	4.2	7.5	8.1
Repair, wholesale & retail trade	2	1	8.6	5.8	6.9	7.7	8.4
Transport and storage	1	1	10.8	5.4	5.5	9.7	6.4
Communication	1	1	15.2	5.2	3.0	7.3	7.4
Credit and insurance	5	4	9.4	15.0	11.3	19.3	9.0
Business services	3	2	21.4	19.3	14.3	21.6	12.1
All industries	4	2	8.6	7.5	7.6	9.3	6.3

[a] Gives the rank in BS input intensities for this group of five countries (5 = lowest BS input intensity). The ranking for 1995 is also presented, because it shows a consistent increase in the Dutch BS input intensities relative to the benchmark countries.
[b] All in current prices.
[c] Includes the rubber and plastics industry.
Sources: i/o tables from OECD database (all in ISIC Revision 3 format). For all countries the most recent available year has been chosen.

A productivity dichotomy in Dutch BS industry

Remarkable for Dutch BS industry is the large dichotomy in average productivity *levels* between standardised BS branches and client-intensive BS branches. The gap in average productivity level between both groups of branches is nowhere in the EU as large as in the Netherlands. While knowledge-intensive (client-specific) BS branches on average had the highest productivity

level in the EU, the opposite held for the Dutch standardised BS branches.[4] The productivity dichotomy clearly emerges from Table 4.3.

Table 4.3 Value added per person employed in BS industry, selected EU countries, 1997

	BS branches with predominantly standardised products[a]	BS branches with predominantly knowledge-intensive, client-specific products[b]	BS branches with predominantly standardised products [a]	BS branches with predominantly knowledge-intensive, client-specific products [b]
	In 1000 ECU		% share in total BS employment	
Belgium	19.3	50.5	55	45
France	25.8	52.4	38	62
The Netherlands	15.5	53.0	56	44
Italy	22.4	34.9	31	69
Austria	25.7	47.4	37	63
Finland	24.4	51.4	35	65
Sweden	26.7	44.3	26	74

[a] Includes NACE categories 745 (labour recruitment),746 (security), 747 (cleaning) and 748 (miscellaneous BS activities).
[b] Includes NACE categories 72 (computer-related services) and 74 ('other professional services', excluding 745–748).
Source: calculated from data in Eurostat (2000).

Standardised branches in the Netherlands had the highest share in total BS employment of all EU benchmark countries.[5] Only in Belgium, the share is about the same. The productivity level dichotomy and the large share of low-productive branches might well explain an important part of the relatively poor productivity-growth performance of the Dutch BS industry. Hence, composition effects (larger share of low-performing BS branches) seem to have played a role in the relatively poor productivity growth of Dutch BS industry. However, better micro-level statistics, like those from the currently running OECD project on Firm-level Productivity Statistics, may shed a more definitive light on these issues.

[4] The data for this comparison of productivity levels are based on Eurostat (2000), yet they must be taken with due caution. International comparisons of productivity levels may go astray due to many possible pitfalls, relating to national differences in labour count (headcount, labour hours, contractual and actual working hours, part-time factors, conventions with regard to firm-owners, cooperating family members), exchanges rates (official rates, purchasing power parity), and calculation of firm output volume (input-based, value added based, physical indicators).

[5] The productivity level dichotomy cannot be reduced to the fact that the labour recruitment and temporary labour branch (NACE 745) is so large in the Netherlands. It is for instance also a large sector in France and Belgium. The productivity level dichotomy is due to comparatively low productivity levels in all four branches with standardised products (NACE 745,746,747 and 748). As demonstrated in Figures 2.7, the standardised BS branches in the Netherlands also had a low productivity growth rate in the period 1996-2000.

4.2 Strengths of Dutch BS industry

Relative strengths of Dutch BS industry include its high level of internalisation, its open market for foreign competition, its low entry thresholds, its relatively large average firm size, and favourable conglomeration effects.

Strong internationalisation of Dutch BS industry [6]

The Netherlands is strongly presented in the world BS market. Its BS exports rank sixth and its imports rank in the fifth place. The Netherlands have a small export surplus in business services trade. During the period 1992-99, the BS share in Dutch foreign trade grew, both for exports and for imports (Figure A5.1 in Annex V). This is remarkable since the share of services in total Dutch trade stagnates. BS imports share increased faster than the share of BS industry in Dutch GDP.

The Dutch BS market is less sheltered from foreign competition than holds for most benchmark countries. Foreign trade intensity of Dutch BS industry is among the highest of all OECD countries. Dutch BS exports are relatively unaffected by the growth of domestic BS demand, less than in most benchmark countries. This indicates that exports do not form a residual market. Nonetheless, Dutch BS exports increased less than the BS industry's share in Dutch GDP (Figure 2.10). This is partly due to a substitution process between exporting and direct investment by the BS firms. A similar process can be witnessed as to BS imports. Table A5.1 in Annex 5 shows that BS direct investment has grown considerably faster than BS trade. This process may also explain why the strong growth of domestic Dutch BS demand was associated with a falling share of imports in domestic BS supply. The importance of local production by foreign BS subsidiaries in the Netherlands is clearly growing. Its increase correlated positively with the change in total Dutch BS demand.

The openness of Dutch BS market is reflected in high inflows of direct investment by foreign BS providers. Direct investment inflows since the 1990s accounted for a sharply increasing share of the industry's total fixed capital formation.

Habituation to foreign competition

National regulations in the BS industry can operate as effective trade barriers. The Netherlands is among the countries with the most liberal regulation regimes, particularly for foreign BS suppliers. This is confirmed by the results from an EU-commissioned survey among BS providers. The Dutch and Irish markets for business services appear to be the most open ones, as reported in Table 4.4. This contrasts with France, Germany and Italy where exporters face more trade barriers.

[6] More details on this subject are available in Kox (2001b).

Table 4.4 Opinion of BS providers on the severity of barrier to trade in individual EU countries

Country	A Total number of BS firms stating that they export services to this country [a]	B Number of BS firms stating they faced barriers to trade in this country [a]	C B as a percentage of A
Ireland	32	3	9.4
The Netherlands	64	7	10.9
Spain	61	10	16.4
Portugal	41	7	17.1
United Kingdom	89	16	18.0
Belgium/Luxemburg	68	14	20.6
Sweden	35	8	22.8
Finland	26	8	30.7
Denmark	34	12	35.3
Germany	98	35	35.7
France	92	33	35.8
Austria	26	10	38.5
Italy	50	20	40.0
Greece	25	16	64.0

[a] The numbers refer to a group of 186 BS providers with present or past export activities. This group forms part of a total population of 307 BS providers in the survey. Source: CSES (2001, Annex, p. 185).

Having low trade barriers makes the Dutch BS market relatively open to foreign BS imports and foreign direct investment by BS multinationals. An important side-effect is that those segments of the Dutch BS industry were exposed, relatively early, to foreign competition through imports or through local production by foreign BS multinationals. Exposure to foreign competition goes along with a learning-curve advantage as to product quality and efficiency. Note that this advantage mainly holds for the large national firms and small specialist firms that effectively compete with foreign providers. The great mass of small, locally-oriented firms continue to be relatively unexposed to foreign competition.

Foreign-language capacities of Dutch workers an asset in international BS trade

Socio-cultural factors may have a strong impact on trade capacity. This is certainly so in an industry where supplier-customer relations often require face-to-face contact. In some BS branches, like IT-related services, English has become the international *lingua franca*, but in other branches this is far less the case. In a questionnaire survey of 307 European BS providers and 198 BS-purchasing companies, foreign-language problems ranked highest as socio-cultural barrier to further international trade in BS products (CSES 2001, p. 52-56). This problem was mentioned especially by suppliers and buyers in Germany, France, the UK, Sweden and Finland, but *not* in the Netherlands (ibidem, p.74). The reason may well be that the foreign-language education in the Netherlands has been fairly good. The multi-language capacities of Dutch BS-workers clearly form an asset in international BS markets.

Easiness of setting up a new firm

It is relatively easy in the Netherlands to set up a new BS firm. The World Economic Forum in its Global Competitiveness Report compared OECD countries with regard to the easiness of setting up a new firm. The Netherlands ranks seventh, behind the USA and the UK, but well before most other benchmark countries (Belgium, France, Germany, Italy, Denmark).[7] The easiness of setting up a new BS firm is reflected in the very high startup rate in Dutch BS industry (cf. Table 2.2). The process ensures a constant flow of new entrepreneurial resources.

Firm-size advantages

The lack of scale economies can be a factor in the slow productivity development of BS industry. In this perspective, it could become important in the future that the average Dutch BS firm is larger than in other EU countries (Eurostat 2000).

Average firm size in BS industry is generally very small. More than 80 per cent of all firms count less than 10 employees. This is found throughout the EU and also in the USA. Firms in BS branches with standardised products tend to be larger than in BS branches producing client-specific and knowledge-intensive services (cf. Figure 2.9 and Appendix II). In the Netherlands the average firm in both types of BS products is larger than elsewhere in the EU. The average size structure of French and Austrian BS companies is most comparable to the Dutch one.

A closer consideration of the firm-size data shows that the relatively high Dutch BS firm size average is to a large extent caused by two BS branches that generally are considered as low-tech and not knowledge-intensive, namely temporary work agencies and industrial cleaning. The average Dutch BS firm size in knowledge-intensive BS branches (computer services, accountancy, legal, tax and management consultancy, market research, engineering and marketing) is also somewhat larger than in most other benchmark countries.

Favourable conglomeration effects

BS industry tends to conglomerate in urban areas.[8] The Netherlands has a relatively strong degree of urbanisation, so that Dutch BS industry benefits from the relatively close proximity to many clients. Though much of the BS industry is concentrated in the Randstad area, the urbanised or semi-urbanised character of several other regions (e.g. Brabant, Utrecht) supports a relatively broad range of local BS firms. This is a development advantage relative to BS industry in some large and less densely populated benchmark countries. In the latter countries, BS is concentrated in some very large metropolitan areas, but much more scarcely available outside

[7] The Economist, 16 November 1999.

[8] 'Most business services are concentrated in the central and urban regions in the EU, while access to business services in peripheral areas and for SME are scarce' (European Commission 1998, p. 19).

those regions, so that small business clients in peripheral areas may be relatively underprovided with BS inputs.[9]

4.3 Weaknesses of Dutch BS industry

Relative weaknesses of the Dutch BS industry are its slow productivity growth, its relatively low levels of innovation expenditure, and the labour market constraint with regard to high-skilled labour.

Relatively slow productivity performance in Dutch BS industry

Though a downward trend in labour productivity growth was discernible in all benchmark countries, Dutch BS industry was in the rearguard of the international productivity-growth league (cf. Figure 2.5 and Annex VII). A possible explanation for this performance is that the Dutch knowledge-intensive BS firms – which accounted for most of BS growth in the second half of the 1990s – already had the highest value added level per person employed (cf. Table 4.3). From this high productivity level, it may be relatively difficult to attain further productivity growth. A second explanation is that the growth of total demand for BS products during the 1990s was stronger in the Netherlands than elsewhere. With such excess demand, competition is likely to have a less selective effect with regard to low-productive firms.

Relatively weak innovation performance of Dutch BS industry

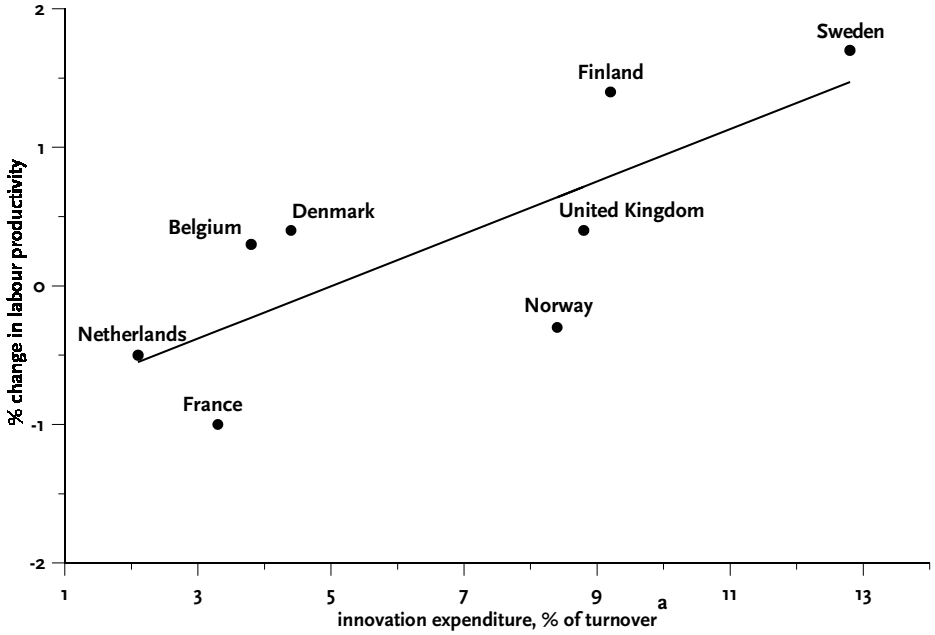
Comparison of European innovation surveys (Community Innovation Survey) indicate that an important sub-section of the Dutch BS industry (computer-related services plus architects and engineering) during the period 1994-1996 spent a notably smaller part of its turnover on innovation expenditure[10] than similar branches in Germany, the UK, France and Denmark, though more than in Ireland. This is shown in Figure 4.2. Low expenditures on innovation effort may partly explain the meagre productivity-growth record of Dutch BS industry. Paradoxically, when asked whether they had innovated during the reference period, the rate of self-declared innovation by Dutch BS firms was completely in line with the other countries. The explanation for these diverging results could be that the Dutch BS industry are more engaged in relatively minor innovative improvements than in fundamental innovations (Van der Wiel

[9] Cf. Manshanden et al. (1997); Rubalcaba (1999, Ch.10); Gago (2000. p.15-6); Hansen (1990); Martinelli (1991); Daniels (1991); Illeris (1991); Sprangers (research by ETIN, reported in Fin. Dagblad July 31st 2000); Moyart (1997); Gehrke and Legler (1998).

[10] Innovation expenditures include all outlays related to those scientific, technological, commercial, financial and organisational activities that are intended to lead to the appliance of technologically new or improves products and processes. Cf. Van der Wiel (2001); Suijker et al. (2002).

2001). According to Van der this may indicate that the Dutch computer-related and engineering branches are followers rather than leaders with respect to innovation.

Figure 4.2 Relation between productivity growth and innovation expenditure, 1994-96

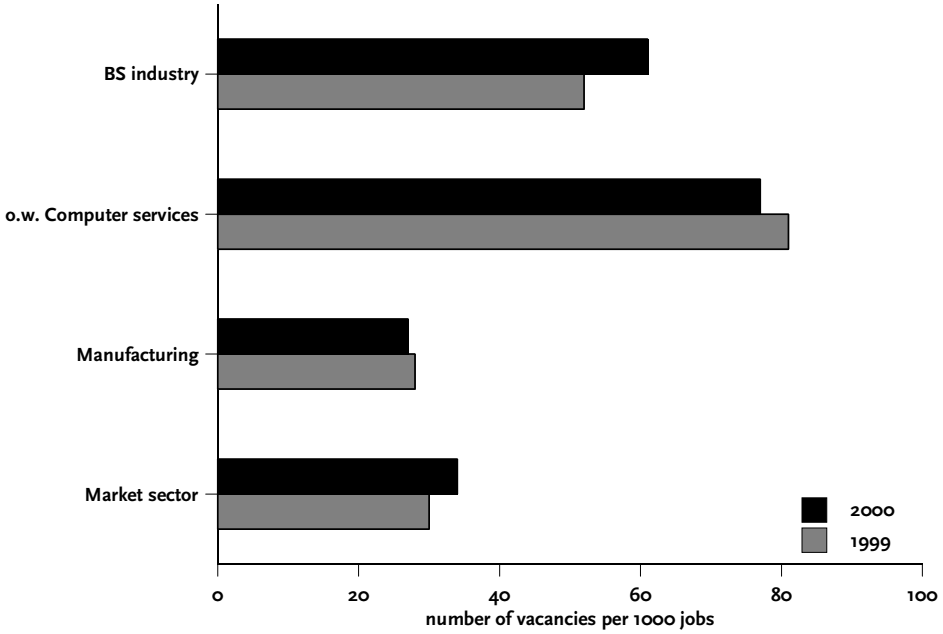


Tight labour market

A growth bottleneck for further development of the Dutch BS industry is the lack of qualified personnel. BS industry and especially the computer-related services had the highest job vacancy rates in recent years. As Figure 4.3 indicates, the problem of finding enough qualified workers is far stronger than in manufacturing or the market sector as a whole. If turnout from institutions for higher education is too low, this not only causes a lack of personnel, but it also damps the entry of new BS entrepreneurs. The availability of high-skilled labour is worse in the Netherlands than in many other OECD countries.[11]

[11] Cf. Ministry of Economic Affairs (2002, p. 34-35).

Figure 4.3 Number of vacancies per 1000 jobs, Netherlands 1999-2000 (year end)



Data source : Statistics Netherlands

4.4 Conclusions on the relative performance of Dutch BS industry

Strengths and weaknesses of the Dutch business services industry can be derived from a comparison with other benchmark countries. Dutch BS industry had the sharpest dichotomy in productivity levels between standardised and client-specific BS branches of all EU countries. While Dutch client-specific BS branches had the highest average productivity level, the Dutch standardised BS branches had by far the lowest. Standardised BS branches in the Netherlands had the highest share in total BS employment.

The strengths of Dutch BS industry are:

- During last decade the BS industry in the Netherlands has grown considerably faster than it did in the benchmark countries. This held for employment growth and for value-added growth.
- In 1990, Dutch industries had lower BS inputs per unit of their output than was the case in the benchmark countries. In 1998, this shortfall was largely disappeared. In particular, Dutch services branches sharply increased their use of BS inputs. This means that the strong growth of Dutch BS industries since 1990 partly had a catch-up effect. Now that the catch-up potential is drying up, the remarkable structural growth spurt of Dutch BS industry is likely to level off.

- In the Netherlands, BS growth represents a larger domestic shift in employment structure than it did in all other benchmark countries.
- Dutch BS industry is strongly presented in the world BS market with BS exports and imports ranking, respectively, in the sixth and fifth place among benchmark countries. Foreign trade intensity of Dutch BS industry is among the highest of all OECD countries.
- The Dutch BS market is less sheltered from foreign competition than holds for most benchmark countries. Foreign providers regard the Dutch and Irish BS markets as the most open of all EU markets.
- The openness of Dutch BS market is reflected in high inflows of direct investment by foreign BS providers. Direct investment inflows since the 1990s accounted for a sharply increasing share of the industry's total fixed capital formation.
- An important side-effect is that segments of the Dutch BS industry were exposed, relatively early, to foreign competition through imports or through local production by foreign BS multinationals. Being exposed to foreign competition, gave these Dutch firms a learning-curve advantage as to product quality and efficiency. This learning effect mainly holds for the large national firms and small specialist firms.
- In most benchmark countries, foreign-language problems rank highest as socio-cultural barrier to international trade in BS products. This does not apply in the Netherlands. The multi-language capacities of Dutch BS-workers clearly form an asset in international markets.
- It is relatively easy in the Netherlands to set up a new BS firm, which unleashes a constant flow of new entrepreneurial resources in the BS industry.
- Average Dutch BS firm is somewhat larger than in other benchmark countries.

The comparative weaknesses of Dutch BS industry are:

- In terms of labour productivity growth, BS industries of all benchmark countries display a stagnatory tendency. Though Dutch BS industry is not the worst-performing among the countries analysed, it is among those where labour productivity growth is weakest.
- Dutch BS industry spent relatively little on innovation efforts. Dutch BS firms appear to be more engaged relatively minor innovative improvements than in fundamental innovations.
- A growth bottleneck for further development of the Dutch BS industry is the lack of qualified personnel. BS industry and especially the computer-related services had the highest job vacancy rates in recent years, especially for high-qualified personnel.

5 Future growth scenarios for the Dutch business services industry

What factors will drive the growth of the Dutch BS industry in the next 10 years? How will growth of BS industry compare to growth of the Dutch economy as a whole? These are the questions this chapter seeks to answer. Structural changes depend on a complex interplay of forces within and outside the BS industry. Given the large uncertainties in a long-term forecast, the method of scenario analysis is used. Scenarios are not predictions, but coherent pictures of the future course of events, each based on plausible changes in a limited number of essential growth parameters. Two scenarios are identified for the future development of the BS industry. The first is a low-growth scenario, called Mediocrity in which the growth of BS industry slows down, and the expansion of BS industry gets more in line with the rest of the market sector. The second scenario, Powerhouse, sketches a situation in which the BS industry proceeds to grow at a much higher growth pace than the rest of the market sector. Section 5.1 identifies the key factors that determine BS growth in both scenarios. Sector 5.2 gives a broad characterisation of the two growth scenarios for the BS industry. Sector 5.3 presents a quantitative approximation of BS growth until 2010. Section 5.4 gives the conclusions.

