Economics and Culture
Volume 22(2), 2025 DOI: 10.2478/jec-2025-0021

Economics and Culture

Intangibility and Productivity in Public Service Healthcare

Research Paper

Jari Kaivo-oja[1,*], Tony Kinder[2] and Jari Stenvall[3]

[1]Finland Futures Research Centre, Turku School of Economics, University of Turku, Turku, Finland, and Kazimieras Simonavičius University (KSU), Dariaus ir Girėno st. 21, LT-02189 Vilnius, Lithuania, ORCID ID: orcid.org/ 0000-0002-2401-6299
[2]Tampere University, Faculty of Management and Business, Administrative Studies, Tampere, Finland, ORCID ID: orcid.org/0000-0003-2769-3655
[3]Tampere University, Faculty of Management and Business, Administrative Studies, Tampere, Finland ORCID ID: orcid.org/0000-0003-4809-6614

Received 20 May 2025; Accepted 03 November 2025

Abstract: **Purpose.** The paper discusses the causes of rising costs and lowering productivity in healthcare systems.
Design / Methodology / Approach. OECD healthcare system data from six developed countries (the USA, Japan, France, the UK, Finland, and Sweden) is cleaned and structured. Sample selection is based on a mix of size and type of healthcare system. Data from published sources is used to cross-reference quantitative data analysis.
Findings. The paper challenges service management theory (Vargo & Lusch, 2004) and public service management theory, which argues that services are necessarily intangible, by showing that all services have a tangible element. The paper disputes Baumol's (2012) cost disease theory (that service productivity necessarily declines with rising labour costs), arguing that the quality of service cannot be discounted, and taking healthcare as an example, that increasing deployment of tangible technologies enhances productivity, recognising that exogenous factors (rising cost of pharmaceuticals) are a drag on performance.
Originality / Value / Practical implications. Our research question is: Does characterising public services as an intangible obfuscate the argument about their relative productivity. We conclude that basing the definition of services on intangibility obfuscates productivity. The paper concludes that the contingent element of intangibility in services is overemphasised and wrongly ascribes it as a necessary condition of public services since the person-to-person element remains pervasive and important in public services. In the SDL case of Vargo and Lusch (2007, 2017), we further conclude that ascribing logics to services, including their intangibility, suggests an uncontested meaning of services that does not exist, and in doing so subsumes agency and leadership of services by imputing a deterministic trajectory.

Keywords: *Healthcare • services • productivity • Baumol's disease • tangibility*

JEL codes: H00, I115, J38, O34, O40

Introduction

Levels of spending on public services are under scrutiny everywhere as GDP growth rates combined with demographic change combine to put pressure on tax receipts. Additionally, the premise of new public management is that levels of productivity are lower in the public than the private sector. Basu (2018) points out that reducing the size of the public sector is now conventional wisdom across the developed world. In some cases, this is justified by policies aiming to lower taxes with a view to increasing private sector investment, in other the prominent arguments are that public sector productivity is stuck at a lower level than the private sector. The paper challenges some of the premises behind the policy of reducing public spending arguing (a) that the approach to assessing productivity in the public sector is flawed, being based on Baumol's 'cost-disease' a concept this paper challenges, and (b) taking the

* Email: jari.kaivo-oja@utu.fi

Open Access. © 2025 The Authors. This is an open access article licensed under the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0/).

example of healthcare we point to price inflation of pharmaceuticals as more significant than labour productivity in pulling down overall performance. These arguments are significant since the charge of lowering labour productivity in the public sector justifies the transfer of assets and functions from the public to the private sector, and justifies austerity, across-the-board reductions in spending on public services.

Our discussion centrally features the work of Baumol (2012) since his 'cost-disease' argument is often cited as explaining why public services' productivity is necessarily below that of private sector manufacturing. The paper argues that his method (a two-sector model) is inappropriate, insufficiently captures service quality and produces demonstrably false predictions. This occurs, he argues, because tangible manufacturers can automate, whereas intangible public services rely on high staffing levels, resulting in low productivity, making public services a drag on the economy (Avellaneda, 2015; Axtle-Ortiz, 2013; Cardao-Pito, 2012; Ciprian et al., 2012; Davies & Guillin, 2014; Mariani & Cavenago, 2013). The intangibility of public services (we leave aside private sector services) is central to arguments citing Baumol's method. Our research question is as follows: *Does characterising public services as intangible obfuscate the argument about their relative productivity*.

We note that many researchers on public management also accept Baumol's premise of the intangibility of public services. This includes Gershuny and Miles (1983), Gustafsson *et al.* (2016), Osborne *et al*. (2012, 2014, 2015) and Ostrom *et al*. (2015). Vargo and Lusch (2004, 2007, 2008), in some of their work, promote this idea. Authors frequently refer to intangibility as a defining characteristic of public services. Amongst papers citing intangibility as a characteristic of public services are those presented by Alford (2016), McGuire (2012), Osborne (2017), and Radnor et al. (2014) and note the importance attached to intangibility as preventing the storage of services in Osborne et al (2016). In particular, we pick up arguments in Bailey et al. (2016) against Baumol's disease, though, as argued later, our own critique is more fundamental.

Literature review

Public services and intangibility

Intangibility can be conceptualised as (a) a category: an abstract, intrinsic property (giving classification or differentiation) having clearly defined characteristics, intrinsic to and predicating its existence; and (b) as an extrinsic characteristic in practical terms indicating a relation between people, artefact, and social context. Our perspective is (b): following Dewey's pragmatic technology approach (Dewey, 1930; Hickman, 1992; Virtanen & Stenvall, 2017), we view the use of a technology, such as healthcare, as useful only when applied in a social and technical context that addresses (solves) a patient's problem. From this ontological perspective, intangibility (a) is determinate and (b) is determinable. So, while speaking in general terms about service intangibility, its meaning along a continuum from physical artefact towards incorporeal benefit, for a specific service, the precise place on this continuum is important (Figure 1). The Doctor's service brings a pill; the Nurse brings an injection, and the Porter a trolley for transport. These extrinsic characteristics of public healthcare services are determinable by the combination of physical and non-physical benefits, a combination of the tangible and intangible. This is significant because if only the intrinsic intangibility is important, then service delivery modes may be disembodied by further reducing the physical presence of artefacts or persons. From a professional staff and user viewpoint, this constitutes a virtualisation of public services, no longer delivering the presence of people or artefacts expected. These kinds of aspects are relevant in visionary city planning and global competition (Pine & Gilmore, 1999; Raynor, 1998; Sassen, 2006).

This paper agrees with Shostack (1977), who argues that there is no 'pure' good without some service element and no 'pure' service without some physical good element. This does not mean that intangibles are unimportant or not part of the customer's experience (Fan & Ku, 2010). In healthcare, the reassurance of the Doctor's words, the feeling of support and care from the Nurse, and the consideration of the Porter are intangible experiences accompanying the physical aspects of healthcare. On a patient journey from (for example) surgery to physiotherapy, Bowen and Bower's (1986) point is valid that the degree of provider/patient interaction and balance between tangibility and intangibility will vary. This is typical for the marketing and PR activities of modern organisations (Kotler, 1984).

Our argument is that public services mainly require both tangible and intangible characteristics to be effective. However, the paper finds that intangibility is confusingly used to apply both to services created and to the resources utilised in their creation. It is important to distinguish between the intangible properties of assets