5.1 Key growth factors

The future growth of BS industry will in the first place be driven by the growth rate of the Dutch economy as a whole. The development of the national economy is the background setting for both BS industry scenarios.[1] Next there are a number of factors that cause the BS industry's development to deviates from the general path of the Dutch economy. Six forces are taken to drive such deviations because of their industry-specific impacts on volume and structure of demand, cost structures, prices and profit margins. In the ten years covered by the growth scenarios, industry-specific growth factors may cause considerable deviation between the growth of the national economy and the BS industry. The six growth drivers, to be discussed subsequently, are: technological change; outsourcing tendencies; final domestic demand structure; internationalisation tendencies; institutional developments; and structural changes in factor markets. Table 5.1 sketches an overview of these driving forces.

Technology as a driving force

Technological change can affect the production and distribution of business services, as well as the demand for business services from client industries. Some parts of BS industry, like software houses and engineering, form themselves a driving force in technological development. Technological innovation may create new product lines, change the tradability of products, and

[1] Because of the uncertainties with respect to the future development of an open economy like the Dutch one, section 5.3 applies two growth projections for the Dutch economy up to 2010. The projections are derived from CPB (2001) and a forthcoming CPB-RIVM projection for the period 2006 till 2010.

spur improvements of production efficiency within the BS industry. Innovations in software and communication tools may continue to have the most pervasive impacts. In the past decade, ICT innovations functioned as a breakthrough technology with economy-wide impacts (Gelauff and De Bijl 2001). Fundamental technological change is an erratic process, with real breakthrough inventions being scarce. Have all major potential innovations of the ICT revolution already materialised, or are sweeping innovations still to come? Several change opportunities hinge on software developments, broadband access, and supplementary innovations in internet security.

Due to the role of the knowledge-intensive BS branches in the diffusion of innovations to client industries, fast technological change will create a demand for further assistance by BS specialists. Catching-up demand for BS assistance will only remain a growth source for BS industry in a situation with rapidly shifting production frontiers. Otherwise, client firms become increasingly self-sufficient in technological aspects. The scenarios sketch discretely different technology development scenarios.

Table 5.1 Driving factors determining future growth patterns of BS industry

Driving forces	Important changes
Technology	* Production technology in BS industry itself (e.g. ICT applications) * Product innovation * Technological climate in client industries (human capital upgrading, process divisibility) * External technological innovations that give rise to new BS products
Outsourcing tendencies	* Share of BS industry in total intermediate deliveries * Growth of standardised versus client-intensive (knowledge-intensive) BS branches * Average company size in client industries
Final domestic demand	* Growth rate of domestic consumption and investment demand for BS products (particularly software)
Internationalisation	* Export growth * Development in WTO, new International Agreement on Trade in Services * Substitution between exports and direct investment * International tradability of BS products (related inter alia to ICT technology) * International (EU) harmonisation of market regulations for professional BS branches
Institutional changes	* Market regulation at national level (product requirements, firm start-up requirements, labour qualification, liability requirements) * Foreign market regulation (intra-European harmonisation, removal of import barriers, results WTO negotiations)
Structural change in factor markets	* External labour market (general employment level, ageing, scarcity by education segment) * Internal labour market (job hopping, position of key employees)

Outsourcing tendencies

In the past decade, a large part of BS industry's structural growth owed to increasing intermediate demand related to outsourcing decisions of client industries. An important question is whether pattern is to be continued in the next decade. Are enough existing functional services left in client industries that can be sourced out to independent BS suppliers?

Did the past outsourcing waves represent a unique shift to a more market-oriented business model, with the necessary consequence that further outsourcing growth must be receding? Or will the emergence of new services underpin a further rise in intermediary deliveries by BS industry?

Final domestic demand for BS products

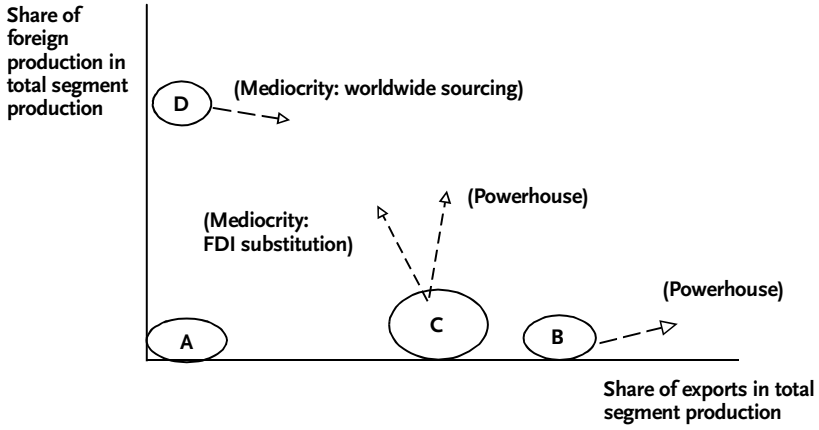
Increasing consumption and investment demand for software products supported structural growth of the BS industry in the 1990s. The scenarios sketch disparate developments for this growth factor.

Future internationalisation of BS industries

Chapter 2 singled out that segments of the BS firm population differ widely in the nature and degree of their international activities through exports and direct investment.[2] The segmentation pattern is not likely to be changed. Figure 5.1 sketches the likely future internationalisation patterns for each of the four company segments. Future development of the BS export volume will mainly depend on what happens in the C segment, the large-sized national-oriented firms. In the Mediocrity scenario they substitute exports by production in foreign subsidiaries. In the Powerhouse scenario, international trade in BS products expands so rapidly that the firms can export a larger part of their production. The small- and medium-sized specialists (segment B) mainly operate in low-volume niche markets, and although they may further expand their export activities, this will not have a large impact on total BS export volume. Characteristic for the multinational corporations (segment D) in the BS industry is that their foreign activities tends to be run through local subsidiaries. This is unlikely to change very much, unless competition in their branches would become so harsh that their strategy is forced into a cost minimisation strategy. The Mediocrity scenario expects them to use a worldwide-sourcing strategy in which low-cost national production subsidiaries are used as export platforms to service foreign high-cost markets. For both scenarios it holds that the majority of small non-specialised BS firms (segment A) remain too small for venturing into foreign markets through exports.

[2] It is recalled here that Tables 2.4 and 2.6 distinguished four different company segments: small non-specialist firms (segment A); small- to medium-sized specialist firms (segment B); large-sized national firms (segment C); and transnational firms or subsidiaries thereof (segment D).

Figure 5.1 Changing internationalisation modes by segment of the BS company population and by scenario



Legend
A : small non-specialist companies. B : small or medium-sized specialist companies
C : large national -oriented companies. D : transnational companies.

Institutional changes

Government policies and international policy developments form a major factor for institutional change. Even when they are not industry-specific, they may cause substantial impacts on the BS industry. The scenarios sketch different development paths for issues like trade liberalisation, market deregulation, European harmonisation, and national policies that affect entry and exits costs in the BS industry.

Structural changes in factor markets

Finally, structural changes in factor markets may affect one industry more than another, because factor input intensities differ by branches. The scenarios give attention to general scarcities in the labour market (ageing of the population) and specific scarcities in the market for personnel with high education levels.

5.2 Two growth scenarios for the next 10 years

This section qualitatively describes two future growth scenarios for the BS industry in the period up to 2010. Scenario analysis is used in a situation with many uncertainties, presenting development paths that are both plausible and coherent. The scenarios indicate the forces that shape the upcoming changes. Because of the uncertainties, the scenarios cannot be equated with predictions. Rather, they are possible courses of events. A choice has been made for two extreme scenarios. Together they represent the boundaries of the future BS growth range. One scenario embodies all growth-retarding factors (bottom line case), while the other one embodies all growth-sustaining and growth-promoting factors (optimist case). In all likelihood, it can be

expected that combinations occur of the elements that shape the Mediocrity and Powerhouse scenarios. Nonetheless, it makes sense to have a clear picture of the boundary scenarios.

The description of each scenario begins with a general characterisation, followed by the specific impacts of the growth drivers (demand growth, technological developments, changes in the institutional environment and factor markets). Subsequently, it is described how each scenario constellation is expected to affect competition and labour productivity development in BS industry.

5.2.1 Mediocrity scenario

In this scenario, the Dutch BS industry becomes an 'average' industry. Its growth rate is no longer higher than average of the Dutch market sector. The associated convergence in growth rates does not occur overnight, but gradually during the scenario period. Mediocrity sketches the bottom line scenario.

Demand growth

Catch-up effects in intermediate BS demand dry up when Dutch industries get closer to internationally comparable levels of BS input intensities. Some knowledge-intensive branches keep growing at higher pace than the average for the entire BS industry, but several other branches get affected by market saturation. Saturation phenomena are not restricted to branches that produce standardised services products. The share of BS inputs in overall intermediate demand no longer grows. Domestic consumption and investment demand for BS products grows with the same speed as GDP growth. Structural export growth[3] remains negative as foreign BS markets continue to develop slowly. When, after WTO negotiations that drag on for years, a new International Services Agreement comes about, its effect on the openness of international services markets remains disappointingly small up to 2010. Large domestic firms choose for setting up a foreign subsidiary rather than for exporting.[4] Some increase in international BS trade results from the fact that international firms apply a worldwide-sourcing strategy (within their company networks) for certain very specialised BS services. SME companies still have hardly any foreign activity. BS imports and competition by local subsidiaries of foreign BS providers become more important.

[3] Cf. Figure 2.10 in section 2.4.

[4] A continuation of the tendencies visible in Figure 2.11 and Annex V (Table A5.1).

Technology

Product innovation in BS industry develops at a rather slow pace, without radical technological breakthroughs. BS industry is more concerned with technology diffusion than with real innovation. The rate of product innovation in BS industry remains slow. In the software industry no major breakthroughs occur. Telecommunications developments and internet-related technologies (e.g. e-commerce software) remain a source of additional BS growth, but revolutionary progress is lacking. UMTS technology, the third generation telecommunication protocol linking mobile telephony and internet use, does not bring the 'goodies' expected at the time of the spectacular UMTS auctions in the year 2000. Small technological and organisational changes remain a source of BS growth, but less flamboyant than in the 1990s. A large part of BS industry's innovation effort is oriented at product differentiation.

Institutional environment

WTO negotiations on services trade drag on for years without real success, so that little international progress is made in the removal of non-tariffary import barriers and in the harmonisation of national differences in market regulation. Deregulation of firm startup requirements and loosened bankruptcy rules lower entry and exit costs. Further deregulation of start-up requirements strengthens the influx of small firm entrants in the BS business. Deregulation of bankruptcy laws also lowers the exit costs for firms. The result is that BS industry retains a highly dynamic firm population, especially at the small-scale end of the firms distribution.

Factor markets

The growth of some knowledge-intensive BS branches is hampered by scarcities in the labour market for highly skilled labour. Ageing of the working population has a more general scarcity effect on labour markets. Relative wages and prices of BS industry increase compared to the national average. Ageing of the working population, in combination with a persistent scarcity of high-skill employees forms a growth bottleneck for the labour-intensive and skill-intensive BS industry.[5] This could have a dampening effect on the growth prospects of the ICT industry, and indirectly on macro-economic productivity and GDP growth.[6] The position of key employees in knowledge-intensive BS branches is strengthened. Profit margins in large parts of the BS industry get under pressure, stimulating a wave of company exits. This particularly occurs for the small, unspecialised BS firms without the established reputations that might otherwise have

[5] Several studies expect a shortfall of trained technologists and ICT skills in European countries over the next decade (e.g. Eustace 2000).

[6] A first impact will be on wages, labour costs and price-cost margins of computer-related BS branches. Since demand for their products tends to be relatively price-inelastic, the cost inflation will spread throughout the economy. It may take years before the market incentives translate into a sufficient supply of skilled labour.

rendered them a premium price in their market. BS branches with standardised products increasingly use low- to medium-skilled migrant labour from Eastern Europe.

Industry competition

Markets for knowledge-intensive and client-specific BS products grow with the average growth rate for the entire economy. In combination with slower demand growth, the persistently high firm start-up and failure rates cause competition to become more fierce. Incumbent firms use product standardisation in order to gain scale benefits. Thinning profit margins induce a host of defensive mergers between large and middle-sized BS firms, thus consolidating joint market shares. Other defensive strategies include one-stop shopping arrangements with large incumbents in related branches. Nonetheless, price competition is becoming more important. Foreign BS subsidiaries use worldwide sourcing strategies to lower their Dutch production costs. Import competition rises slowly.

Labour productivity

Average labour productivity growth in the BS industry remains more or less stagnant. Productivity stagnation in the small-scale end of the firms distribution keeps having a depressing impact on average productivity development in the BS industry. The Dutch BS industry remains in the 'rearguard' of the international BS productivity-growth league.

5.2.2 Powerhouse scenario

A basic characteristic of this optimistic scenario is that value added and employment in the BS industry grows at a substantially higher rate than the total Dutch economy. The growth rate difference between BS industry and the rest of the national economy, that was already considerable in the past decade, will even widen. The BS industry is a powerhouse for macro-economic growth.

Demand factors

Blooming demand for BS products originates from final and intermediary demand. Several factors generate a new wave of outsourcing.[7] Most important are technological developments, leading to radical renewal of existing computer operating systems and associated hardware. Also important is the falling average size of companies throughout the economy, causing a relative increase in demand for overhead services. The emergence of new communication-related BS products gives a further push to intermediary demand. The share of BS inputs in total intermediary demand rises even faster than it did in last decade.

[7] Cf. Byron et al. (2002); '*Out of the back room*' (The Economist, December 1st, 2001).

Consumer and investment demand for BS products, particularly software-related services, grows faster than GDP growth. Development of e-learning (on-line courses and education programmes) and changing standards in operating systems for personal computers create a new demand for software applications.

BS exports flourish. Successful WTO negotiations yield a new International Agreement on Trade in Services, early in the scenario period. Fast international progress in the removal of non-tariffary import barriers for BS industries brings a stark rise in mutual market penetration of the EU and US markets. The liberalisation of world services markets also opens export opportunities in Eastern Europe. Further integration of the EU market and the EU extension with new member states also sustain higher levels of Dutch BS export. Knowledge-intensive BS branches again benefit most from the demand spurt. Most of the new foreign market opportunities are however covered by setting up production subsidiaries abroad. This leads to further growth of foreign direct investment by major Dutch BS firms.

Technology

Three types of technical developments cause further structural growth of BS industry:

- Developments in communication technologies like bandwidth breakthroughs in communications, UMTS technology, and a general adoption of XML internet protocols and the Infiniband standard for servers give rise to new BS products and new BS demand categories.[8]
- A succession of fierce and malignant computer virus crises first creates a strong demand for computer network protection (firewall) tools. Later on, it evokes a large-scale switch from virus-prone Windows to alternative operating systems.[9] Derived from this, a huge demand arises for redesign of software systems and adaptation of existing software applications. In this carrying wave also new product designs spring up.
- Growing congestion problems in the Dutch physical transport system (including commuter traffic), create a demand for company tools that lower physical and human transport flows. It induces a series of BS services products, like video conferencing services, internet security, software for automatic analysis of email inquiries, speech recognition software, e-learning facilities and payment services, B2B e-commerce tools, and the setting up of tele-working

[8] The XML protocol may lead to a new generation of communication products with wider information exchange possibilities (cf. Eustace 2000). The Input/output function in servers is seen as the most important speed bottleneck in computer networks; a general use of the Infiniband standard is expected to bring huge speed gains (The Economist Science and Technology Quarterly, December 2001).

[9] Several large European countries (UK, Germany and France) now already consider the possibility of a changeover in their government apparatus from MS Windows to an operating system based on open-access resource codes like Linux. Prime motives for this step would be the product price, national security reasons and susceptibility to virus attacks (cf. report in Trouw, 8 December 2001).

networks. Other BS branches derives additional work from the organisational integration and administrative implementation of these tools.

Institutional change

In the Netherlands and several European countries, a retrenchment of governments causes the domain of public law to shrink. Private law becomes more important for settling the relation between individuals, between companies, and between the two of them. A surge occurs of US-like litigation practices, boosting demand for legal assistance.[10] The same effect is caused by the increasing complexity of society, and by the growing overlap between European and national laws.

In the run-up to the WTO Services Round, the EU develops common product liability rules for professional BS firms. This step removes much of the national incentives for discriminative treatment of foreign BS providers, making it more easy to start local BS production in other EU countries. EU markets for these professional BS become more integrated, following a harmonisation of national regulations. Deregulation of product quality regulations in the professional business services (accountancy, tax and legal consultancy, notary services, engineering and architect services) causes more company entry, but also higher failure rates. The Netherlands and several other EU countries remove 'red rape' on inter-professional co-operation. This allows new business combinations, resulting in some mergers among some larger firms in some branches.

Deregulation of business startup requirements and bankruptcy rules lowers entry and exit costs for companies. This intensifies the hectic entry and exit of small firms in the BS industry.

Change in factor markets

High public investments in the education system, and particularly in higher education, results in removing the relative scarcity of high-skill employees from 2005 onwards. Wages of high-skilled workers move in line with national average. Profit margins remain high, especially in BS branches with client-specific products. A consistent policy push results in removing the scarcity of high-skill employees from 2005 onwards. Moreover, specific labour shortages in the IT domain are reduced by the development of self-regulating and 'self-healing' computer systems.[11]

[10] E.g. A. Shlaes, *America the litigious, land of the lawyer's fee* (in: Financial Times June 26, 2001).

[11] Since computer hardware is cheaper than IT specialists, the trend is to reduce the labour input requirement of IT systems. According to Horn, research director at IBM, nowadays at least one IT operator is needed for every 10 servers. The hardware and software industry endeavours to develop systems that can better look after themselves (administering, automatic switching to backup systems, simple repairs). This will lead to more complex and more expensive hardware systems with more internal communication between individual components and with more internal back-up systems (*A vision of systems that can look after themselves*, Financial Times, 10 December 2001).

Wages of high-skilled workers move in line with national average. Profit margins are relatively stable.

Industry competition

The size of the average BS firms grows as the industry structure is consolidating. In life-cycle terms, the industry is becoming more mature. Incumbent firms acquire a larger share of industry growth. International competition intensifies by higher imports and direct investment levels. Dutch firms appear relatively successful in benefiting from new international market opportunities.

Labour productivity

Labour productivity in the BS industry grows again, though still less than the national average. The combination of increasing scale economies and efficiency-enhancing ICT-applications cause productivity levels to rise. Part of this effect is caused by the fact that dynamic knowledge-intensive branches increase their share in total BS industry. Compared to the benchmark countries, productivity-growth of Dutch BS industry is above average.

By way of summary, Table 5.2 presents basic characteristics of the two growth scenarios for Dutch BS industry. It distinguishes four aspects of the growth scenarios: growth rate differences between BS industry and the macroeconomic average; growth difference by branches; competition dynamics; and the development of labour productivity. The two scenarios cannot be regarded as predictions. They give industry-specific elements for the growth bandwidth. Mediocrity provides a coherent bottom-line picture for what may happen in the next 10 years, whereas Powerhouse pictures an optimist growth picture. In reality, we might see a combination of elements from both scenarios.

Table 5.2 Characteristics of the two future growth scenarios for BS industry

	Mediocrity	Powerhouse
Technology	* BS industry contributes more to technology diffusion than to original innovation. No radical technology breakthroughs in BS industry. * Innovation effort is mostly oriented towards product differentiation and small, non-technological innovations	* Communication technology (broadband) creates demand for new BS products * Traffic congestion problems generate strong demand for company network tools that reduce the need for human and physical transport
Demand growth	* Catch up demand for BS inputs is drying up. Some knowledge-intensive branches grow at an above-average growth rate. For other branches market saturation is looming. * ICT technologies like UMTS do no generate major new demand * WTO negotiations drag on for years without yielding a major breakthrough that liberalises trade in BS products. and generates new export demand * Growth rates of BS industry and macro growth converge: no structural growth.	* Falling average firm size throughout the economy generates a new outsourcing demand for several types of overhead services. * A succession of malignant computer viruses generates strong demand for network protection tools and alternative operating systems. The latter generates huge demand for adaptation of computer systems * Development of e-learning and other consumer-driven demand create a demand push. * Retrenchment of government causes the domain of public law to shrink, whereas private law (like in the USA) becomes more important, boosting demand for legal assistance. * Employment and value added in BS industry grow much faster than total Dutch economy
Institutional changes	* Firm dynamics in BS industry remain hectic, partly due to deregulation of firm start-up requirements and loosened bankruptcy rules (lower entry and exit costs)	* WTO agreement on international services trade causes a removal of red tape for foreign BS providers and for 'one-stop shopping'. It causes mergers, new business combinations and more intensive international competition. * EU harmonisation of national regulations
Structural change in factor markets	* Persisting labour market scarcity for high-skilled personnel. BS wages increase compared to national average. * Profit margins in BS industry get under pressure, stimulating a wave of company exits. * BS branches with standardised products increasingly use low- to medium-skilled workers from Eastern Europe.	* Labour shortages do not form a growth bottleneck, and BS wages move in line with national average. * Excess demand for IT specialists is relieved by the introduction of self-regulating and 'self-healing computer systems. * Profit margins in BS industry are relatively stable.
Industry competition	* Defensive concentration by incumbent firms. More defensive market strategies: one-stop shopping, product differentiation.	* Start-up rate of new BS firms gets in line with averages for other industries. Average size of incumbents grows. * Intensified international competition.
Productivity growth	* Stagnant labour productivity development. Dutch BS industry in international 'rearguard' regarding productivity growth.	* Labour productivity growth picks up due to scale economies and efficiency-enhancing ICT applications. * Dutch BS industry no longer in international 'rearguard'.

5.3 Quantitative guesstimates for future BS growth

The scenarios define the bandwidth of expected BS growth in the next decade. This section provides quantitative indications for the growth bandwidth in the period 2002 - 2010. The emphasis is on growth of value added. Macroeconomic developments for the Dutch economy as a whole form the groundwork for the scenarios.

Modelling assumptions

The combination of expected macro-economic growth and the industry-specific scenarios yields the future growth projections for BS industry. Macro-economic growth and BS industry growth are related in a double way. The first and most straightforward aspect is that macro-economic growth determines final demand and, indirectly, also intermediary demand for BS industry. The second aspect is the impact of BS industry on macro-economic growth performance. As was described earlier in this study,[12] BS industry - due to its size and dynamism - has a substantial direct contribution to macro-economic growth. Apart from that, BS industry contributes indirectly to macro-growth through its impact on human capital inputs, technology diffusion, and innovative role in client industries. The direct and indirect impacts of BS industry on macro-growth imply that growth projections for the Dutch economy as a whole cannot be taken as completely exogenous input data for quantifying future BS growth.[13]

The positive contribution of BS industry to macro-economic growth is largest in powerhouse and smallest in mediocrity. In the latter scenario, the growth rates of BS industry and the market sector converge. Conversely, in powerhouse, BS industry has a substantially higher growth rate than growth in the rest of the Dutch market sector; its direct and indirect growth contributions are larger.

CPB recently published detailed GDP-growth scenarios for the period 2001 till 2006.[14] The GDP forecasts for the period 2003-2006 are trend scenarios based on an analysis of structural factors such as demography, growth of working population, changes in capital intensity, and labour productivity development. Business cycle developments complicate the picture, but the business cycle movements are regarded as fluctuations around the projected potential trend growth. As Table 5.3 indicates, growth projections for Dutch economy clearly drop below the high growth pace of the period 1996-2000. In 2001 - 2002 a real business cycle downturn is taking shape.

[12] Section 1.2 and Chapter 3.

[13] Nonetheless, it is safe to assume that macro-economic development is *for the largest part* determined by factors outside the Dutch BS industry.

[14] CPB (2001) and CPB Report - Quarterly Review 2001/4. Projections for the longer run (2007-2010) will be published in 2002 in a joint publication with RIVM.

Growth picks up again in the years afterwards,[15] but the trend growth rate remains lower than in the second half of the 1990s. This is mainly due to a slower growth in total labour supply. CPB itself uses two macro-economic growth projections, 'Cautious' and 'Optimist', as shown in Table 5.3. Both scenarios differ only a half percentage point per year. The 'Optimist' projection for 2003-2010 is in fact a variant of 'Cautious'. These GDP-growth projections form the major inputs for quantifying the bandwidth of BS growth in the period until 2010.

Table 5.3 GDP growth scenarios for the period 2001-2010, Netherlands

	2001	2002	2003-2006	2007-2010	average 2001-2010	for comparison: 1996-2000
	% annual change					
Short term	1.0	1.25	.	.		
Cautious	.	.	2.5	2.0	2.0	3.7
Optimist	.	.	3.0	2.5	2.4	3.7

Source: CPB (2001), CPB Report - Quarterly Review 2001/4; CPB-RIVM (2002, forthcoming)

The additional half percentage point 'Optimist' macro-growth is assumed to be caused by the strong growth contribution of BS industry in the powerhouse scenario, at least partly so. Given the data on actual contributions of BS industry to GDP and labour productivity growth in the past (Tables 3.5 - 3.10), this assumption is not too heroic. Hence, the upshot of this is that the 'Cautious' macro-projection will be used for the mediocrity, while the 'Optimist' macro-projection will be used for powerhouse.

The relation between BS growth and GDP growth in the past

During last two decades, real value added in Dutch BS industry has grown at about 1.5 times the growth rate of the national economy. Looking at the comparative growth performance of individual BS branches, three groups can be distinguished:[16]

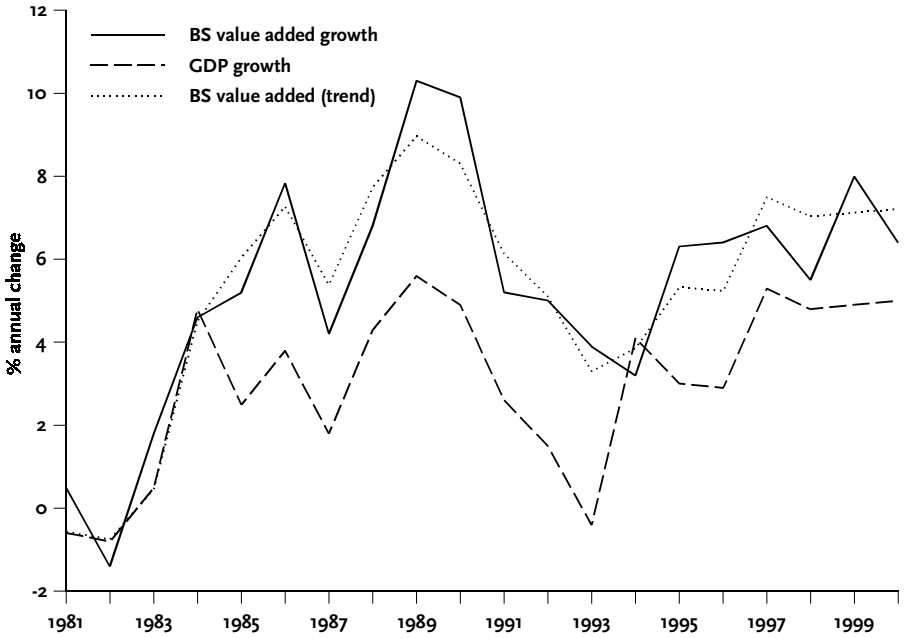
- *very fast-growth* BS branches: computer-related services;
- *strong-growth* BS branches: equipment rental, R&D, legal consultancy, engineering and architectural services, advertising;
- BS branches with *lagging growth*: industrial cleaning, security

The 'very-fast growth' and the 'strong-growth' branches booked growth rates above GDP growth. The branches with lagging growth witnessed growth rates inferior to the national economy.

[15] Cf. Don (2001). An underlying assumption is that 2006 will be cyclically neutral.

[16] Detailed data can be found in Suijker et al. (2002).

Figure 5.2 Value added growth in BS industry and GDP growth, Netherlands 1981-2000



Regression analysis was used to arrive at a trend pattern for BS industry growth. The resulting trend is used for the future growth projections. A closer look at the structural growth process of the past two decades learns that growth acceleration took place in two distinct waves, and especially in the periods 1985-93 and 1995-2000.[17] Regression analysis using the GDP growth as explanatory variable together with time dummies for the structural growth waves of 1985-93 and 1995-2000 yielded a good approximation of the actual BS growth patterns. Regression details can be found in Annex IX. The trend based on the regression is shown by the thin dotted line in Figure 5.1.

The bandwidth of future BS growth

The regression equation formed the basic tool for the quantitative scenario projections.[18] As Table 5.5 shows, the bandwidth of BS growth in the period 2001-2010 is expected to be in the range of 3.2 to 5.8 per cent annually. Figure 5.2 gives further details on projections for sub-

[17] The structural growth waves largely coincided with two outsourcing waves for BS products (cf. Table 2.1). The first growth acceleration period went along the large-scale outsourcing of low-skilled and standardised in-house service activities. The second acceleration period, from 1995 onwards, coincided with large-scale outsourcing of specialised, knowledge-intensive service activities and the rise of the corresponding knowledge-intensive BS branches.

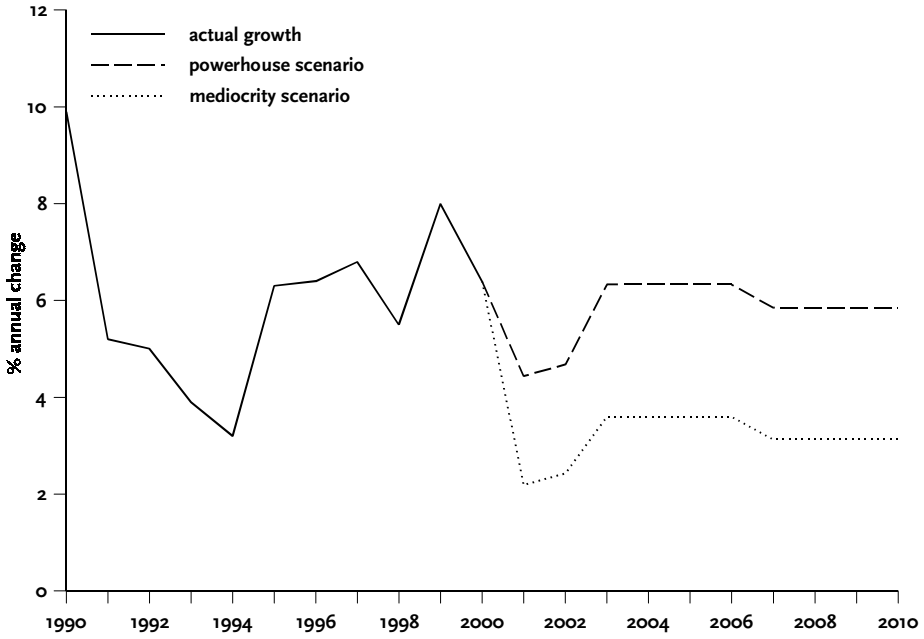
[18] For the two scenarios projections, different time dummy coefficients for industry-specific structural developments have been used.

periods. It displays that the 2001-2002 business cycle downturn may very well become deeper than in 1993-94. For the period 2003-2006, a business-cycle recovery effect is expected to occur.

Table 5.4 Growth bandwidth for total Dutch BS industry in two scenarios, 2001-2010,

Scenario	2001-2002	2003-2006	2007-2010	Total period 2001-2010	Comparison: Actual BS growth 1996-2000
	average annual growth in %				
Mediocrity	2.3	3.6	3.1	3.2	6.6
Powerhouse	4.6	6.3	5.9	5.8	6.6

Figure 5.3 Value added growth in BS industry, Netherlands 1990-2010 (two scenarios)



Over the entire period 2001-2010, the expected BS growth diminishes, caused by lower GDP growth projections than over the period 1996-2000. This happens even in the Powerhouse scenario, in spite of its pretty optimist assumptions. Nonetheless, BS growth rates in Powerhouse remain more or less in line with those of the previous decade. In case of the Mediocrity scenario, future growth rates of BS industry would become lower even than in the previous business-cycle downswing (1993-94). Should the Mediocrity scenario turn into actual, this will mean 'fasten your seatbelts' for BS firms, since it would most probably have an impact on competition intensity and business failure rates.

5.4 Conclusions on BS growth scenarios

Structural changes depend on a complex interplay of forces within and outside the BS industry. Given the large uncertainties in a long-term forecast, the method of scenario analysis is used. Two scenarios are identified for the future development of the BS industry, an optimist (powerhouse) and a pessimist scenario (mediocrity).
Each scenario can be read as a coherent picture of external developments with industry-specific growth impacts for the BS sector in the period up to 2010. The scenarios indicate in what aspects the development of BS industry deviates from the general growth path of the Dutch economy. This depends on a number of driving forces: technological change; outsourcing trends; growth of final demand; internationalisation; institutional change; and structural change in factor markets. These driving forces have their impact on BS industry through transmission mechanisms like demand volume, demand structure, cost level, prices and profit margins.

The development of the national economy is the general setting for both BS industry scenarios. Macro-economic development is *for the largest part* determined by factors outside the Dutch BS industry. But there are some feedback mechanisms from BS growth to macro-economic growth like the direct contribution of a growing BS industry, and effects on labour productivity and innovation in BS' client industries. The existence of the feedback mechanisms is accounted for in the macro-economic growth projections used for the period 2003-2010.

The expected growth of BS industry in both scenarios drops below growth rates attained in 1996-2000. This is foremostly caused by lower GDP growth rates. In our bottom line scenario (MEDIOCRITY), BS growth is almost halved compared to the second half of the 1990s. But even in the best case (POWERHOUSE), though based on pretty optimist assumptions, BS growth is not expected again to attain the growth level of the late 1990s. Winding up, the general conclusion is that, compared to 1996-2000, value-added growth rates in the BS industry will slow down, irrespective of the scenario that is adopted. The extent to which this is the case differs according to the scenario that will unfold.

6 Policy opportunities

This chapter identifies future-oriented policy issues related to the contribution of BS industry to national welfare. The first section establishes that de facto there is no sectoral policy for the services industry, let alone for the business services industry in particular. Section 6.2 identifies some market failure problems with regard to the development of BS industry for which it could be relevant to introduce remedial action. Section 6.3 sketches possible policy avenues for dealing with these problems. Section 6.4 identifies possible solutions for the BS industry itself. The final section gives a summary and the conclusions.

6.1 Retreat from industrial policy

As a background to the ensuing discussion of policy opportunities, first a few remarks on shifting economic policy accents in the Netherlands since 1980. There is no such thing called a Dutch service industry policy, nor has there been one; let alone an industrial policy for business services in particular.

For years, industrial policy in the Netherlands had a strong bias towards manufacturing industry. Experiences with policy intervention were not always positive, a message strongly conveyed by the RSV fiasco in shipbuilding. Information problems make it difficult for governments to successfully 'pick the winners'. Policy intervention may change the system of market incentives in unforeseen and undesired directions. Since the 1980s, subsequent Dutch governments took a more liberal stand in questions of industrial policy intervention. It was acknowledged that markets, when left to themselves, can often deal faster and more comprehensively with new information than governments can. Policy emphasis shifted from interventionism towards policies that trust more on market solutions, and that aim at strengthening the functioning of markets. Several regulation-based barriers to market entry were slashed. Market regulations were screened for their impact on transaction and switching costs of producers or consumers. The Dutch government instigated a programme, called '*Market performance, Deregulation and the Quality of Legislation*' (MDW). It aims to improve market efficiency, eliminate undue forms of market regulation, and improve the quality of regulation. The programme includes specific reviews for several markets, including some in the BS industry (notaries, bailiffs, accountancy, certification services). The emphasis in the MDW projects that have been finished up to now, was on consumer-oriented rather than producer-oriented service aspects.

The liberal policy accent detectably had positive effects for BS industry. Deregulation of labour market institutions boosted the growth of temporary work agencies. Branches like software houses, equipment rental and economic consultancy directly benefited from privatisation movements in the government apparatus.

Does the story end here? The free development of an industry does not automatically generate the best possible welfare outcomes for the national economy. There may be 'banknotes left on the sidewalk'. If so, imperfect competition and lacking markets often are the cause of it. Improving the functioning of such markets will have positive social pay-offs. Targeted stimulating action can in some cases seize welfare opportunities that otherwise would have remained underdeveloped. Identification of opportunities for welfare-improving policies with regard to the BS industry require an assessment of market failure problems.

6.2 Houston, we have some problems

This section pinpoints the reasons why BS markets do not comply with the 'perfect competition' standard set by the welfare theory.

Welfare theory distinguishes several causes why market failure may occur, a situation in which prices systematically deviate from marginal costs. The achievement of socially optimal outcomes by the free development of BS markets can be disturbed by the three types of market failures, or combinations thereof:

- *Markets do not account for social externalities,* either positive or negative. Intervention may be required to suppress negative social externalities, or to sustain a sufficient provision of positive social externalities.
- Existence and abuse of *market power* results in socially undesirable outcomes. In markets with entry barriers, monopolist or strategic oligopolist behaviour by market parties results in sub-optimal allocation of resources or too high prices for consumers.
- *Information asymmetry* causes undesirable outcomes in markets for information-sensitive goods. Less-informed parties may systematically get into a disadvantaged position. The less-informed, being aware of this risk, may also deliberately reduce their exposure to being deceived. This reduces total transaction volume below the level that would prevailed without the information asymmetry problem.

The next three sub-sections investigate in more detail the occurrence of each type of market failure in BS industry.

6.2.1 Taking social externalities of BS development into account

This subsection identifies a number of external effects in the BS industry. External effects arise when transactions between suppliers and buyers of business services have welfare effects for other producers or consumers that are not taken into account by the transaction partners. External effects are not reflected in costs and prices of the BS products. As a consequence, the market price for the delivered service is - from the social perspective - either too high or too low.

Intervention in markets for a number of knowledge-intensive BS products has since long been based on the social externalities that go along with these services.[1] Specific examples of such services and the social externalities involved are:

- accountancy: important for safeguarding of reliable financial information, which is essential for trust in capital markets and the financial system as a whole;
- legal services (lawyers, notaries): importance for upholding the legitimacy of the constitutional state and the legal system;
- engineering: safeguarding the liability of technical systems;
- architects: special role in upholding the amenity value of the urban environment, and the quality and aesthetical value of housing and other buildings.

Prevention of charlatanism and concern for the independence, reliability and accountability of providers of these professional services partly explains why policymakers hesitate to remove regulation barriers and 'red tape' with regard to multi-professional cooperation.

Apart from these branch-specific externalities, we can also distinguish more general externalities, positive and negative. In the no-policy case they are likely to spring from the free development of BS markets.

Positive externalities

Growth of BS industry has several positive external effects outside the industry itself, particularly in the areas of innovation and productivity development (cf. Section 3.2):

- direct contribution to technological innovation, particularly in software and engineering;
- direct contribution to non-technological innovations with a positive impact on labour productivity development in client industries;
- surmounting scale problems and setup costs for knowledge inputs, especially in small and medium-sized enterprises;
- diffusion of production frontier knowledge with regard to many competence areas.

These effects can be regarded as externalities, because BS industry itself cannot appropriate all associated benefits for client industries. Intellectual property rights in BS industry are weakly developed. Clients, competitors and employees that leave the BS firm, often have few problems in applying the same idea for their own account and benefit.

The positive external effects are increasingly acknowledged by national governments and international organisations. Recent policy documents mention business services as a crucial factor for enhancing productivity and competitiveness of client industries (see text box). Given

[1] The presence of information asymmetry was another cause for intervention (OECD 1997).

these positive externalities it can be taken for granted that economic welfare in the Netherlands is served by having a strong and innovative BS industry.[2]

International policy documents stress positive externalities of BS industry

According to the OECD: "The provision of strategic business services is considered key to enhancing performance across the economy, in manufacturing and services alike. Increased efficiency in the provision of services will have positive spillover effects on both large and small firms" (OECD,1999a, p.8). A similar judgement stems from the European Commission: "The key importance of business services lies in their dynamic links and their contribution to the competitiveness of EU industry. An important element in EU competitiveness policy is to promote intangible investments (knowledge creation, quality, innovation, management, etc.). Business services are often required to supply key elements of such investments" (Commission of the European Communities 1998, p.4). Similar statements can be found in a study by the Danish Ministry of Trade and Industry (2000a, 2000b).

Underprovision of innovation-related positive externalities can occur for several reasons. Consider first the yield in terms of original innovations. Dutch BS branches – compared to counterparts in European benchmark countries – only spend a small share of their turnover on innovation expenditure (cf. section 4.3). Such expenditure is essential for the creation of original innovation by the BS industry. The incentive structure, institutional structures and fiscal climate for original innovations with an immaterial character deserves to be screened, also in an international perspective. Intellectual property rights for BS products, such as brand names and copyrights, are weakly developed. Many BS products, even though innovative, are difficult to patent.

Underprovision of positive externalities in the area of knowledge diffusion may occur when the knowledge assets upon which diffusion must rest, become obsolete. Constant maintenance and renewal of such human capital assets is necessary. The problem in this respect lies with the large majority of small BS firms. Many of them entered the BS markets in the second half of the 1990s. Entrepreneurs and their employees (if there are any) often are so engaged in daily jobs that they do not have the opportunity for keeping their knowledge up-to-date, and certainly not for acquiring new knowledge and skills that surpass their current activities. Projected into the future, this could in important parts of the BS industry lead to exhaustion up of the knowledge base.

Negative externalities

A major negative externality of BS industry growth on general economic welfare during the period 1996-2000 derived from this industry's own sluggish productivity development. Since a

[2] The latest Competition Benchmark Study authored by the Dutch Ministry of Economic Affairs (2002, p. 96), assesses that innovation effort in the Netherlands is rather poorly developed in European perspective. One of the reasons mentioned is that innovative effort in the services industry is below the European average.

slowdown in the growth of labour supply is imminent, future Dutch economic growth becomes increasingly dependent on labour productivity growth (Don 2001, CPB 2001). A stagnating productivity development in a large sector like BS industry could become a drag on economic growth. Efficiency stagnation in intermediary industries gets economy-wide effects, because most transactions in the final goods market are preceded by several intermediary transactions. Low efficiency in BS markets causes too high BS prices, passed on downstream throughout the entire economy (see box).[3]

Productivity in intermediate services and manufacturing productivity

In a report to the EU Industry Council, the EU Commission stresses that "a great number of the cost pressures on the industry are generated not only within manufacturing, but in the services sectors. These input services to manufacturing are in many cases not competitive in Europe. The resulting negative downstream externalities, effectively reduce the competitiveness of Europe's manufacturing industry". The report adds that "the most important obstacle to enhanced competitiveness of business services is represented by national market access restrictions" (EU Commission Services, 1997, p.11, p.19).