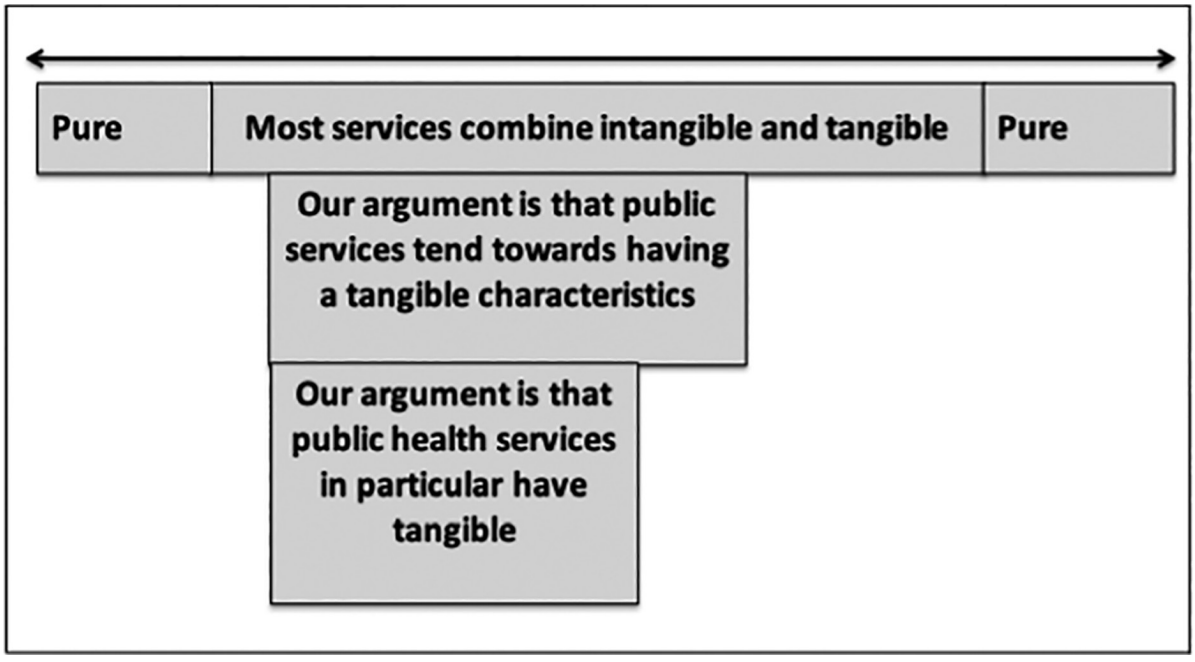

Figure 1. The tangible-intangible continuum illustrating that public service generally and healthcare services in particular have tangible characteristics. (*Source:* designed by the authors).

(such as intellectual property) and the intangible characteristics of service delivery. For example, the International Intangibility Management Standards Institute and Standfield´s book (Holder, 1998; Standfield, 2002) listed and identified thirty-one standards for types of intangible assets for the use of accountants and company valuations and several qualifications, including the Certified Practising Intangible Management Practitioner.

Tangible resources are values that are static and become depleted, whereas resourceness leverages the utility of tangibles by creating institutions, collaborations, and norms (Bardach, 1998; Pascale & Athos, 1981). Using intangible knowledge to overcome resistance releases the potential in resources by applying knowledge to perform tasks previously performed by humans, thereby creating new service models.

In summary, we agree with Vargo and Lusch (2004) that employing intangible knowledge assets to design and improve services is essential. However, we cannot take the next step with Vargo and Lusch (2007, 2017) to accept that intangibility characterises service delivery. Our view is that services in general and public healthcare services in particular have a performative function (Liu et al., 2008) that requires delivering to the patient, often in a person-to-person encounter, a combination of both tangible and intangible resources aimed at solving the patient's problem. Public services are either free (commons), free at the point of delivery, paid by taxes, or incur charges to some degree, subsidised by taxes. Vargo and Lusch's (2004, 2007) discussions relating use-value to exchange value are thus irrelevant to non-market goods; their insistence on intangible dominating tangible value delivery is just wrong: the Doctor brings the pill, the Nurse with the injection and the Porter with the trolley, alongside intangibles. As argued in Laitinen et al. (2018), the central task of public service design is to migrate what the public values into measurable value that resolves problems. The paper now turns to Baumol's treatment of intangibles, including hybrid tangible and intangible services, who argue that the dominance of intangible condemns public services to ever-falling productivity (Baumol, 2012; Krueger, 2001).