How do positive and negative externalities of BS growth add up? Present data do not allow a cost-benefit quantification. If we only look to the overall effect of BS growth on macro-economic labour productivity, there are two diverging effects. The positive effect runs through BS's impact on client industries. The negative effect comes from productivity stagnation in BS industry itself. A double-edged policy would therefore target at improving the productivity growth of BS industry itself, while at the same time grasping opportunities to foster the productive impact of BS industry in its client industries.

6.2.2 Market failure resulting from market power and monopolistic competition

Product markets in BS industry differ in their competitiveness. Markets for standardised BS products are relatively transparent, characterised by limited product differentiation, and product prices are important competitive tools. In most branches for standardised BS products, a small number of large and often international firms together account for a sizable market share, often in the range of 20 to 50 per cent of the market.[4] This opens the possibility for strategic and collusive behaviour by leading oligopolist. Since the markets for standardised products are

[3] Viner coined the term 'pecuniary externalities' for such indirect effects, because they cause no direct effect on other producers or consumers. Rather, these social externalities run indirectly, through prices and markets. It is to be noted that the productivity stagnation itself is connected with the two other forms of market failure (information asymmetry and market power).

[4] Cf. Table 2.5.

reasonably transparent, collusive behaviour can be dealt with by normal competition surveillance authorities.

A different story holds for BS branches characterised by client-specific business services. The existence of concentrated market shares is not a widely present market failure problem here. The leading firms often have smaller combined market shares than in the markets for standardised BS products (cf. Table 2.5). Rather, market failure stems from the fact that these product markets are non-transparent and segmented, with prices playing a smaller role in competition. A survey among 90 Dutch firms that recently purchased the services of tax consultants, financial consultants and architects assessed that more than 60% of the buyers found the tariff structure of the BS providers not transparent. Buyers of services by financial consultants and architects indicated that they had little insight in the quality of the service providers.[5] The standard market failure problem that prices diverge from marginal costs, must necessarily occur whenever demand is not perfectly price elastic (Eaton and Lipsey 1989). Since demand for client-intensive BS products normally is not perfectly price-elastic, market failure must be omnipresent. Switching costs on the clients' side lower the price elasticity of demand and contribute to the opacity of these markets.[6] Market segmentation occurs by region and by reputation of the provider. A proliferation of different product varieties is offered in different regional markets. Monopolistic competition, sometimes approaching localised monopolies, forms the dominant form of competition.[7]

The problem of monopolistic competition in knowledge-intensive BS branches is augmented by the effect of monopolist intra-firm labour markets typically in these branches, with key employees holding monopoly-like strategic positions (cf. section 2.3). This implies a system of sequential monopolies or double marginalisation. The negative welfare impact of double marginalisation is broadly acknowledged in the literature.[8] Figure 6.1 illustrates the relevant welfare issues.

In a situation without monopolistic key employees, the BS producer maximises his profits by producing volume Q1, resulting in price P1. At this output level their marginal costs equate marginal revenue. Producers who have to negotiate with key employees, incur higher marginal production costs.[9] Their profit-maximising output level falls - small is beautiful - to Q2. Due to

[5] Bureau Bartels (2000, p.62-4).

[6] Client firms necessarily invest labour time and other resources in identifying, communicating and sometimes jointly solving specific business problems with the external BS provider. Cf. section 2.3 for more details.

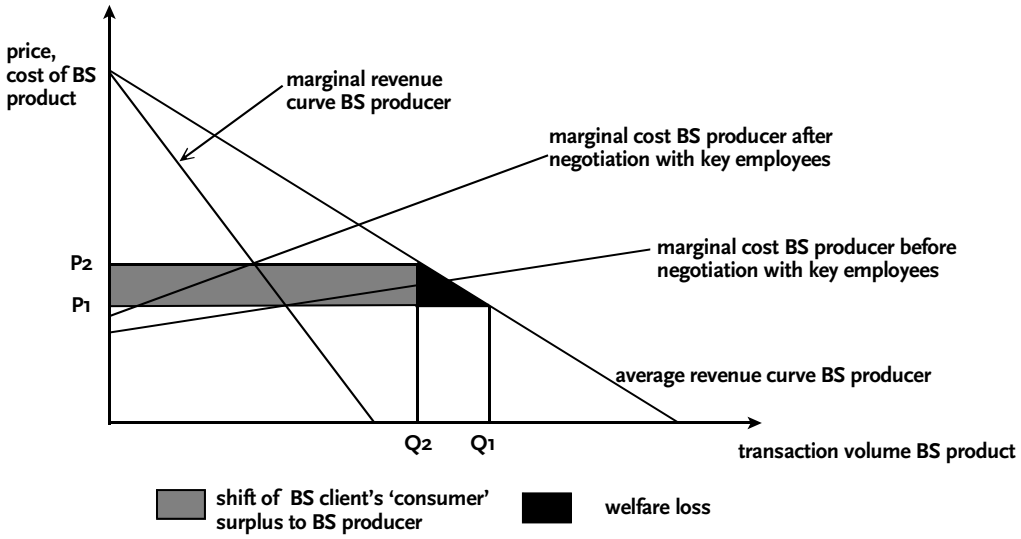
[7] *Balkanisation* is the label used in industrial organisation theory for the proliferation of product varieties. In a survey article, Eaton and Lipsey (1989, p. 760) note: "Market failure is ubiquitous in [...] models with balkanisation and localised competition since in free-entry equilibrium the position of each product is very much like [..] a natural monopoly".

[8] Spengler (1950); Scherer and Ross (1990, p. 522-7); Tirole (1988, p.174-82).

[9] Cf. section 2.3 and Kox (2000) on backgrounds of the double marginalisation mechanism.

the weakness of price competition in client-specific BS branches, the output reduction causes the price to rise to P2. Two welfare effects occur. The first one is a shift from the BS client's 'consumer' surplus to the BS producer. Intermediary costs in the client industries increase, with potential inflationary consequences for final consumers. The second welfare effect is that (potential) clients retreat from using BS products due to the higher price level. This is a net

Figure 6.1 Welfare impact of double marginalisation in BS industry



welfare loss, indicated by the dark-shaded triangle in the graph. Total welfare and economic efficiency would be served by eliminating the sequential, double marginalisation decision structure in BS industry. The problem is here illustrated for one BS-firm. But totalised over the entire BS industry, it helps explaining why we see (a) so many small firms, (b) so few scale economies in knowledge-intensive BS branches, and (c) such sluggish labour productivity growth in BS industry.

Policy attention seems required for the lack of market transparency, the prevalence of imperfect competition and the negative welfare impacts of the double marginalisation mechanism in knowledge-intensive BS branches. Some years ago already, the European Commission called on member countries to take measures that promote the transparency in the supply and demand side of the BS market (European Commission, 1998, pp. 15-7).

6.2.3 Market failure due to information asymmetry

Many knowledge-intensive BS products can be considered as credence goods, i.e. before and perhaps even shortly after purchasing the service, the client firm may not be able to judge its quality adequately. This creates information asymmetry. The market-based correction mechanism for this problem is the reputation premium. A client firm has to rely on information

on the BS firm's past performance. Basically, a reputation is nothing else than the expectation that an economic agent will act in the same way as he did in the past. BS firms with a proven reputation for being able to supply a high-quality service product can earn a price premium. The premium is a reward for time-consistent behaviour by the BS provider. Building up a broad reputation for being able to supply high-quality services products is a lengthy and precarious process.

Reputations in BS industry form implicit market entry barriers, causing market segmentation. Established reputations of incumbents form a barrier to entering the premium segments of their market. The reputation barrier shelters incumbents from competition by newcomers. Hence, the reputation mechanism forms a barrier in the competition process. It prevents direct competition between established, large incumbents on one side, and the other side new entrants or SME firms with local reputations. In a market with reputation-based segmentation, more entry of new firms in the market does not necessarily mean that the total BS market becomes more competitive. Similarly, more market entry by new firms does not necessarily mean that incumbents get a stronger incentive to reduce X-inefficiencies, and exploit any possible scale economies in order to gain cost price advantages. For client firms, the reputation mechanism means that they often pay too high a price.[10]

Dutch BS industry consists for an overwhelming part of very small firms.[11] Often, the firm is formed only by the entrepreneur. Business associations for small BS providers have complained about the weak formal status of their members: customers sometimes tend to hire them as quasi-employees rather than as independent entrepreneurs providing a separate product. Partly this is caused by an incoherent treatment of these entrepreneurs in government regulations.[12] The general lack of service brands and intellectual property rights for BS products could over time endanger the provision of innovative, productivity-enhancing externalities.

[10] The clients may also have higher switching costs than necessary. In the case of proven reliability by a familiar BS supplier, client firms may 'put all their eggs in one basket' by purchasing other services from the same supplier without the latter being the best or the cheapest supplier.

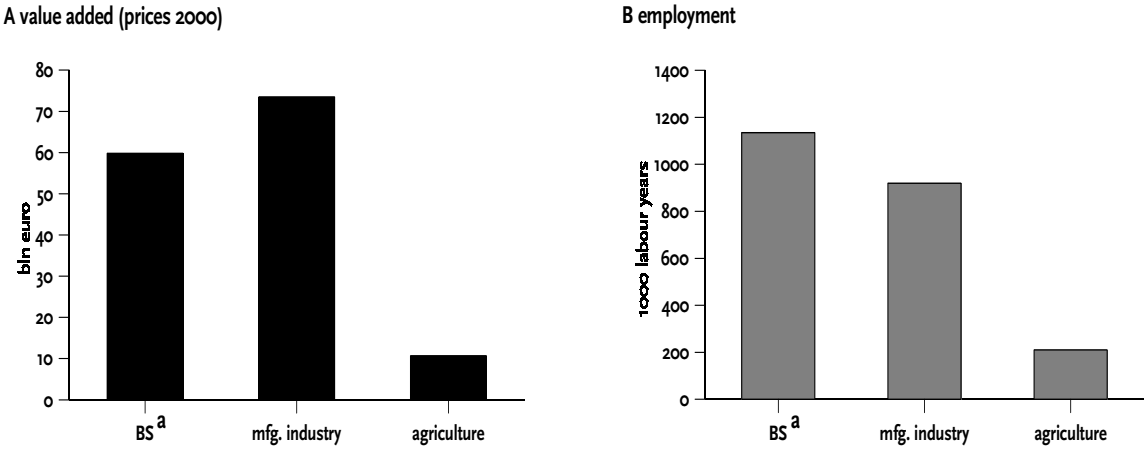
[11] Cf. data in Annex II.

[12] Until very recently, Dutch taxation authorities and social security administrations had different interpretations of the status of subcontractors, employees and independent service providers. The confusion related to different operational concepts for 'working in an authority relation' and 'working for own account and risk' (cf. EZ 2000). This problem is to be solved in the next few years, by allowing small BS providers without employees to apply for temporary acknowledgements of a status as independent entrepreneur.

6.2.4 Problems yes, but also new opportunities

Three types of persistent market failure have been identified in the BS industry. If such problems would occur in a random small sector like peanut butter industry, there would not be large consequences at the macroeconomic level. For BS industry, this is different.

Figure 6.2 Comparison of BS industry, manufacturing industry and agriculture, projections for 2010, Netherlands



[a] Business services including temporary work agencies and environmental services to companies

Between 1990 and 2000, the growth of BS industry directly contributed 31 per cent to Dutch employment growth and 23 per cent to the growth of value added. This growth contribution is put into perspective by the fact that BS industry in 1993 still represented less than 10 per cent of employment and value added of the Dutch market sector. As a result of the strong growth, BS industry by now has become a large sector in the Dutch economy. Its weight in the Dutch economy will only increase in the next ten years. Even in a moderate growth scenario, BS industry in 2010 will be employing some 23 per cent more people than manufacturing, and four times more than in agriculture.[13] This is pictured in Figure 6.2. Also in terms of value added, BS industry will in 2010 have become one of the largest sectors in the Dutch economy.

Hence, systematic market failures in the BS industry must cause substantial indirect effects –positive or negative – through incomes, intermediary and final demand. The market failures are especially persistent in the knowledge-intensive BS branches. The latter branches have been the fastest-growing part of Dutch BS industry in the preceding decade, and they are also

[13] The projections for the period 2002-2006 are based on CPB (2001), while growth projections for 2007-2010 come from a joint CPB-RIVM publication that will be published in 2002. For the BS industry a growth scenario has been used that is about midway of both scenario projections in Table 5.4 of this report.

expected to be so in the next decade. This size of the industry concerned should be taken into account when considering the need for policy intervention.

What can be done to improve the expected welfare benefits for the Dutch economy as a whole? Table 6.1 distils priority areas from the preceding three sub-sections on market failure, together with the possible direction for improvement. The next two sections investigate possible instrument to deal with the problems at hand. One section deals with specific policy opportunities for the Dutch government, and the other one deals with possible remedial measures for the BS industry itself.

Table 6.1 Market failure issues in BS industry, and possible directions for remedying them

Market failure type	Causing factor	Directions for remedial action
Underprovision of positive externalities	Lack of intellectual property rights for BS products	☼ Reconsider intellectual property rights and product brands for BS products ☼ Provide innovation incentives to BS industry ☼ Promote permanent education, also for small BS providers, to keep knowledge base up-to-date
Negative social externalities	Sloppy productivity development of BS industry itself	☼ More cost competition to remove X-inefficiencies ☼ Opening up markets for foreign competition ☼ Attain more scale advantages ☼ Reduce mobility-related productivity losses ☼ Strengthen innovative role of BS industry to compensate for its own sloppy productivity
Market imperfections	Nontransparency of markets for client-specific BS products	☼ Improve transparency regarding products and prices ☼ Reduce switching costs for clients ☼ Opening up markets for foreign competition ☼ Improve public information on BS industry
	Double marginalisation due to key employee mechanism	☼ Reduce scope for monopolistic marginalisation by key employees
Information asymmetry	Reputation mechanism basis for market segmentation	☼ Create voluntary quality certification ☼ Investigate possibilities for service guarantee system ☼ Improve transparency regarding products and prices

6.3 Policy opportunities for the government

This section sketches possible policy avenues. Some of the policy opportunities could strengthen the positive welfare effects of BS industry. Others are more oriented at repairing market failure

problems. It is not the intention to provide blueprints; for some issues only a possible line of march is indicated. Only few ideas for completely new policy measures are offered. Often it would be helpful already to refocus existing policies, bringing policy attention for BS industry more in line with this sector's economic weight and function.[14] Before embarking upon any of the policy options sketched in this section, more detailed study will be required, also to assess the risk of government failure and the social costs and benefits of the measures. Some of the ideas could perhaps first be tried out on small experimental scale.[15]

6.3.1 Productivity improvement

The secretary general of the Dutch Ministry of Economic Affairs, Oosterwijk, distinguishes three pillars for a Dutch policy oriented towards further productivity increase: increasing market dynamics, strengthening the knowledge and innovation base of the Dutch economy, and improvement of the fiscal climate for entrepreneurs (Oosterwijk 2001). The development of BS industry is important for the first two of these pillars. Three possible ventures for strengthening the productivity stagnation in BS industry will be treated: achieving more scale economies, skill upgrading and reduction of mobility-related productivity losses.

Table 6.2 Size structure of Dutch BS firms by employment size, 2000

BS branch	Total number of firms (in 1000)	Size classes by number of employees			
		0	1 -10	10 - 100	> 100
		percentage of all firms			
Equipment renting	4.9	48.8	44.5	6.1	0.6
Computer services	14.0	61.8	30.9	6.6	0.7
Contract R & D	1.7	52.0	36.0	9.6	2.3
Legal, account. and economic consultancy	39.6	58.1	36.9	4.7	0.3
Engineering and architectural services	13.9	55.4	36.3	7.7	0.6
Advertising and sales promotion	11.2	62.9	32.9	4.0	0.2
Other business services	20.6	58.3	33.0	7.6	1.1
Total BS industry	105.4	58.3	35.2	6.0	0.6

Source: CBS Statline (Statistics Netherlands)

Better use of potential scale economies

Labour productivity in BS industry may increase when firms succeed better in attaining scale economies. In small firms, the owner generally is a factotum, responsible for all the many small tasks that a services office require: purchasing small office supplies, keeping his knowledge up

[14] Cf. European Commission (1998).

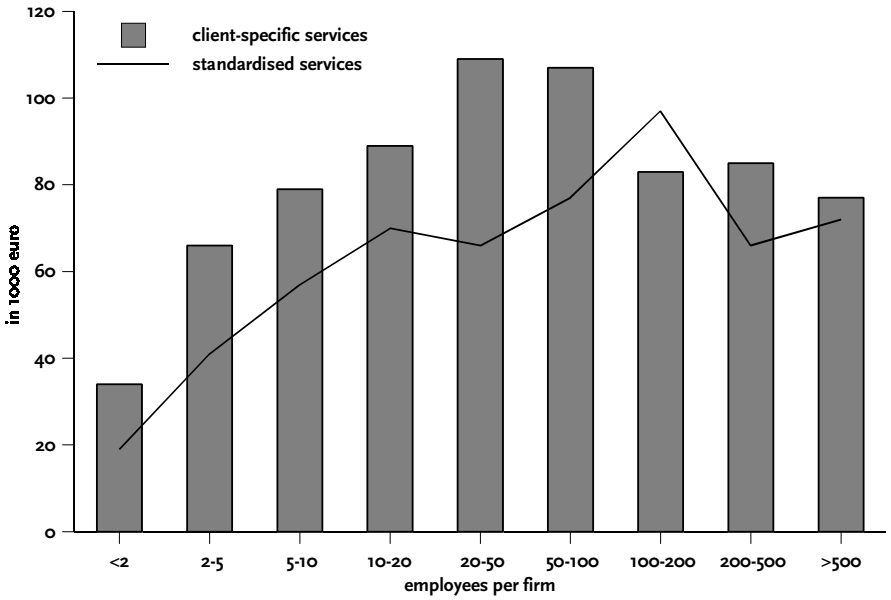
[15] This approach is strong recommended in CPB (2002).

to date, bookkeeping, getting reports printed, client acquisition, bringing letters to the postbox, writing and presenting reports, follow-up contacts with clients, making coffee, and putting the garbage bin outside. As Adam Smith already 200 years ago illustrated with his pin factory example, labour productivity increases with labour specialisation.

For many of the all-day tasks in BS industry one does not need a university education as many firm owners in the knowledge-intensive BS firms have. It is to some extent a social waste, as human capital can be used more effectively with a higher degree of labour specialisation that becomes possible with a larger firm size.[16] The attainment of scale economies will create labour productivity gains.

Micro data on Dutch BS firms clearly suggest that average productivity per worker first tends to increase with firm size, and falls subsequently. Figure 6.3 pictures average productivity per worker in different size classes of BS firms. The results indicate that the most productive firms in client-specific BS are those with 20 to 50 employees, while the most productive firm in the standardised BS branches is larger, namely 100 to 200 employees.[17] Since average firm size is much smaller than these 'optimal productivity' sizes (cf. Table 6.2), these results strongly suggest that there is considerable labour productivity growth to be attained yet by a increasing the average firm size.

Figure 6.3 Average turnover per employee in Dutch BS firms of different size classes, 1987-1996



[16] From a welfare perspective, it could be considered as a socially wasteful duplication of fixed costs.

[17] The data are based on a panel of 344 Dutch BS firms, followed through the period 1987-1996. Turnover per person employed so far is the best available productivity indicator. A more detailed report on this micro research is to be published (Van der Wiel, van Leeuwen and Kox, forthcoming).

To test for robustness, it was checked whether the same relation between size and productivity could also be found in other countries for which size class data were available (Belgium, France, Sweden, Finland, Italy). This appeared to be the case. The effect was – by far – the strongest in knowledge-intensive services: in all countries productivity increased with the average employment size of the firm. But in the Netherlands, this effect was strongest, thus suggesting that – from a productivity perspective – more scale economies can be gained here than elsewhere.[18] From Figure 2.9 it appeared that the Netherlands in 1997 already had the highest average firm size in the EU, both in knowledge-intensive and in standardised business services. However, in both cases the average firm size in Dutch BS industry was well below the 'optima' of Figure 6.2, so that still sufficient productivity gains seem to be available by upgrading the average firm size.

Strengthening intellectual property rights in services may create the focus point of scale economies (see box). A firm owner of an innovating BS firm can already apply for a patent right for a technological innovation. Perhaps a specialised facility (an innovation support centre) could be created that assists small innovative (BS) firms in the patent procedure, in order to take away this 'entry barrier' of transaction costs. For non-technological innovations there is no such possibility in the EU of protecting it through a patent procedure (in contrast with the USA). Because non-technological innovations appear to play such a large role for productivity (cf. Figure 6.4), it may be valuable to make broaden the scope of patent law to this type of innovations. One way to do this could be the introduction of patents that run for a shorter period than 'standard' patents.[19] In the context of the upcoming EU harmonisation of national patent policies, this issue could be brought into discussion again. Improved possibilities for establishing intellectual property rights on services products will also induces innovations and competitive renewal.

Scale economies in BS industry could also be created by offering more possibilities for multi-professional cooperation, between law, accountancy, tax and management consultancy branches.[20] The importance of high quality and independence of these professional service providers extends well beyond these branches and firms (remind the Enron affair in the USA).

[18] For the other EU-countries a better productivity indicator, viz. value added per worker could be used. Data are drawn from Eurostat NewCronos database. For standardised services, the effect also emerged in Belgium and Sweden, but not in the other countries.

[19] Similar ideas are developed in Green, Howells and Miles (2001, p. 34-7).

[20] Restrictions exist with regard to multi-professional co-operation between accountants, notaries and lawyers. The professional organisations for accountancy (NOvAA, NIVRA) and legal services (NOvA) set restrictions for their members with regard to those forms of cooperation, in which partners work for common account and risk, and share final responsibility for the commonly provided service to clients (cf. EZ 2001, p.25-8).

Intangible firm-owned assets as basis for scale economies

Scale effects are generally related to fixed costs. What type of fixed costs could form the crystallisation nucleus around which a larger firm size in knowledge-intensive BS industry might develop? A typical chunk of fixed costs consists of lump-sum costs for developing and sustaining the knowledge basis of the firm, e.g. development costs of services innovation or product specialisation, and the in-house availability of specialised professionals. Using these fixed costs as a basis for scale advantages in the BS industry would become easier by a better legal protection of intangible assets, through copyrights and/or patents. Intellectual property rights such as patents and copyrights create temporary monopoly rights on the fructal use of innovations. When the rights are firm-owned, they may form the basis for scale economies.

Therefore, although multi-professional co-operation may offer scope for scale economies, this goal should not run against the objective of maintaining reliable and independent accountancy or confidential lawyer services.[21] The European Commission is preparing an European directive on the subject. More European harmonisation on the multi-professional cooperation issue is worthwhile in itself.

Reduce mobility-related productivity losses

Productivity in parts of the BS industry is hampered by mobility-related problems. Many BS workers are constantly on the road, going to or coming from clients. Complaints about the loss of many non-declarable hours due to traffic congestion can widely be heard within the industry. Generic measures that reduce traffic congestion and improve the quality and reliability of rail transport will therefore also increase productivity in the BS industry. The same holds for reinforced telecommunication infrastructures (e.g. electronic highway, broadband data transfer). These communication media improve the tradability of BS products across time and place. In several parts of BS industry, a large part of service delivery could then be done electronically, e.g. by video-conferencing. The measure would also lower cost barriers of exporting. Besides, new communication channels will generate BS product innovations.

6.3.2 Achieve more market transparency

In order to remedy the lack of market transparency and the negative impact of market segmentation based on reputations, a few policy measures could be considered: getting a government-backed system of voluntary quality certification, setting up product liability rules, levelling the playing field for government services that compete with BS firms, and improving public information on the BS industry.

[21] The European Court of Justice in February 2002 ruled that the Dutch restriction on multi-professional cooperation between lawyers and accountants was justified.

Setting up a system of voluntary quality certification

Competition in BS markets is limited because of information asymmetry. Potential buyers cannot adequately judge the quality of a particular service. Reputations in combination with premium prices for high-reputation firms form the market-based solution to this. However, the system of market reputations creates fairly strictly segmented markets that are hardly in direct competition with each other. The knowledge-intensive character of some business services makes it difficult to abolish the information asymmetry problem. However, what can be done is to counteract the competition-obstructing role of market reputations. The competitive field in a particular branch would be levelled by setting up a system of quality certification. The quality certificate offers potential purchasers important information about expertise and reliability. The certificates operate as a seal of approval with regard to knowledge and expertise.

A certification scheme could best be set up in a cooperation between branch organisations and government. Branch organisation are indispensable because of their knowledge. Government involvement with regard to the certification scheme can avoid a jungle of competing certificates, and it prevents that the certificate becomes a buyable item. Moreover, if certification is left to branch organisations there is always the risk that the certificate becomes a new entry barrier.[22] The literature on quality regulation by incumbent firms and their lobby organisations suggests that given their vested interests, a system of quality certification should not be left completely in their hands.[23]

One can certify individual service providers and/or BS firms. What is best, is to be considered branch by branch. Since knowledge easily becomes obsolete in dynamic BS branches, certificates should perhaps be granted for a specific time period. In order to prevent the certification system becoming a new entry barrier, the system should have a voluntary character like ISO certification has. With voluntary certification, a fine balance can be struck between static and dynamic efficiency.[24] To support the certification, it may be useful to work out a number of model cases or model services for individual BS branches.

What can be gained by having a system of quality certification is that newcomers and small firms get access to segmented sub-markets that thus far were no-go areas for them. It will also foster competition throughout the industry, with associated benefits for innovation and

[22] By definition, branch organisations are composed of incumbent firms.

[23] Cf. Stigler (1971); De Bijl and Van Damme (1997). Rubalcaba-Bermejo (1999) states that national professional organisations in the EU have been the main force behind intra-sectoral trade barriers, i.e. rules that make it impossible to combine different BS services in one firm (e.g. accountancy and tax consultancy, or accountancy and legal advice). This position perhaps underrates that market failure (externalities associated to the quality of these services) may have been a policy motive.

[24] From a static efficiency perspective, one would like to have as much firm entry and as low competition barriers as possible, whereas from a dynamic efficiency perspective one would like to have that competitive environment that creates the most innovation. A situation with very low entry barriers and cut-throat competition may not be the best surrounding for innovation as Schumpeter argued already long ago (e.g. Benett et al. 2001, Appendix A1).

productivity. The measure contributes to market transparency. One of the criteria for certification could be associated with transparency of tariffs and invoicing.

Product liability

More market transparency for credence goods can also be strengthened by improving the system of product liability for business services, so that clients incur less risks when they purchase a service from a firm without a high-brow market reputation. An improved product liability system could make it easier to bring underperforming suppliers to court, easier than it is now. This will increase competition between market segments. Further study is required to investigate the legal lines along which product liability for BS products could be enhanced.

Better policy information

Managing an economy that is increasingly based on knowledge and intangible assets, requires a different information system. The present system of national account and industry statistics is

Towards better statistical indicators for BS industry

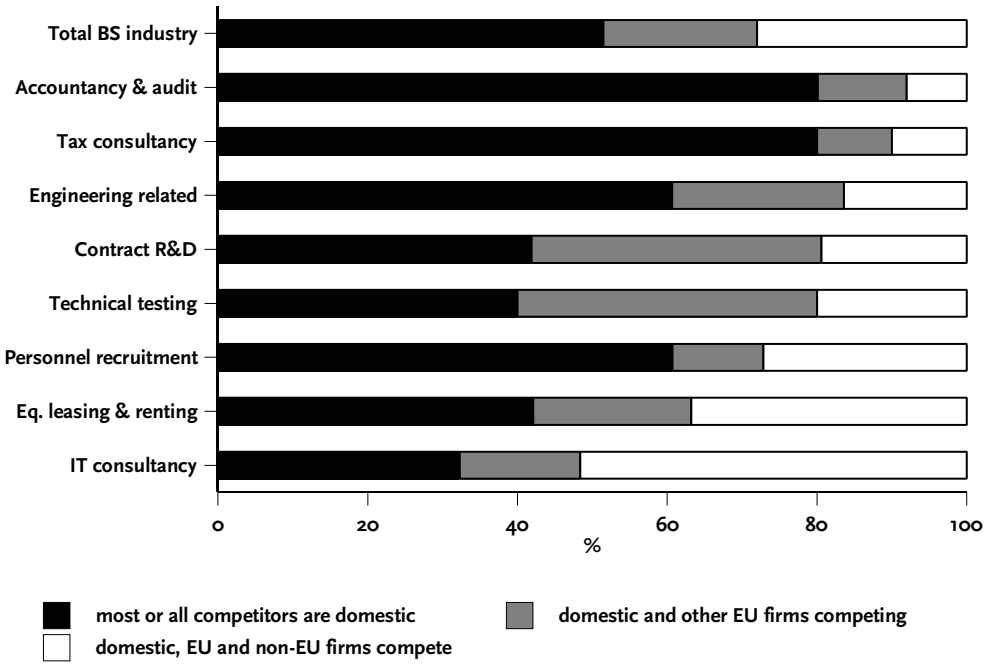
- CBS questionnaires could pay more attention to changes in immaterial assets of BS firms. Immaterial knowledge assets and competences in BS industries in fact often form the main capital assets of BS firms. Due attention must be given to measure labour time invested in updating and expanding their human capital. By allowing at least part of such time investment to be activated as *capital assets* rather than as *current labour*, one might get a better picture of real productivity in BS industry.
- Proper labour input measurement in BS branches with a high incidence of key employees. BS output per unit of labour is underestimated because the presence of key employees distorts the average wage level. Their wages contain a profit or rent element. A standard practice to homogenise heterogeneous labour input (e.g. for different education levels) uses the assumption that the wage levels per labour type correspond with marginal productivity of that type of labour (cf. Schreyer 1999, p. 25-6; 66-7). The result of this practice is that labour inputs in BS branches with many key employees are overstated.
- Development of reliable price deflators for the BS industry and indicators for price/quality ratio, in order to improve real output measurement in BS industry. Proper activity measurement of BS industry requires specific attention for the proper measurement of intangible assets, software, and goodwill.
- Develop indicators and measure the role of BS in improving the productivity of their clients, and macroeconomic productivity (European Commission 1998, p. 13). Perhaps correspondence could be sought with the items of technological and non-technical innovation contributions in the Eurostat's Community Innovation Survey.
- Improvement of BS trade statistics (cf. OECD 2001b, p.23-5).
- Better insight into the international trade structure of BS industry could easily be gained by adding a question on export activities in CBS questionnaires.
- Improvement of foreign direct investment statistics (cf. Kox 2001b, Annex 3)
- Additional study to quantify welfare effects of non-tariffary trade barriers in BS industries.

still highly geared towards material production and manufacturing industry, despite the fact that BS industry and other professional services represent very large shares in the domestic economy. Better policy information diminishes the risk of policy failure. Better statistics is also an important source of information for investment and market decisions for BS firms. The last few years a number of achievements have been achieved in quantifying the dimensions of (and changes in) the intangible assets that ly at the heart of knowledge-based economy. More effort will be needed to improve economic statistics on these issues. If we don't know where we stand and how the national position with regard to BS industry is evolving over time, it will not be possible to act proactively and adequately. Efficient policy intervention cannot be expected to come about when navigational data for that policy are too poor, fragmented or unreliable. The measure items stipulated in the text box offer a few opportunity windows in the policy information area.

6.3.3 Further opening up of markets to foreign competition

European BS markets are still dominated mainly by domestic competition as is shown in Figure 6.4. The branches IT consultancy, equipment renting and personnel recruitment are most exposed to foreign competition. The branches most sheltered from foreign competition are accountancy and tax consultancy. The international firms active in these branches operate in specific market segments, but the overwhelming majority of firms reports that it has only

Figure 6.4 Exposure of domestic BS markets in the EU to international competition, results of a European survey among BS providers



Source : CSES (2001, p. 143)

domestic firms as competitors. The openness of markets to foreign competition in the Netherlands is better than average in the EU.[25] Nonetheless, increasing the exposure of domestic firms to foreign competition would probably result in a number of beneficial effects: more pressure to improve labour productivity, more product and process innovation.

Critical assessment of the necessity of market-affecting regulations

Foreign competition can be artificially suppressed by national regulations that offer shelter to domestic BS firms vis-à-vis foreign providers. Market regulations can operate as effective trade barriers, even if that was not the intention of the policy maker. In some knowledge-intensive BS branches, several market-affecting regulations are left (see box below) that might function as effective non-tariffary barriers to imports and direct investment. In 1993, European industrial organisation specialists observed that service industries are highly affected by specific regulations, and that 'in many countries services are subject to more government interventions than most other activities'.[26] There has been some improvement since then, but the situation in BS industry is still characterised by a relatively strong presence of market regulation by governments.

Forms of national regulation in knowledge-intensive BS industries

Fixing qualifications to practice (input-related)
- certification requirements for necessary education and experience
- requirements on membership of national branch organisations
- definitions of professional titles and protection of their use
- post-qualification educational requirements

Fixing standards of professional competence (output-related)
- ethical standards, codes of conduct
- technical performance standards
- requirements for professional indemnity and liability insurance
- requirements pertaining to organisational structure of BS firm

Regulations affecting competitive conditions
- prohibitions against business relations with non-professionals
- restrictions on entry (direct by law or delegated to branch organisations)
- restrictions on price-setting
- restrictions on advertising and marketing

That tariffary and non-tariffary trade barriers cause domestic welfare costs, is well established by international trade theory. The trade barriers limit domestic competition, hamper quality and

[25] Foreign BS providers regard the Dutch markets as among the most open in the European Union (cf. Table 4.1).

[26] Sapir, Buigues and Jacquemin (1993).

innovation impulses from abroad, and keep domestic prices at a higher than necessary level. WTO estimated the tariff equivalents of such non-tariffary trade barriers in BS industry. They found that national regulations have very substantial cost-raising and price-raising effects.[27] Trade barriers in intermediary branches generally have even worse welfare effects than similar barriers in consumer goods industries. Client companies may not be obtaining the best services available and may be paying more than necessary for the services they purchase. Markusen (1989) stresses the policy relevance of liberalising free trade in producer services.[28] His conclusion are relevant for future policy towards BS industry.

A step in further opening up the Dutch domestic BS market to foreign competition might be a critical assessment of whether domestic goals like customer protection are indeed achieved in the least competition-distorting way. The European Commission set in motion several initiatives to diminish the inhibiting effect of national regulation-based barriers on intra-EU trade.[29] These EU steps could be used as a starting point. As a rule-of-the-thumb for the assessment one could use the principle that positive welfare effects from removing import-inhibiting BS regulations dominate, unless there are very compelling reasons for upkeeping them. Contrary to current practices, this rule implies a reversal of the burden of proof.

Support for a new WTO Agreement on International Trade in Services

A new round of WTO GATS negotiations is likely to lower these BS market barriers. New export and investment opportunities would arise for Dutch BS firms.[30] Hence, an active Dutch negotiation and information role – co-ordinated with other EU countries (cf. EU 2001) – that results in a new WTO Agreement on International Trade in Services will create new foreign market opportunities and generate more competition and efficiency incentives in the domestic market.

[27] Cf. Hoekman (1995); Nguyen-Hong (2000); Kox (2001b, p. 66-72).

[28] Markusen (1989) shows that allowing free trade in differentiated intermediate products is welfare-superior over allowing free trade in final goods in two senses. (I) Free-input trade guarantees that both countries will be made better off (relative to autarky) while, due to the distortion between prices and marginal costs, final goods trade only does not guarantee that free trade will be Pareto-improving. Free-input trade guarantees that both countries experience an expansion of production in the distorted sector, which has shown to be a sufficient condition for gains from trade when price exceeds marginal costs. Free trade in final goods only may result in the contraction of this sector for the smaller (or otherwise disadvantaged) country and thus the sufficient condition for gains fails to hold. (II) Free-input trade is also superior from the viewpoint of the world as a whole, although not necessarily from the point of view of both countries. This result follows from the complementarity of domestic and foreign specialised inputs in final goods production, or alternatively from the increased division of labour supported by trade. With free-input trade, each country essentially confers a positive technological externality on its trading partner.

[29] Cf. European Commission (1998; 2001; www.europa.eu/comm/internal_market/en/services/); WTO (1999).

[30] For information on the structure of non-tariffary barriers in individual BS branches, see Appendix XI. Also OECD (2001a) and Kox (2001b).

European harmonisation of national market regulations

In the European context, an active negotiation and information policy would be warranted to achieve harmonisation of national market regulations for BS products. Wide differences and intransparencies of national regulations cause information-cost barriers for SME firms. Harmonisation and better transparency creates intra-European welfare gains. It might be possible to achieve mutual recognition of national qualification criteria for personnel that provides BS products abroad. Along the same line, an European quality-guaranteeing arrangements for specific BS products and branches would take away the incentive for national governments to require that foreign BS-providers have a (legally liable) local subsidiary.[31]

Greater policy sensitiveness needed on effects of BS trade barriers

Research commissioned by the European Commission found that national authorities in Europe tend to underrate the impact of trade barriers in the BS industry (CSES 2001). This is explained from two factors. Firstly, governments - including the Dutch government - so far received only very few direct complaints from within the BS industry on trade barriers in foreign markets. A second explanation is that until very recently, governments gave relatively little attention to the development of BS industry as a driver of competitiveness and economic growth.

Table 6.3 Geographical market orientation of SME [a] business services firms in the Netherlands, 1999

Sales orientation	All firms	of which:		
		Accountancy; legal, tax and economic consultancy; advertising; publicity	Software services; architects; engineering; design consultants	Security services; industrial cleaning; training and media services
	percentage of category total			
Predominantly local or regional	51	55	48	47
Predominantly national	39	40	38	41
Predominantly international	9	5	14	11
No response	1	1	-	1
Total[b]	100	100	100	100

[a] Small-size and medium-size enterprises with less than 250 employees.
[b] Due to rounding, the totals may not add up to 100 per cent.
Source: NIPO Business Monitor, 4th Quarter 1999, reported in: MKB-Nederland (2000, p. 30).

[31] For recent EU initiatives see www.europa.eu/comm/internal_market/en/services.

Realism with regard to export promotion

Policy realism is necessary with regard to the possibilities for increased BS exports. The possibilities for further internationalisation differ considerably between the size classes of BS firms:

- Mid-market BS providers (small niche markets suppliers and medium-sized 'general' BS suppliers) stand to gain most from the removal of barriers to trade. Not only are these firms already active with some exports to foreign markets, but they generally have the resources and experience to exploit new opportunities in foreign markets.
- Large firms mostly already have export activities and local subsidiaries abroad. It is doubtful whether removal of 'red tape' regulations would fundamentally alter their business models. Most BS exports come from large firms (cf. Table 2.7). The possibility to operate more freely across national borders might eventually lead to more intra-company specialisation and trade.
- Small, non-specialised BS providers generally are not in the position to take advantage of new foreign business opportunities when regulatory barriers to trade are removed. Remaining operational and information barriers to foreign operations have the character of a fixed-cost threshold. Without attaining a certain minimum scale they cannot be expected to operate outside their immediate markets. As a consequence, there is low SME participation in BS exports. Table 6.2 shows the weak export orientation of small- and medium-sized BS firms in the Netherlands.[32] The overwhelming majority of firms are predominantly oriented towards selling products in a local or regional market. A smaller part of the companies has a national orientation, while the group of companies with substantial international sales is generally less than ten per cent of the BS firms surveyed.

'Foreign twinning' fund for small firms

More foreign operation by small and medium-sized BS firms might generate several advantages: attainment of scale economies, learning, innovation and efficiency effects. A possible instrument is to facilitate that SME 'exercise' in operating accrues national borders by starting low-profile twinning agreements with foreign colleague firms. Such initiatives can be supported by offering these firms the possibility to abate part of the setup costs for such twinning agreements. It is more than likely that such policy initiatives could be co-financed with similar EU initiatives.[33] The EU aims at setting up databases on cooperative networks between BS suppliers. EU also promotes certification of such networks in order to create confidence in the ability of these networks (EU 1998). The Foreign Twinning Fund is to be clearly distinguished from the existing Twinning initiative promoted and supported by the Dutch Ministry of

[32] Similar results are reported in Van Noort and De Graaf (2002).

[33] Several EU instruments, like BC-Net, BRE, Euro-Partenariat, Interprise and the 5th RDT framework programme aim at strengthening intra-Community business co-operation (cf. EU 1998, p. 19).

Economic Affairs. The latter project aimed at creating 'technological incubator' networks for starting ICT firms (cf. Elfring and Hulsink 2000).