Baumol's disease and intangibility

Baumol's (2012) cost-disease argument is that assuming a two-sector economy (one manufacturing he terms progressive and one service he terms stagnant), with perfect information and flexibility between the sectors, that since technologically-based productivity increases can only be embedded in physical processes and not intangible services, (also services cannot be standardised); manufacturing will increase productivity and reduce costs and services will suffer relative low or declining productivity and rising costs. The latter are stagnant services inescapably correlated with the amount of labour expended on their production (Baumol

2012; Colwell & Davis 1992; Coyle, 2014; Galbraith, 1994; Newhouse, 1992; Sparviero & Preston, 2010). He cites falling class sizes as an example of lower education service productivity and suggests that healthcare costs in the US might rise to over 50% of GDP. He argues that service quality is irrelevant. This paper discusses how much a product costs the consumer, not its benefits – that is, how good the product is for the money that consumers spend. For cost disease analyses, measures of the cost to consumers are more important than measures of the quality of the product or service (Baumol, 2012; Ferris et al., 1996; Fogel, 1999). Note that for Baumol, although services become relatively inefficient, staff in both sectors can afford to buy services, since their salaries both rise in line with manufacturing productivity. This theoretical discussion underpins politicians' critiques of 'inefficient' public services.

Research claiming to empirically support Baumol's thesis includes Ferris et al. (1996) study of public services, finding that two-thirds of cost rises are due to slow productivity rises, which Chernew et al. (2009) extrapolate for US healthcare will consume 47% of GDP growth before 2050. Nordhaus' (2008) statistical analysis, Stamp's (2014) research on legal services and Last and Wetzel's (2010) study of 126 German theatres between 1991 and 2006 conclude with support for Baumol's work. Van der Gaag and Štimac (2008) argue that since health spending rises with GDP, necessarily, healthcare spending will rise. Fogel (1999) insists that measures of input only are important.

Empirical challenges to Baumol´s cost-disease model approach include Cowen and Grier (1966) and Cowen (1996) arguing that although services such as a string quartet might appear impervious to productivity rises, in fact, their output may increase immensely via digital reproduction and their quality in repertoire and quality of venue. Kessler (1991) challenges Baumol's narrow definition of productivity and dismissal of quality, asking if an orchestra's performance would improve by cost-cutting the non-playing conductor. The study of quality-adjusted productivity in healthcare found that productivity was rising (Robinson 1969; Tripplet & Bosuworth, 2003). Contesting Baumol's model as overly simplistic, Birch and Cramer (1968) argue that productivity of consumption is of equal importance as production and Chapman (2003) suggests that little can be discerned from an over-simplified model. It is also worth remembering that many cost and benefit factors have changed in time since early discussions of Baumol´s model.

The most fundamental points of the debate between tangible and intangible commodity productivity relate to the role of services. Firstly, as Regulation Theorists show (Boyer, 1990; Easterly, 2002), economic growth relies on alignment between production and consumption, supply, and demand. Baumol's manufacturers require an educated, healthy workforce, the provision of which enables social productivity gains. Secondly, Oulton (2001) argues that service outputs are often manufacturing's input (software being an example), i.e. service productivity causes productivity increases in the manufacturing sector: manufacturing plants would fare worse without finance, procurement, design, etc, service inputs (Rubalcaba & Kox, 2007). Thirdly, the tangibility distinction, Walker (2004) argues, is far less important than recognising that the increase in intermediate commodities (goods or services) is a result of the division of labour – specialisation – whether inside the firm (and presumably 'progressive') or outside (and presumably 'stagnant'): make-or-buy.

Baumol's disease continues to be cited as valid in the literature. Baumol famously introduced the "cost disease", according to which the relative price of services vis-á-vis manufactured goods keeps rising because of a negative productivity differential between services and manufacturing industries. Some economists claim that empirical evidence strongly supports the predictions of Baumol's model of "unbalanced growth" (Hartwig & Krämer, 2022). Most importantly, from our viewpoint, remains his contention that the intangibility of public services necessarily leaves them prone to low productivity. This is more important, he contends, as ageing populations shift from infectious to chronic disease deaths and the costs of equipment, pharmaceuticals, and expensive public-private partnerships rise. He goes on to argue (Baumol, 2012) that shifting resources from the progressive to the stagnant public sector has the undesirable effects of weak stewardship of the health system, dysfunctional service delivery, and inequitable health financing. Finally, Baumol (2012) suggests that private sector initiatives can raise the level of healthcare productivity, citing IT services, error prevention using bar-coded pharmaceuticals, voice-over-Internet calling to absent Doctors, RFID for tracking equipment and adopting six sigma techniques. Leaving aside the tangibility of these suggestions, and research on their adoption (Hughes et al., 2011; Kinder & Burgoyne, 2013; Radnor & Osborne, 2013), our point is that their justification is based on the false prospectus that healthcare services are intangible, that quality improvement ought not to be included in productivity measurement, and that private provision improves productivity in ways that the public sector itself cannot. As Jansson (2013) argues, the great challenge is to find out how the quality of service could be measured as far as personal services are concerned. It is to these arguments, associated with the nature of efficiency and effectiveness with public value, that the paper now turns.