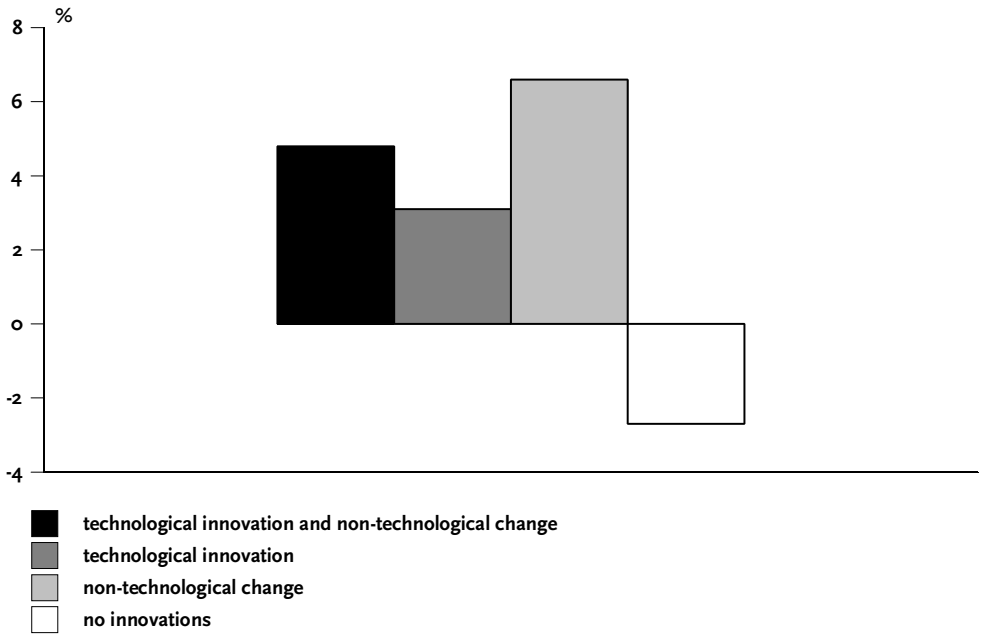
A foreign twinning fund for small- and medium-sized BS firms

Specifically for SME in BS industries, setup costs for foreign expansion often are high and even prohibitive. Nevertheless, positive scale effects, learning effects and efficiency for BS firms could be brought nearer through foreign expansion. Twinning or network agreements with SME branch partners in other EU countries could generate mutually beneficial scale advantages, and positive side effects for the national economies. However, firms are held back from doing so because of the setup costs involved. It is worthwhile investigating the idea of a 'foreign twinning fund' from which SME firms could retrieve part of the setup costs for such foreign expansion steps. Supplementary EU funding could be feasible under the heading of strengthening European markets. It is not unlikely that the EU's Enterprise Directorate-General would support this type of national initiatives.

6.3.4 Strengthen innovation contribution of BS industry

Several measures may boost BS industry' contribution to the national innovation system, by strengthening original innovation, and by strengthening the knowledge diffusion role of BS. The BS industry has a potential for technological and non-technological innovation. Firm-level research reveals that in the service industries, especially non-technological innovations have a strong impact on labour productivity. Figure 6.4 illustrates this relation for BS industry itself.

Figure 6.5 Innovation types and change in labour productivity at firm level, Dutch BS industry 1994-1996



Source: Van der Wiel (2001).

The experience with government-backed agencies to assist innovation and to improve business performance of small- and medium-sized enterprises (SME) had - at best - mixed results. Empirical research by Westhead and Birley (1995) and Robson and Bennett (2000) found no evidence that government-backed agencies in the UK had (on average) a positive impact on growth and profitability of SME. These results call for some cautiousness with regard to government-backed activities that aim at selective intervention and support for innovation in SME. It is in no way evident that governments have better capabilities for 'picking the winners' than the market mechanism has.[34] Original innovation is probably best supported by measures that upgrade and maintain the human capital sources in BS industry.

Tax-based innovation instruments

At present, fiscal incentives for innovation promotion are predominantly oriented at manufacturing industry, and particularly at research and development effort. However, formal expenditure on R&D and other innovation-related items are relatively low in BS industry compared to manufacturing industry.[35] For this reason, services firms make much less use of existing innovation incentives compared to manufacturing firms. Even when we only look to innovating firms, the use of fiscal innovation incentives like WBSO by services firms is only one-third of the use by innovating manufacturing firms. Only 7 per cent of innovating services firms with less than 10 employees – and the gross majority of BS firms has less than 10 employees – made use of innovation incentives offered by Dutch government. [36] These data suggest that innovation incentives are insufficiently adapted to stimulate innovation in (business) services. In BS industry, the innovation potential is engendered to a large extent in its human capital assets. Part of BS industry's labour costs is needed for maintenance, keeping up-to-date, and upgrading of the human capital assets. If innovation is to be fostered by fiscal instruments, the latter could focus on this very innovation source. A possible instrument is a tax deduction for upkeeping a firm's human capital assets. Further study would be required on the particularities of such a tax incentive and its compatibility with generic fiscal rules.

[34] Syntens is an agency set up by the Dutch Ministry of Economic Affairs. It aims at short-run advice and 'partner-matching' between SME and organisations and firms that could support innovation activities by SME. A central background idea is that small firms cannot find their own way in this labyrinth. But markets where information problems abound, also have self-regulating forces (e.g. Cf. De Bijl and Van Damme 1997, p.19-20). Indeed, BS industry itself is a solution to such information problems. A reluctance as to the activities of Syntens could be that they might interfere with the knowledge diffusion activity of the knowledge-intensive BS branches. As an evaluation point, it seems worthwhile to investigate whether or not the agency activities substituted services that are also offered by commercial BS firms.

[35] In 1998, BS industry spent on average 2.3 per cent of value added on R&D expenditure, against 4.7 per cent in manufacturing industry (Suijker et al. 2002, p. 20-4). See also Cornet and Rensman (2001, Ch. 4) on R&D policy.

[36] Data 1998. Source: Van Noort and De Graaf (2002, p. 15).

Training in ICT skills, fostering ICT-relevant higher education, permanent education

The BS industry depends to a high extent on knowledge assets. Particular policy attention is required for the lack of high-skilled labour as a persistent bottleneck for the growth of knowledge-intensive BS branches.

In order to stimulate a steady future flow of expertise and innovative capacity, it may be necessary to improve the general quality of education, and in particular the quality of high-level education (university). CPB foresees a lack of scientific personnel by 2008.[37] Institutions of higher education are important breeding grounds for BS entrepreneurs and employees. Adequate and timely action is required on this issue, because of the long lead and lag time in human capital development. A possible policy venue is offered by measures that stimulate ICT education, e.g. by creating the necessary facilities for filling in expected labour shortages, and/or by creating training programmes in co-operation with companies in the ICT-sector itself.
Since knowledge-oriented human inputs are crucial in many BS branches, all measures that lower the costs of information access and information dissemination tend to improve the output-input ratio (productivity) in BS industry. It will stimulate future product and process innovation.
Special attention is required for the majority of small BS providers. The latter often are completely absorbed in serving current clients, so that little time and opportunities remain for keeping their knowledge up-to-date. Many of them of them started their business between the early and late 1990s. Before 2010 their knowledge base will be eroded and sometimes obsolete. To keep the knowledge engine of BS industry going, and prevent massive shortfalls in the foreseeable future, it may be worthwhile to introduce timely action. Most 'permanent education' facilities are oriented towards employees, e.g. in order to increase their employability. However, creating a facility that is explicitly targeted at small-scale (BS) entrepreneurs might well generate a high social pay-off.[38]

6.4 Possible instrument for remedial action by BS industry itself

BS industry itself has a number of instruments to reduce the productivity-slowing impact of the key employee mechanism. Branch organisations within BS industry could also undertake several

[37] Van Dijk and Webbink (2000). According to Van Duinen, chairman of NWO, the most threatening problem for the future of Dutch scientific education is the foreseen shortage of young scientists, caused by under-investment in universities and by a concomitant loss of attractiveness of academic carriers (Financieele Dagblad 6 August 2001).
[38] The current Dutch POR facility (Persoonlijke Ontwikkelingsregeling, or Personal Development Account) provides a personalised earmarked learning budget for individuals to improve their labour market employability (e.g. CPB 2002, p. 114-5). It seems worthwhile to extend the facility to small firm owners e.g. by offering personalised and earmarked learning budgets through a fiscal facility (e.g. Ministry of Economic Affairs. 2002, p. 37).

measures that not only have direct a information contribution for their member firms, but also may have positive social pay-offs.

Training costs of key employees.

The monopolistic intra-firm positions of key employees tends to be based on company-specific and/or client-specific knowledge. The presence of such knowledge creates switching costs for the employers. The magnitude of the switching costs can be approximated by the training costs of the key employees. There is no task for national governments in lowering the training costs of (potential) key employees, precisely because of the character of this knowledge base. However, it could make sense to stimulate the adoption of perpetual apprentice systems for such employees. Roll-over learning systems generate a constant supply of employees with the required distinctive capacities.

Creating peer review systems

A related measure of BS firms would be to decentralise monitoring of job performance by key employees through the creation of intra-firm peer review systems.

Knowledge management

Given the critical importance of human capital assets, specific management attention is deserved for upkeeping and upgrading of such knowledge assets. For firms, it may be gainful to codify existing product knowledge, valuable work procedures, and customer relations.

Profit-sharing schemes

Introduction of overt profit-sharing systems on top of base salaries removes most incentives for marginalist maximising behaviour by key employees. This measure will enlarge the optimal firm size of client-specific BS firms.

Assisting in setting up demonstration projects

Branch organisations in the BS industry might initiate demonstration projects for certain methods to improve productivity of BS firms, or to foster implementation of technological innovations.

Certification scheme

Branch organisations in knowledge-intensive BS branches could contribute to general efficiency and competition intensity by taking away information asymmetry problems. Cooperating with the government on a certification scheme may achieve this (see sub-section 6.3.2).

Information campaigns on effective ways to expand exports

Export expansion by small and medium-sized BS firms could be facilitated by information campaigns by BS branch organisations on networking with European partner firms and the use of EU financial and other assistance.

6.5 Summary of policy issues with regard to BS industry

Since the 1980s, Dutch government has deliberately withdrawn from the sectoral policy area. Emphasis shifted from direct intervention towards creating an enabling environment for market forces. This policy shift has benefited several BS branches. Nonetheless, several policy opportunities remain for strengthening the future welfare contribution of the BS industry. The reason is that - in the *no-policy* case - BS industry in the period till 2010 is expected to leave some banknotes on the sidewalk. Before embarking upon any of the policy options sketched in this section, more targeted study is required to assess the risk of government failure, and the social costs and benefits of the measures.

Theory distinguishes several causes for market failure. Three of them appear to be relevant in the case of BS industry: failure to account for social externalities, failure due to the existence of market power, and failure due to information asymmetry. The existence of market failures means that free development of market forces may not bring the optimal social welfare. Positive externalities stem from the BS role in innovation and knowledge distribution. Negative externalities flow from its own productivity stagnation, a factor that becomes more important now that BS industry approaches or even exceeds[39] the size of total Dutch manufacturing industry.

Market failure also occurs as a consequence of imperfect competition in BS markets. A few leading firms often have a large combined shares in the markets for standardised BS products. Strong product differentiation, market segmentation and monopolistic competition form prominent characteristics of the markets for knowledge-intensive BS products. In firms with key employees, double marginalisation causes additional social welfare losses.

Information asymmetry forms another market failure due to which liberalised BS markets may not always lead to the optimal social outcomes. Since many knowledge-intensive BS products are ‘credence goods’. Clients cannot make out their quality until after the service has been provided. To cope with this lack of information, BS buyers tend to navigate on the basis of established market reputations. The extreme importance of reputations in BS markets leads to a system of segmented markets in competition most occurs by segment. The pattern works to the detriment of newcomers and small firms with only local reputations. The strong influx of new

[39] In terms of employment.

BS entrepreneurs may thus have few impacts on cost competition and general efficiency of incumbents.

The relative size that BS industry by 2010 will have in the national economy, justifies specific attention for repairing the dominant forms of market failure. The chapter sketches opportunities for socially gainful policy measures for Dutch government, BS industry and BS business associations. Some of the discussed policy opportunities are new measures. But in many other cases it would already be helpful to refocus existing policies, bringing policy attention for BS industry more in line with this sector's economic weight and function. Four areas with policy opportunities are identified:

- strengthening BS industry's own productivity development;
- achieving more market transparency;
- getting more exposure of markets to foreign competition; and
- strengthening the innovation contribution of BS industry.

Productivity improvement can be achieved foremostly by measures that allow BS firms to gain more scale economies. Empirical research indicates that in Dutch BS industry productivity per worker is generally highest in firms with 20-50 employees (for client-specific products) or even 100-200 employees (for standardised products). Currently, however, most Dutch BS firms have less than 5 employees. This suggests that policy attention should shift somewhat from an almost exclusive attention for starters towards measures that allow firms to grow beyond the micro-firm level. Possibilities could arise from expanding the scope for intellectual property rights (copyrights, brand names) as a crystallisation point for a larger average firm size in BS industry. Policy choices regarding 'one-stop shopping' and export promotion might give more attention to the scale perspective. Productivity would also be enhanced by all generic measures that reduce mobility-related productivity losses. Better infrastructures for broadband data transfer could give a push to substitute physical by electronic service delivery. Further opening-up of the domestic BS market to foreign competition can be expected to induce more cost efficiency and product innovation.

Not only the government, but also BS industry and its associations have good possibilities at hand for improving the productivity record of BS industry. A priority area would be to address the productivity-impairing role of double marginalisation, and in particular the disincentive of having key employees that take a bite out of firm rents. Setting up peer review and roll-over trainee systems will generate a constant intra-firm supply of employees with the required distinctive capabilities, without the latter becoming monopolists. Application of overt profit sharing systems could also increase incentives for productivity. Information campaigns and demonstration effects on methods for productivity improvement, technological innovation, or

export promotion by BS industry associations, perhaps in cooperation with government, as would have welfare-improving effects beyond the BS industry.

Market transparency would be served by setting up a system of voluntary quality certification. Quality certificates can reduce market failure from information asymmetry in the market for knowledge-intensive BS products. The role of market reputations and market segmentation becomes less prominent. There will be more competition. Certification is particularly beneficial to the growth perspectives of small innovative firms. Theory suggests that governments should remain involved in, rather than withdraw from the certification process.[40] Another measure that might reduce the role of market reputations and segmentation is an improved juridical design of product liability for BS services. Finally, market transparency will be enhanced by a better system of statistics and policy information on the BS industry. The present system of national account and industry statistics is still highly geared towards material production and manufacturing industry.

BS markets are still characterised by a number of national regulations, which though sometimes unintentionally, restrict foreign competition (imports, subsidiaries of foreign firms) in the BS industry. Such non-tariffary trade barriers occur especially in the markets for knowledge-intensive, professional services. It is worthwhile to screen such regulation-based barriers for their foreign-competition reducing effects, and to push for more European harmonisation in this area. The present period of running-up towards a new International Agreement on Trade in Services in WTO context forms an excellent opportunity for this.

The innovation contribution of BS industry can be strengthened in particular by creating the facilities for constant renewal and maintenance of the human capital resources of BS industry. Generic measures that improve middle and higher education and ICT education in particular will be particularly beneficial for BS industry. Special attention is required for the majority of small BS providers. The latter often are completely absorbed in serving current clients, so that little time and opportunities remain for keeping their knowledge up-to-date. Creating a facility for ‘permanent education’ targeted at this type of BS entrepreneurs might well generate a high social pay-off in the longer term.

[40] Quality certificates could either apply to well-defined products, service-providing firms or individual service-providing personnel, depending on the BS branch.

7 Summary and conclusions

Four research questions have guided this project. Which factors caused the very strong growth performance of the business services industry? What is the industry's future growth potential? What are the strengths and weaknesses of Dutch business services industry? Which policy areas are crucial for fostering growth of the Dutch business services industry and its contribution to economic growth? This concluding chapter summarises the major findings with regard to each of these questions.

BS employment grew faster than overall employment in the market sector. This also held for value-added growth. The structural growth pattern was found in all benchmark countries, but in the Netherlands stronger than in most benchmark countries.

Factors that caused growth of the BS industry in the 1990s

- Outsourcing of in-house service activities by private firms was a major source of structural growth. The nature of outsourcing changed over time, from pure replacement outsourcing to service-upgrading outsourcing with increased high-skill inputs from the BS industry. Especially BS branches that produce client-specific products have benefited from this outsourcing wave since the mid-1990s.
- The increased weight of BS industry in the system of intermediate deliveries is partly caused by technological change in the form of product innovation and product specialisation. In the 1990s, final demand for some BS industries - software and ICT-related services - has grown more than final demand for the rest of the market sector.
- Deregulation contributed positively to the growth difference between BS industry and the rest of the market sector. Privatisation of in-house service activities by governments probably also contributed to structural growth of BS industry.
- Structural growth of employment in BS industry vis-à-vis other market industries is to some extent caused by a stagnating labour productivity development in the BS industry, relative to the rest of the market sector.

Characteristics of BS growth

- BS industry is dominated by small firms, often with less than 5 employees. Fixed investment hardly forms an entry barrier for new start-ups. Branches where products are relatively standardised, have a somewhat larger average firm size.
- Product markets in knowledge-intensive BS branches are characterised by a strong degree of product differentiation. The competitive position of incumbents is based on market reputations with regard to quality. The reputation mechanism causes market segmentation. Segmentation is based on the geographic scope of the market reputation and the type of clients a firm has.

Monopolistic competition is ubiquitous due to the combination of market segmentation and product differentiation.

- The quality of knowledge inputs forms the basic element for market reputations. An important part of such inputs is embodied in key employees. The latter often work at the premises of the clients, having much discretionary freedom in their daily operations. If they quit, they may take expertise and client-specific knowledge with them.
- The strong position of key employees yields them a share in the company's monopolistic rents, thus lowering the profit share of the firm owner. This mechanism inside the firms pre-empts the benefits of becoming large. It helps explaining the industry's failure to seize more economies of scale, the relatively high profit margin of small firms, the start-up rate of new firms, and the sloppy productivity development of BS industry.
- Export markets contributed to the growth of BS industry. In all benchmark countries, BS exports and BS imports represented an growing share of total exports and imports. If this effect is corrected for the fact that also the share of BS industry in the total economy has grown, strong country differences emerge. Some countries appear to have become structurally more open or more closed to international BS trade. The situation in the Dutch BS market is mixed; while it became structurally more import-oriented, while its structural export orientation diminished.
- Exports in the BS industry tend to be substituted by direct investment as soon as the foreign market becomes large enough. The limited tradability of some BS products plays a role here, but also government regulations that in some BS markets require the provider to have a local subsidiary. Licensing in BS industry is not a preferred form of internationalisation, since intangible assets , the heart of a BS firm's competitive advantage, are too vulnerable.

How does the growth of BS industry affect the macro-economic growth potential?

The macro-economic growth contribution of BS industry derives from its role in allowing ever more complex, yet at the same time more efficient combinations of production factors, corresponding with an ever increasing division of labour and labour specialisation. The process can be described as growing roundaboutedness of production ('*omwegproductie*'). Falling transaction costs no longer render it necessary that specialised production layers are vertically integrated in a particular firm or even in a particular industry. A fragmentation of vertical value-added chains occurs, in which BS industry plays a role of increasing importance. BS industry assists other firms to surmount indivisibilities in the process of labour specialisation, a role particularly important for small and medium-sized companies. Dutch data confirm that BS industry plays a central role in the process of growing roundaboutedness of production.

Apart from their general role in the social division of labour, knowledge-intensive BS branches also contribute to national innovation systems. This they do through original innovation (e.g. by software and engineering industries), and through knowledge dissemination. In many

competence areas, BS firms tend to bring client firms towards the technological frontier. In the case of the software and ICT industry, original innovations cause the technological frontier to shift outwards. The ensuing efficiency gains allow lower prices per unit, hence more consumption and a higher welfare level. By taking potential clients towards the technology frontier, the BS industry may become a victim of its own success. If BS firms are to have this knowledge diffusion role in the future, a constant flow of fresh innovations and knowledge renewal is required.

The relative price of BS products is bound to rise, because BS labour productivity grows slower than productivity in the client industries. A macro-economic growth process with increasing BS inputs runs into problems once the labour-saving effect in client industries no longer compensates the rising unit costs of additional BS inputs. Productivity in terms of gross production may still increase, but in terms of value added it falls, unless BS prices are downwardly flexible. If not, aggregate welfare effects get negative from that point onwards.

The overall effect of BS growth on macro-economic labour productivity depends on two diverging effects. The positive effect runs through BS's impact on client industries. The negative effect comes from BS industry itself due to its stagnating productivity growth. A problem is that an increasing part of all BS output is absorbed in BS industry itself (cf. Figure 3.3). This means that the positive growth contribution through client sectors should outrun the negative effects of BS industry's own productivity stagnation.

At present, empirical data are too fragmented for an overall, up-to-date assessment of the macro-economic growth contribution of the BS industry. Only partial conclusions can be drawn from the available research. During the 1980s, BS industry had a markedly positive contribution to macro-economic value-added growth in a number of benchmark countries. For the 1990s, no such studies are available yet. During the 1990s, the computer-related services – part of the BS industry – had a distinctly positive effect on average output and GDP growth. This growth contribution increased rather than decreased in the late 1990s. BS industry as a whole - with its increasing macro-economic weight and its sloppy productivity development - had a decreasing contribution to overall productivity in most benchmark countries during the 1990s. The trend here is clearly downward. The 1995-99 data for the non-computer BS industry show that it contributed negatively to overall labour productivity growth.

Strengths and weaknesses of Dutch BS industry

Strengths and weaknesses of the Dutch business services industry can be derived from a comparison with other benchmark countries.