Figures 2 and 3 present a categorisation of tangible and intangible public services. These categorisations help us see different service and production models. Often, economic logic leads us to think that low-cost structures and high benefit structures are the optimal models of public service production. It seems fair to conclude that tangible services can be services which have low costs and high benefits in public service production.

Figures 2 and 3 help critically analyse the discussion of intangibility and tangibility, as well as Baumol´s disease discussion. Seriously taking Vargo and Lusch's (2007) ideas and combine Baumol´s ideas of Baumol´s disease (2012), shows that the logic of public sector is limited to few scenarios, where (1) public production is seen mostly be as intangible, (2) costs should be low and (3) benefits should be high to avoid Baumol´s disease. There are only scenarios D and F available for public sector organisations. Other scenarios, A, B, C, E, G, and H, are framed out if these theoretical frameworks are taken seriously. We can think critically about how a society could work with these kinds of public production choices.

In summary, this paper has criticised Baumol's cost disease as it interprets public services as economistic (taking no account of higher quality standards of public production) and simply wrong, since the evidence from the

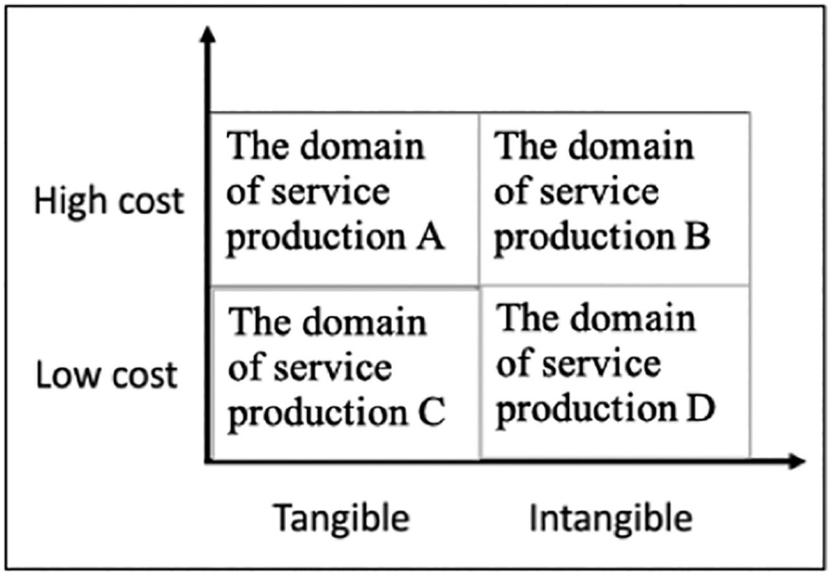

Figure 2. Cost structure alternatives and tangible and intangible public services (*Source:* designed by the authors).