The relative *strengths* of Dutch BS industry are:

- During the last decade, BS industry in the Netherlands has grown considerably faster than it did in the benchmark countries. This held for employment growth and for value-added growth. BS growth represents a larger domestic shift in employment structure than it did in all other benchmark countries.
- Dutch BS industry is strongly presented in the world BS market with BS exports and imports ranking, respectively, in the sixth and fifth place among benchmark countries. Foreign trade intensity of Dutch BS industry is among the highest of all OECD countries.
- The Dutch BS market is less sheltered from foreign competition than holds for most benchmark countries. Foreign providers regard the Dutch and Irish BS markets as the most open of all EU markets.
- The openness of Dutch BS market reflects in increasing inflows of direct investment by foreign BS providers. Direct investment inflows since 1995 account for a sharply increasing share of the industry's total fixed capital formation.
- An important side-effect is that segments of the Dutch BS industry were exposed, relatively early, to foreign competition through imports or through local production by foreign BS multinationals. Being exposed to foreign competition, gave these Dutch firms a learning-curve advantage as to product quality and efficiency. This learning effect mainly holds for the large national firms and small specialist firms.
- In most benchmark countries, foreign-language problems rank highest as socio-cultural barrier to international trade in BS products. This does not apply in the Netherlands. The multi-language capacities of Dutch BS-workers clearly form an asset in international markets.
- It is relatively easy in the Netherlands to set up a new BS firm, which unleashes a constant flow of new entrepreneurial resources in the BS industry.
- Average firm size in BS industry is generally less than 10 employees throughout the EU and USA. This being the case, it must be noted that the average firm in Dutch knowledge-intensive BS branches is somewhat larger than in other benchmark countries.

The comparative *weaknesses* of Dutch BS industry and its more general *growth bottlenecks* are:

- The strong growth of Dutch BS industries since 1990 may have been caused partly by a catch-up effect.[1] Once this catch-up effect dries up, the structural growth spurt of Dutch BS industry might come to an end.
- In terms of labour productivity growth, BS industries of all benchmark countries display a stagnatory tendency. Though Dutch BS industry is not the worst-performing among the countries analysed, it is among those where labour productivity growth is weakest.

[1] In 1990, Dutch industries had lower BS inputs per unit of their output than was the case in the benchmark countries. A more recent set of internationally comparable input-output tables was not yet available.

- From the point of view of innovation, Dutch BS industry are engaged in relatively minor innovative improvements rather than in fundamental innovations. The Dutch computer-related and engineering branches are followers rather than leaders with respect to innovation.
- A growth bottleneck for further development of the Dutch BS industry is the lack of qualified personnel. BS industry and especially the computer-related services had the highest job vacancy rates in recent years, especially for high-qualified personnel.

Future growth potential of the Dutch BS industry

Structural changes depend on a complex interplay of forces within and outside the BS industry. Given the large uncertainties in a long-term forecast, the method of scenario analysis is used. Two scenarios are identified for the future development of the BS industry, an optimist (powerhouse) and a pessimist scenario (mediocrity). Each scenario forms a coherent picture of external developments with plausible industry-specific growth impacts for the period up to 2010. The scenarios indicate in what aspects the development of BS industry deviates from the general growth path of the Dutch economy. This depends on a number of driving forces: technological change; outsourcing trends; growth of final demand; internationalisation; institutional change; and structural change in factor markets. These driving forces have their impact on BS industry through transmission mechanisms like demand volume, demand structure, cost level, prices and profit margins.

The development of the national economy is the general setting for both BS industry scenarios. Macro-economic development is *for the largest part* determined by factors outside the Dutch BS industry. But there are some feedback mechanisms from BS growth to macro-economic growth like the direct contribution of a growing BS industry, and effects on labour productivity and innovation in BS' client industries. The existence of the feedback mechanisms is accounted for in the macro-economic growth projections used for the period 2003-2010.

The expected growth of BS industry in both scenarios drops below growth rates attained in 1996-2000. This is foremostly caused by lower GDP growth rates. In our bottom-line scenario (mediocrity), BS growth is almost halved compared to the second half of the 1990s. But even in the best case (powerhouse), though based on pretty optimist assumptions, BS growth is not expected again to attain the growth level of the late 1990s. Winding up, the general conclusion is that, compared to 1997-2000, value-added growth rates in the BS industry will diminish, irrespective of the scenario that is adopted.

Policy opportunities for the period up to 2010

Since the 1980s, Dutch government has deliberately withdrawn from the sectoral policy area. Emphasis shifted from direct intervention towards creating an enabling environment for market

forces. This policy shift has benefited several BS branches. Nonetheless, several policy opportunities remain for strengthening the future welfare contribution of the BS industry. In the *no-policy* case, BS industry in the period till 2010 is expected to leave some banknotes on the sidewalk. Theory distinguishes several causes for market failure. Three of them appear to be relevant in the case of BS industry: failure to account for social externalities, market failure due to the existence of market power, and market failure due to information asymmetry. Now the BS industry has become such a large economic sector, these market failures tend to exert a depressing effect on national economic growth and welfare.

Before embarking upon any of the policy options sketched in this section, more detailed study will be required, also to assess the risk of government failure and the social costs and benefits of the measures. Some of the ideas could perhaps first be tried out on small experimental scale.

Positive external effects stem from the BS role in innovation and knowledge distribution. This positive role is increasingly acknowledged by national governments and international organisations. Hence, economic welfare in the Netherlands is served by having a strong BS industry. Negative externalities flow from BS industry's own productivity stagnation, a factor that becomes more important now that this industry approaches the size of total Dutch manufacturing industry.

Market failure also occurs as a consequence of imperfect competition in BS markets. A few leading firms often have a large combined shares in the markets for standardised BS products. Strong product differentiation, market segmentation and monopolistic competition form prominent characteristics of the markets for knowledge-intensive BS products. In firms with key employees, double marginalisation causes additional social welfare losses.

Information asymmetry forms another characteristic due to which liberalised BS markets may not always lead to the optimal social outcomes. Since many knowledge-intensive BS products are 'credence goods'. Clients cannot make out their quality until after the service has been provided. To cope with this lack of information, BS buyers tend to navigate on the basis of established market reputations. The extreme importance of reputations in BS markets leads to a system of segmented markets, in which competition most occurs by segment. The pattern works to the detriment of newcomers and small firms with only local reputations. The strong influx of new BS entrepreneurs may thus have few impacts on cost competition and general efficiency of incumbents.

Abstract

This report summarises the findings of a study on the growth factors and growth prospects of the business services (BS) industry. It puts Dutch BS industry in an international comparative perspective, identifying its particular strengths and weaknesses. The study sketches policy options for fostering the growth and welfare contribution of the Dutch business services industry.

Chapter 2 chapter untangles factors behind the extraordinary growth of the BS industry during last decade, comparing it with other market industries. It analyses how the growth pattern is affected by product differentiation and the structure of competition. Particular attention is given to the role of foreign competition.

Chapter 3 deals with the impact of BS industry on the growth capacity of other industries. It shows how intermediary BS inputs can put other industries on a higher growth path that is associated with a higher specialisation level in labour and human capital (increased roundaboutedness). Knowledge-intensive BS branches not only generate their own innovations (e.g. software industry) but also contribute to the dissemination of best-practice knowledge and innovations throughout the economy. Remarkably, the BS industry has itself a very poor record of productivity growth. Over time, with a growing BS industry, this may become a drag on macro-economic growth if current trends will continue.

Chapter 4 pinpoints the main aspects in which the Dutch BS industry differed from its foreign counterparts, showing its comparative strengths and weaknesses. The strengths appear to be associated with its very fast growth and its relative openness to foreign competition. The main weaknesses relate to meagre innovation efforts and a stagnating labour productivity growth.

Chapter 5 provides a scenario analysis of the future growth of Dutch BS industry, covering the period till 2010. Apart from general GDP growth, six driving forces determine the growth outcomes for BS industry: technological change; outsourcing tendencies; final domestic demand structure; internationalisation tendencies; institutional developments; and structural changes in factor markets. Two coherent scenarios, an optimistic and a pessimistic one, sketch the possible courses of events. The chapter concludes with a quantitative projection of BS growth until 2010.

Chapter 6 identifies future-oriented policy issues, after identifying the dominant market failure problems with regard to the BS industry. The main policy options relate to: strengthening the BS industry's own productivity development; achieving more market transparency; getting more exposure of markets to foreign competition; and strengthening the innovation contribution of the BS industry.

Annexes

Annex I Business services branches

NACE code	Branch / Sector	Scope	Product differen-tiation[a]
71	Renting of equipment and machinery without operator	Renting of cars, computers, office machinery, transport, agricultural, construction and civil engineering equipment	ST
72.1	Hardware consultancy	Consultancy on the type and configuration of hardware	CL
72.2	Software consultancy and supply	Consultancy on the type and configuration of software applications; software supply; analysis , design and programming of systems	CL
72.3	Data processing	Data-input; processing of data for clients; management of data processing applications for clients	ST
72.4	Database activities	Construction of databases; supplying of database output to clients	ST
72.5	Computer maintenance	Maintenance and repair of office and computing machinery	ST
72.6	Other computer-related activities	inter alia e-business consultancy	CL / ST
73	Research and development	Contract research in natural sciences and social sciences	CL
74.111/4	Legal consultancy	Lawyer offices, legal consultants, other legal activities	CL
74.112/3	Notary and bailiff services		ST
74.121	Book-keeping services	Administration and book-keeping services	ST
74.122/3	Accounting and auditing	Examination of accounts and certification; advisory activities and representation; preparation of accounts	CL
74.124	Tax consultancy	Preparation of personal and corporate tax returns; consultancy	CL
74.131	Market research	Client research of market for specific products	CL
74.132	Public opinion polling	Public opinion polling	ST
74.141	Public relations services	Public relations services	CL
74.142	Business/ management consultancy	Management consultancy; general business consultancy; specialist strategic and operational consultancy services	CL
74.15	Management activities of holding companies	Financial, administrative and management; regional coordination activities	CL
74.2	Architectural and engineering services	Architectural and engineering activities; project management; machinery and plant design; related technical consultancy	ST / CL
74.3	Technical testing and analysis	Laboratory testing for clients, car inspection services, certifying services, measurement services	ST /CL
74.4	Advertising	designing and implementing product promotion campaigns	CL
74.5	Labour recruitment and provision of personnel	Personnel selection; temporary work agencies; labour contracting; executive search; work agencies; recruitment services	ST
74.6	Investigation and security serv.	Surveillance activities, security consultants, detective bureaus	ST
74.7	Industrial cleaning	Cleaning & maintenance of buildings and transport equipment	ST
74.8	Miscellaneous business activities	Packaging activities, photographic activities, secretarial and translating activities, call-centres, direct mailing services, social-security administration, organisation of congresses fairs and product presentations, debt-collection agencies, credit-rating offices	

[a] Prevailing degree of product differentiation: standardised product (ST) versus client-specific services product (CL), but product differentiation may differ within the branch or sector. Source: NACE , rev. 1 (EEC Council Regulation No. 369/93).

Annex II Average employment size of BS firms, by BS branch

Internationally comparable data on average firm size are available for 1997 or later for most EU countries. This is not the case for Germany. The data given here are estimates by Eurostat for the year 1995. US industry classification differs from the NACE classification in the EU, but the close equivalents could be calculated in most cases.

Average number of persons employed per firm, BS branches NACE industry classification, 1999 or latest available year

	71	72	73	74 [a]	of which:						
					741 [b]	742+3	744	745	746	747	748
Netherlands 1997	5.7	8.8	19.8 [e]	12.7	7.2	7.1 [g]	4.3	153.8	30.5	23.6	4.6
France 1999	3.3	8.0	11.3	6.1	3.0	3.0	4.7	247.0	19.4	16.5	3.2
W.Germany 1995 [c]	3.0	8.8	95.0	7.1	.	.	.	.	.	.	.
Denmark 1997	1.5	3.2	.	3.4	3.0	3.3	2.5	30.0	3.8	5.8	1.6
Italy 1997	1.9	4.2	.	2.2	1.9	1.4	2.8	.	25.8 [g]	9.4	2.1
Finland 1999	2.6	7.0	6.0	3.6	2.2	4.0	2.6	21.0	16.0	10.0	2.7
Belgium 1999	4.0	6.0	17.0	6.0	3.0	3.0	3.0	327.0	37.0	15.0	2.3
Sweden 1997	2.5	5.0	7.8	3.0	2.0	3.0	2.8	9.0	26.0	7.0	2.5
Austria 1997	4.4	4.3	24.5	6.7	5.5	.	3.6	56.7	5.9	28.1	3.6
USA 1992 [d]	3.8	4.0	9.3 [f]	2.4	2.0	3.7	2.1	36.5	41.6 [h]	.	.

Legend NACE industry codes:

71 - renting of machinery and equipment; 72 - computer services and IT; 73 - research and development; 74 - other business services; 741 - Legal, accounting, management consultancy, market research and holdings; 742+743 - architectural and engineering services; 744 - advertising; 745 - labour recruitment; 746 - security services; 747 - industrial cleaning; 748 - other business services.

Notes:

[a] Aggregate corresponds with SIC 73, 81 and 87 in the USA.

[b] SIC 81+872+874 in the USA.

[c] Eurostat estimate 1994, SME database

[d] 1992 Census data

[e] Eurostat estimate 1996

[f] SIC 873: research and testing services including parts of NACE 74.3

[g] Eurostat estimate 1995

[h] average number of employees in firms with payroll in industry SIC 7381: Detective and armoured car services.

Data sources:

All 1997 data have been drawn from Eurostat (2000). The data 1999 are derived from Eurostat's NewCronos database. The 1995 data are from Eurostat (1998) which itself draws upon EU Labour Force Survey and EU Mercure database. The US data are calculated from US Census Bureau (1992, 1999).

Annex III Decomposition of output growth by industry, selected countries

	Gross output	Change in system intermediate deliveries	Change in final demand	of which:		
				Consump-tion	Invest-ment	Net exports
	annual growth rate differences with manufacturing industry in %- points[a]					
Denmark 1972-1990 (constant prices 1980)						
knowledge-based services[b]	1.3	1.5	– 0.2	0.7	– 0.4	– 0.5
personal and social services	0.0	0.6	– 0.5	0.4	– 0.4	– 0.6
France 1972-1990 (constant prices 1980)						
knowledge-based services[b]	2.1	2.0	0.0	0.1	– 0.5	0.5
personal and social services	1.2	0.5	0.7	0.7	– 0.5	0.5
Germany 1978-1990 (constant prices 1985)						
knowledge-based services[b]	2.0	1.8	0.2	0.8	– 0.6	0.0
personal and social services	0.0	0.3	– 0.2	0.4	– 0.7	0.0
Netherlands 1972-1990 (const. prices 1980)						
knowledge-based services[b]	1.4	1.0	0.4	1.0	– 0.2	– 0.4
personal and social services	0.0	– 0.2	0.2	1.2	– 0.5	– 0.6
United Kingdom 1968-1990 (c. prices 1980)						
knowledge-based services[b]	2.5	1.7	0.8	– 0.4	– 0.7	2.0
personal and social services	2.5	– 0.9	3.4	2.0	– 0.6	2.0
USA 1972-1990 (constant prices 1982)						
knowledge-based services[b]	1.2	0.9	0.3	0.4	– 0.5	0.3
personal and social services	1.1	0.4	0.7	1.0	– 0.6	0.3

[a] Summation differences possible due to rounding.
[b] Consists of BS industry, Financial Services and Communication Services.
Data source: Peneder, Kaniovski and Dachs (2000)

Annex IV Simulation model for macro-economic impact of BS growth

The macro model is used in section 3.3 to analyse simultaneously the impacts of growing intermediary BS inputs in other industries, diminishing returns to additional BS inputs, and the growing weight of the low-productive BS industry in the national economy.

The model is a general equilibrium model of a closed economy with three sectors. Two sectors produce final goods, say cars (sector Z) and food (sector Z). The third sector is the BS industry (sector B), producing only intermediary goods. All BS products are used by the car industry. The food industry uses no BS inputs; it is used as a reference industry. All incomes are spent on foods and cars; there are no savings.

The model has behavioural equations for supply and demand of final goods. The markets for final goods clear through adaptation of residual profit rates in the car and food industry, thus ensuring general equilibrium. The market for BS products is governed by imperfect competition and cost-plus pricing.

The technology has a Leontief character with fixed input coefficients. BS industry and the food industry have a stable labour productivity level. The final goods industries produce with homogeneous direct labour and working capital inputs (interpretable as management overhead). Throughout the growth process, total labour demand in the economy remains well below the labour supply constraint. The same holds for the supply of working capital. The nominal wage rate is determined exogenously.

Only the car industry uses BS inputs. The latter have a labour-saving impact. This is only reconcilable with a Leontief technology by studying subsequent static equilibria, at increasing BS input coefficients in car production. Labour requirements per car diminish with increasing BS inputs, but this labour-saving effect becomes smaller at higher levels of BS input per car.
The model is used to investigate what happens in this economy when the car sector makes more and more use of BS inputs.

Supply. The supply levels of cars and food, y_i (i=N,Z), are a positive function of the product price p_i. The production of BS inputs y_b is purely demand-driven, i.e. determined by the BS input coefficient α_{bz} of the Z sector:

$$y_n = A_n + \beta_n p_n \quad (1)$$

$$y_z = A_z + \beta_z p_z \quad (2)$$

$$y_b = \alpha_{bz} y_z \quad (3)$$

with:

y_i : actual production levels

A_i : autonomous (given) supply component[2]

β_i : price elasticity of supply

Final demand. Demand for final goods is a positive function of national income (Y) and a negative function of the price:

$$d_n = q_n + \eta_n \, Y - \varepsilon_n \, p_n \quad (4)$$

$$d_z = q_z + \eta_z \, Y - \varepsilon_z \, p_z \quad (5)$$

with:

d_i : actual level of final demand for the final goods

Y : national income

q_i : autonomous (non-price responsive) component of final goods demand (given)

η_i : income elasticity of demand for final good i.

ϵ_i : price elasticity of demand for final good i.

Prices. Prices are determined by labour costs per unit, input costs of intermediary BS services (in case of cars Z), and profits over working capital. Input coefficients (ℓ_i) for direct labour in the N and B sector are given. The price of BS products is governed by direct wage costs and a given profit markup, to reflect the lack of transparency and the monopolistic structure of this market.

$$p_b = \overline{w} \, \overline{\ell}_b \left(1 + \overline{r}_b\right) \quad (6)$$

$$p_n = \overline{w} \, \overline{\ell}_n + r_n \, \kappa_n \quad (7)$$

$$p_z = \overline{w} \, \ell_z + p_b \, \alpha_{bz} + r_z \, \kappa_z \quad (8)$$

with:

ℓ_i : input of direct labour per unit produced in sector i

w : wage rate (given)

κ_i : working capital requirement per unit of good i

r_i : profit rate in sector i

Interaction between BS inputs and labour productivity. The direct labour input coefficient in car industry Z is an exponentially diminishing function of the BS input coefficient. The productivity-increasing effect of BS inputs is largest at low levels of BS inputs, and diminishes with high BS input coefficients. A fixed labour cost component (management cost ℓ_{zm}) reflects indivisibilities in the outsourcing process:

$$\ell_z = \overline{\ell}_n \left(1 - \alpha_{bz}^{\left(\frac{1}{1-\alpha_{bz}} \right)} \right) + \overline{\ell}_{zm} \quad (9)$$

National income. National income is defined by:

$$Y = \overline{w}\left(\ell_n y_n + \ell_z y_z + \ell_b y_b\right) + r_b \overline{w} \ell_b y_b + r_n \kappa_n y_n + r_z \kappa_{zn} y_z \quad (10)$$

[2] Not responsive to price in the short term. In a dynamic context, A_i would be lagged production levels.

Profits. Profits on working capital consist of a fixed component - corresponding with an exogenous interest rate (r_{fix}) in the country - and a variable component that is a function of excess demand (supply) in the markets for food and cars:[3]

$$r_i = \frac{1}{\kappa_i}\left(\psi_i\, p_i\left\{\frac{d_i}{y_i} - 1\right\}\right) + r_{fix} \qquad \text{(i = N, Z)} \qquad \text{(11,12)}$$

in which:

ψ_i : sensitivity of industry profits to excess demand

Macro-economic productivity definitions. Macro-economic labour productivity in terms of value added (H) and labour productivity in terms of gross production (G) are defined as:

$$H \equiv \left[p_n y_n + p_z y_z\right]\left[\ell_n y_n + \ell_z y_z + \ell_b y_b\right]^{-1}$$

$$G \equiv \left[p_n y_n + p_z y_z + p_b y_b\right]\left[\ell_n y_n + \ell_z y_z + \ell_b y_b\right]^{-1}$$

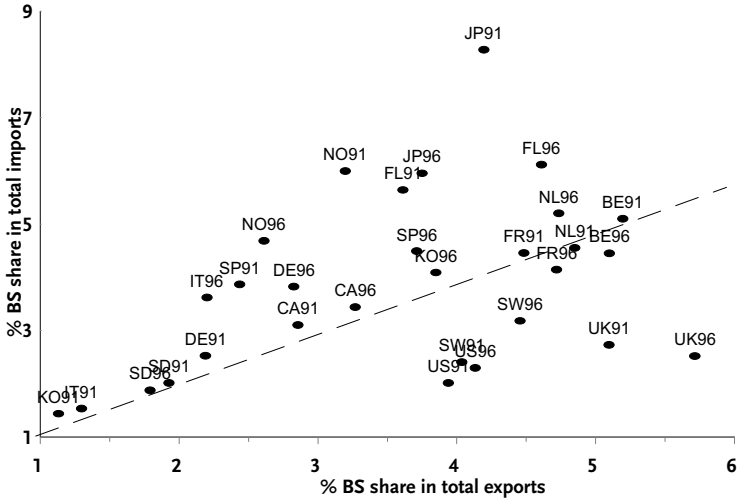
The model has 12 endogenous variables and 12 equations, allowing a simultaneous solution. The nonlinearities (in equations 9, 11,12) result in complicated algebraic forms for the reduced-form solution. For expository reasons, therefore, a numerical solution has been used to show the basic implications of a growth process with increased BS inputs. Numerical restrictions have been imposed to rule out non-sensible negative values for macro-economic aggregates. Numerical parameters have been chosen in such a way that supply and demand characteristics in both final goods sectors are identical (see box below). Preferences for final goods are homothetic (symmetric indifference curves). Income elasticities of demand are set to one. Initially, the food sector N has a higher labour productivity than car sector Z. The numerical solutions therefore only reflect differences in input and cost structures of both final goods sectors.

Exogenous variables *(i = N, Z)*		
$\ell_N = 0.25$	$r_B = 0.225$	$\kappa_i = 0.25$
$\ell_{zm} = 0.05$	$r = 0.1$	$q_i = -135$
$\ell_b = 0.11$	$w = 1.8$	$A_i = 250$
Parameter values *(i = N, Z)*		
$\beta_i = 0.5$	$\epsilon_i = 0.6$	
$\psi_i = 2.5$	$\eta_i = 1$	

[3] The functional form is derived via: $r_i\,\kappa_i\,y_i = \psi_i\left\{p_i\left(d_i - y_i\right)\right\} + r_{fix}\,\kappa_i y_i$

Annex V International trade in BS products

Business services as percentage of total country exports and imports, 1991 and 1996



Country legend: SD=Sweden, FR=France, FL=Finland, JP=Japan, NL=Netherlands, DE=Germany, KO=Korea, NO=Norway, BE=Belgium, IT=Italy, CA=Canada, SP=Spain,US=USA,UK=Great Britain, SW=Switzerland.
Dotted line connects all points with equal share in export and imports. Data source: OECD, SITS database, June 2000.

Calculation of structural BS trade orientation (Figure 2.10 in main text).

The share of industry *i* in a country's external trade flow depends on the share of that industry in the country's GDP, and on the structural trade orientation of industry *i*. The graph on this page displays the first of both factor, for all benchmark countries. The structural trade orientation factor is the combined result of technical tradability of industry *i*'s product, regulation-determined trade barriers, other costs of international trade transactions, and a change in the supply mix (exports versus direct investment) of foreign BS suppliers. We define the structural trade orientation factor (β) for the BS industry as a residual:

$$\beta_{k,t} = \left[\frac{BST_k}{T_k}\right]_t - \left[\frac{BSY}{Y}\right]_t \qquad \text{(A5.1)}$$

in which:

BST_{kt} : BS foreign trade flow (k = imports, exports) in year t

T_{kt} : BS foreign trade flow (k = imports, exports) in year t

BSY_t : BS production in year t

Y_t : GDP in year t

The change in structural trade orientation factor for the period 1991-96 was calculated for BS exports and BS imports of all benchmark countries. The development over time of the structural trade orientation factor follows from equation (A5.1):

$$\Delta\beta_k = \left[\frac{BST_k}{T_k}\right]_0 \left\{\frac{1+\dot{BST}_k}{1+\dot{T}_k} - 1\right\} - \left[\frac{BSY}{Y}\right]_0 \left\{\frac{1+\dot{BSY}}{1+\dot{Y}} - 1\right\} \qquad \text{(A5.2)}$$

in which a dot over a variable indicates a change perunage between years t and 0 (k=imports, exports). Country data have been expressed in 1991 exchange rates and prices. BS trade data stem from OECD IDIS database. The exchange rates and the price deflators for exports, imports and GDP have been taken from the IMF International Financial Statistics database. GDP deflators have also been used to deflate BS production values due to lacking industry deflators. If, as is the case in the Netherlands, BS prices increased more than GDP prices, the effect is that the change in structural trade orientation ($\Delta\beta_k$) will be slightly overstated in Figure 2.10.

Table A5.1 Growth rate differences between FDI flows and international trade flows in services, 1985-98

Country	Growth rate difference between incoming FDI flows and import flows		Growth rate difference between outgoing FDI flows and export flows	
	1990-94	1995-98[a]	1990-94	1995-98[a]
	percentage point annualised growth			
Netherlands	0.5	33.6	2.8	29.9
Germany	– 2.7	21.4	4.2	20.9
France	– 3.8	39.3	– 11.4	67.0
UK	– 10.3	60.4	8.9	27.2
USA	0.7	8.4	18.6	– 2.3
Japan	3.5	3.3	– 15.7	– 3.1

[a] For the USA this period covers the period 1995-97, for Germany, France and the UK it covers 1995-96, and for Japan only 1995. Data sources: OECD IDIS (2000), OECD SITS (2000), World Bank (WDI 1999). All trade data and FDI flow data are in current prices and exchanges rates.

Annex VI Price cost-margins and firm size in Dutch BS branches

Change in price-cost margins in Dutch BS branches, 1987/88 and 1994/95

BS branch	Price - cost margin[a]		
	1987/88	1994/95	difference
	%	%	%-points
Accountancy			
all firms	43	44	1
firms with > 10 employees	36	38	2
micro firms (≤ 10 employees)	65	61	– 4
margin gap between micro firms and other firms [e)]	29	23	
Computer-related services			
all firms	48	45	– 3
firms with > 10 employees)	47	44	– 3
micro firms (≤ 10 employees)	57	52	– 5
margin gap between micro firms and other firms[e]	10	8	
Economic consultancy			
all firms	48	52[b]	4
firms with > 10 employees	37	43[b]	6
micro firms (≤ 10 employees)	52	56[b]	4
margin gap between micro firms and other firms[e]	15	13[b]	
Advertising agencies			
all firms	51	51[c]	0
firms with > 10 employees	50	50[c]	0
micro firms (≤ 10 employees)	55	55[c]	0
margin gap between micro firms and other firms[e]	5	5[c]	
Engineering, technical testing			
all firms	42[d]	43	1
firms with > 10 employees	39[d]	39	0
micro firms (≤ 10 employees)	54[d]	55	1
margin gap between micro firms and other firms[e]	15	16	

[a] Price-cost margin defined as gross margin (gross output minus purchased inputs minus labour costs) divided by gross output.
[b] Average 1993/94.
[c] Average 1991/92.
[d] Data 1989.
[e] The price cost margin of micro firms has to be corrected by imputing a fictive salary for the entrepreneur himself.
Data source: Statistics Netherlands, Productiestatistieken.

Annex VII Labour productivity growth in BS industry, country data

Annual change in labour productivity per hour worked [m], selected countries, 1981-1996

Country[b]	Industry definition[a]	Data source	1981-85	1986-90	1991-96	Growth rate difference between 1986/90 and 1991-95
			in % per year			in %-point
Denmark	BSRE	e)	0.7	0.4	– 1.6	– 2.0
	BS	f)	4.3	3.4	0.4	– 3.8
	ALL IND	e)	3.1	2.2	2.0	– 0.2
Finland	BSRE	e)	0.0	– 1.7	1.3	3.0
	BS	g)	– 0.5	– 1.7	1.4	3.1
	ALL IND	e)	2.7	3.7	3.1	– 0.6
France	BSRE	e)	2.6	1.3	– 0.5	– 1.8
	BSRE	g)	2.5	1.0	– 1.1	– 2.1
	BS	h)	.	0.3[d]	– 1.0[i]	– 1.3[c,d]
	ALL IND	e)	3.1	2.7	1.8	– 0.9
Germany, West	BSRE	g)	3.1	3.9	1.5	– 2.4
	BSRE	e)	2.8	4.2	1.4	– 2.8
	BS	i)	.	.	– 1.2	.
	ALL IND	e)	2.0	2.9	2.4	– 0.5
Netherlands	BS	j)	– 1.6	1.6	– 0.5	– 2.1
	BSTW	j)	– 1.3	2.6	– 0.3	– 2.9
	ALL IND	e)	3.6	1.7	1.5	– 0.2
United Kingdom	BSRE	e)	1.8	0.5	0.4	– 0.1
	FINBSRE	g)	2.1	1.5	1.3	– 0.2
	ALL IND	e)	3.8	1.0	2.6	1.6
USA	BSRE	e)	– 0.6	0.4	– 0.5	– 0.9
	BSRE	g)	– 0.9	0.9	– 0.3	– 1.2
	BS	k)	.	2.3	0.1	– 2.2
	ALL IND	e)	1.1	0.8	0.5	– 0.3

[a] The following industry definitions and aggregation levels have been used: *BS* = business services; *BSRE* = business services plus real estate; *FINBSRE* = finance, insurance, business services and real estate; *BSTW*= business services excluding temporary work agencies; *ALL IND* = all industries .

[b] The country data that are shaded in this table have been selected for use in Figure 2.5 because they are considered to be the most reliable country data.

[c] Period 1977-1990.

d) Period 1990-1997.

Data sources: [d] OECD/ISDB. [e] Danmarks Statistiks. [f] Statistics Finland. [g] O'Mahony (1999). [h] ISEE (Accardo 1999). [i] Statistische Bundesamt. [j] Statistics Netherlands and CPB Netherlands Bureau for Economic Policy Analysis. [k] US Bureau of Economic Analysis. [m] Data on the average number hours worked for all countries except for the Netherlands come from OECD (2000a, 2000b). These data pertain to national averages, because no internationally comparable time series were found on hours worked in the BS industry. Dutch data on hours worked are drawn from times series produced by Statistics Netherlands and CPB Netherlands Bureau for Economic Policy Analysis.

Figure 2.7 analyses the contribution of individual BS branch to aggregate productivity change of the Dutch BS industry in the period 1996-2000. The shift-share method decomposes the labour productivity growth of BS industry into: (a) the productivity performance of its constituting branches, the so-called 'within effect'; (b) shifts in the shares of individual branches, the so-called 'reallocation effect', and (c) a covariance term. Using Van der Wiel's terminology (2001c, Appendix II), the shift-share method uses the following calculation method:

$$\Delta \ln y/l = \frac{[\sum \Delta(\frac{y_i}{l_i}) * \frac{l_i}{l}] + [\sum (\frac{y_i}{l_i} - \frac{y}{l}) * \Delta(\frac{l_i}{l})] + [\sum \Delta(\frac{y_i}{l_i}) * \Delta(\frac{l_i}{l})]}{\sum \frac{y_i}{l_i}}$$

in which:

y : production volume of BS industry as a whole

y_i : production volume of BS branch *i*

l : labour volume (in labour years) of BS industry as a whole

l_i : labour volume (in labour years) of BS branch *i*

The first term above the line gauges the direct contribution of labour productivity growth within individual BS branches to the overall BS labour productivity growth. This effect is pictured in Figure 2.7 (main text).

The reallocation effect, i.e. the second term above the line, reflects changing market shares, weighted by the deviation of initial branch productivity from the average BS productivity level. If branches increase their share, they positively contribute to BS productivity only if they have higher productivity than the average initial productivity in BS industry.

The third term above the line is a cross term that can be either negative or positive. If a branch raises both its market share and productivity level, this effect will be positive. It also happens when a sub-average branch has a shrinking share in BS industry as a whole. As the table below shows, his happened in case of the industrial cleaning branch.

The table below presents the decomposition data for the Dutch BS industry in two ways, for the entire period 1996-2000, and on an annualised basis for the same period.

Table A8 Shift-share analysis of contributions by BS branches to overall change in labour productivity by the Dutch BS industry over the period 1996-2000

Branch	Direct productivity change ('within effect')	Changing share effect ('reallocation effect')	Covariation effect ('cross effect')	Total contribution by branch
	contributions in % - points			
For the entire period 1996-2000				
Computer services	0.64	– 0.63	0.40	0.41
Legal, Acc., Manag. services	1.13	0.46	– 0.12	1.47
Advertising, marketing serv.	0.63	0.08	– 0.05	0.67
Industrial cleaning services	– 0.38	0.60	0.03	0.25
Engineering, archit. services	– 0.48	0.16	0.03	– 0.30
Research & Developm. serv.	– 0.47	– 0.02	0.03	– 0.47
Other BS activities[a]	– 1.20	0.25	0.10	– 0.85
Total BS industry[a]	– 0.13	0.89	0.42	1.18
Annualised, 1996-2000				
Computer services	0.13	– 0.13	0.08	0.08
Legal, Acc., Manag. services	0.23	0.09	– 0.02	0.29
Advertising, marketing serv.	0.13	0.02	– 0.01	0.13
Industrial cleaning services	– 0.08	0.12	0.01	0.05
Engineering, archit. services	– 0.10	0.03	0.01	– 0.06
Research & Developm. serv.	– 0.09	– 0.00	0.01	– 0.09
Other BS activities[a]	– 0.22	0.05	0.02	– 0.17
Total BS industry[a]	– 0.03	0.18	0.08	0.24

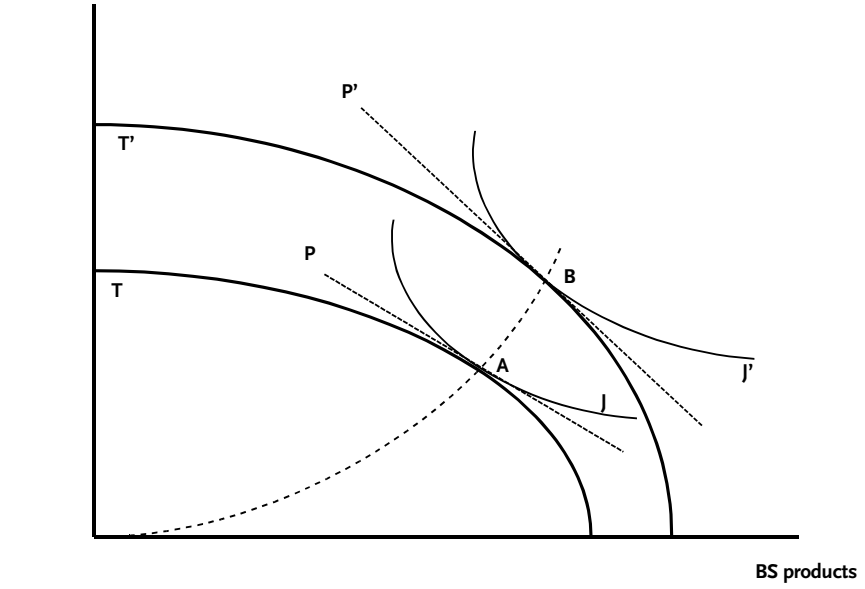
[a] Excluding equipment rental services.

Data source: calculated from CBS / CPB data

Annex VIII Baumol effect: services, productivity and inflation

The figure below graphically shows the so-called Baumol effect.[4] Suppose there are two products, BS and 'other market products'. The figure shows a transformation curve *T* for an economy producing BS products and 'other' products. Preferences of a fictive macro-economic consumer are given by indifference curve *J*. Tangent *P* in the consumption and production point *A* indicates the relative price of the two products. This is the initial situation. When the economy grows, the transformation curve shifts outward in a symmetric way to *T'*. Because of the productivity growth difference, the production possibilities for 'other' products increase more than those for BS products.

Baumol effect : impact of slow productivity growth on economic structure



The new production and consumption point *B* is found where the new transformation curve touches the higher level indifference curve *J'*. Demand-side impacts on production structure are abstracted from.[5] When the new equilibrium in *B* is compared with that in *A*, two things have changed: (1) the share of 'other' products in the economy's real value added has increased, and

[4] Baumol (1967); Klodt et al. (1997); Rubalcaba-Bermejo (1999, Ch. 7); Dunnewijk, Koopman and Zant (1990, Ch.4, App. I).

[5] Homothetic preferences (symmetric indifference curves) have been assumed, meaning that the share of each good in total demand remains constant in case of constant relative prices. Each good thus has an income elasticity of demand equal to one.

(2) the relative price of BS products vis-à-vis other products has increased (angle of *P'* is steeper than that of *P*). Baumol applies this analysis to the services industry in general.

Annex IX Growth projections for BS industry 2001-2010

The basic tool for the growth projections is the following regression equation. It explains the growth rate of value added (at factor costs) in the Dutch BS industry from GDP growth (factor costs) and two time dummies that capture structural shifts. The structural shifts mainly coincide with two outsourcing waves, the first one for low-skilled, standardised services (period 1985-1993) and the second one for high-skilled specialised services (period 1995-2000). The time dummy for structural shifts is also applied in the future projections, but it s coefficient is determined by the BS growth scenarios.

The regression equation for the period 1981-2000 is:
The time dummies for structural shifts have the value of *1* during the specified period and *0* in all other years.

$$\dot{y}_{BS} = \underset{(7.70)}{0.94}\ \dot{y}_{GDP} + \underset{(7.30)}{3.69}\ DUM_{85\_93} + \underset{(3.67)}{2.50}\ DUM_{95\_2000}$$

Number of observations	20	Mean dependent variable	5.320000
Adjusted R-squared	0.862774	S.D. dependent variable	2.865512
St. error of regression	1.061500	Durbin-Watson statistic	2.299175
Sum squared residuals	19.15528	Schwarz criterion	3.244083
Log likelihood	– 27.94723	Akaike info criterion	3.094723

Assumptions for growth projection 2001 - 2010

The value of time dummy DUM95-2000 is given the value of *1* during the projection period (2001-2010), but the coefficient of this dummy is adapted for each BS growth scenario. For the growth projections beyond 2000, the coefficient of the last time dummy has been varied:

- Structural shift coefficient for DUM95-2000 in the case of MEDIOCRITY falls to 1.25. It is assumed that over the period 2001-2010 the structural shift effect diminishes, and that the growth rate of BS industry converges towards the growth rate of the market sector. In case of complete convergence, the coefficient must drop from its value of 2.50 in the latter half of the 1990s to 0. Over the entire projection period, the coefficient averages at 1.25.
- Structural shift coefficient for DUM95-2000 in the case of POWERHOUSE increases to 3.50

Annex X Specific country commitments in Uruguay Round related to BS markets

Table A9 Country commitments in Uruguay Round to treat domestic and foreign BS suppliers alike (national treatment), by BS branch and by mode of services supply

BS branch	Market access via cross-border supply of services product (good-like trade)			Market access through consumption abroad			Market access through direct investment (commercial presence)			Market access through movement abroad by natural persons		
	Full[a]	Partial[b]	No[c]	Full	Partial	No	Full	Partial	No	Full	Partial	No
	share (%) of country commitment status by mode of services supply [d)]											
Legal services	22	60	18	31	58	11	16	76	9	2	91	7
Accounting. auditing	34	36	30	50	36	14	32	64	4	4	80	16
Tax consultancy	41	41	18	56	35	9	35	56	9	12	71	18
Architectural services	52	30	18	64	22	14	56	38	6	8	80	12
Engineering services	45	31	24	60	21	19	52	43	5	9	79	12

[a] 'Full' means full commitment (no exemptions to most-favoured-nation principle) as to the national treatment issue.
[b] 'Partial' means partial commitment (partial exemptions to MFN principle).
[c] 'No' means that a country does not commit itself to apply the MFN principle to the national treatment issue
[d] Percentages may not add up to 100 per cent due to rounding differences. Source: OECD (2001b, p.52).

Table A10 Country commitments in Uruguay Round to liberalise foreign access to their BS markets, by BS branch and by mode of services supply

BS branch	Market access via cross-border supply of services product (good-like trade)			Market access through consumption abroad			Market access through direct investment (commercial presence)			Market access through movement abroad by natural persons		
	Full[a]	Partial[b]	No[c]	Full	Partial	No	Full	Partial	No	Full	Partial	No
	share (%) of country commitment status by mode of services supply[d]											
Legal services	18	67	16	24	67	9	4	87	9	2	91	7
Accounting. auditing	29	41	30	41	45	14	9	89	2	2	86	13
Tax consultancy	44	44	12	53	44	3	15	82	3	0	88	12
Architectural services	52	26	22	68	20	12	24	72	4	0	92	8
Engineering services	50	28	22	55	28	17	24	72	3	0	85	5

[a] 'Full' means full commitment (no exemptions to most-favoured-nation principle) as to market access.
[b] 'Partial' means partial commitment (partial exemptions to MFN principle).
[c] 'No' means that a country does not commit itself to apply the MFN principle to market access.
[d] Percentages may not add up to 100 per cent due to rounding differences. Source: OECD (2001b, p.52).

Annex XI Members of the External Experts Committee

The CPB research project on the future of the business services industry has benefited substantially from the comments and other inputs by an external experts committee. The committee consisted of representatives from business associations, policy makers and researchers.

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