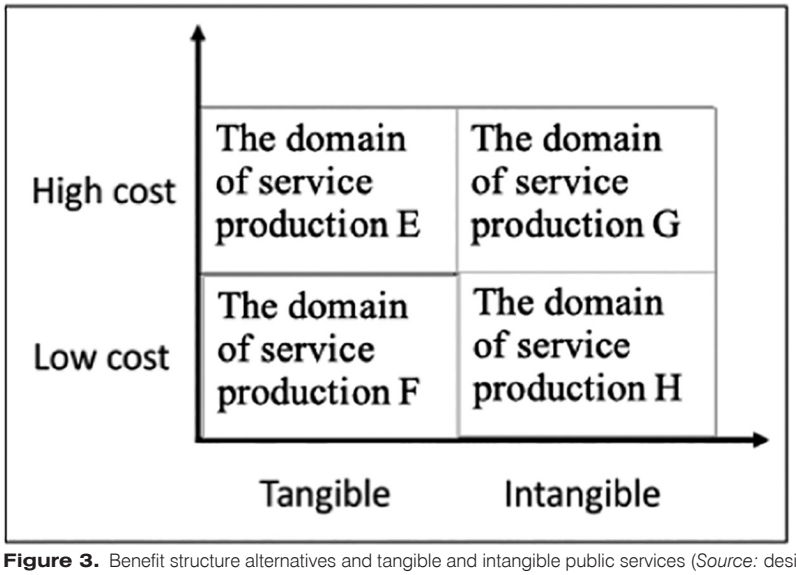

Figure 3. Benefit structure alternatives and tangible and intangible public services (*Source:* designed by the authors).

healthcare example shows that much of the rising costs are of tangible pharmaceuticals. The argument is significant since low productivity (based on intangibility) is often cited as justifying the argument for replacing public services with market solutions.

Obviously, more research should be done on public finances that empirically evaluate the cost and revenue structures of tangible and intangible public production. Many of the estimates in previous studies have been based on more or less purposeful examples, which at least are not generalizable to all sectors of public production. Also, the role of quality standards in public production should be taken into serious scientific consideration.

Efficiency and effectiveness

Here we consider the third dimension of intangibility in public services - the drive for efficiency and effectiveness (see alternative perspectives of Gaertner & Ramnarayan, 1983; Mouzas, 2006). Since public services are information-rich and information flows are so crucial, using IT and ICT in the management of these tangibles and intangibles is thought to be central to improving efficiency and effectiveness. When employed to support new service models, such as in smart housing (Kinder, 2000) and telecare (Kinder *et al*., 1999), investment in intangibles and their use in the service process can create dramatic improvement. However, used simply to speed up existing processes, ICT intangibles have limited effects (Kinder, 2010), and failed IT projects can be costly.

Our point is that viewing efficiency as what Leibenstein (1966) terms X-efficiency (meaning short-term and narrow unit of analysis, simply relating input to outputs) is of a lower order and indeed may prevent allocative efficiency, A-efficiency. A-efficiency, allocative efficiency is a state of the economy, in which service or product production represents consumer preferences; in particular, every good or service is produced up to the point where the last unit provides a marginal benefit to consumers equal to the marginal cost of producing. This, Johnson et al. (1987) argue, means a better allocation of resources between production units, resulting in new service models – new effectiveness (see also Scitovsky, 1976; Jansson, 2013). As Leibenstein (1966) noted in his classical article, researchers cannot neglect the role of non-allocative efficiency. A-efficiency is an internal measure (possibly with imposed external financial targets) maximising value at the unit-level (Clark, 1921), whereas effectiveness constructs a wider unit of analysis over a wider timespan and evaluates external impact (Gaertner & Ramnarayan, 1983). A-efficiency cannot simply, for instance, mean the same service model with co-creators bearing some of the costs – that would be X-efficiency. Instead, A-efficiency requires new service solutions, which may or may not include co-creation. Efficiency and effectiveness need not trade off, George (2003) argues, as Fig. 4 illustrates; a major benefit of public-private value-creating networks is to leapfrog X-efficiency, jumping into high productivity service modernisation (Kaivo-oja, 1995).

We argue that narrowly framing efficiency (by unit and in terms of finance), as Baumol (2012) does, inadequately grasps the qualitative and performance possibilities of introducing more effective service models, which integrate professionals and resources (across organisational boundaries). This paper is not arguing that intangible information integrated public services are commons, as Mitchell and Carson (1989) argue, nor that they are considered simply non-market use-values or public good externalities (Abler, 2004). Accountabilities, including financial accountability, are important. It is also relevant to note that accountability is a key element of social trust and quality in public service and product production. Without accountability quality level will be low, and also the social trust level decreases, as many case studies show. In this case, public agencies are typically doing the wrong things and doing things wrongly (see Figure 4).

Exploiting information intangibilities using tangible ICTs can be a central feature of building new effective public service models; however, as we have argued, the time frame and service footprint with which this can be done are much wider than X-efficiency and also require professionals and patients to blueprint and co-design the emotional and tangible touch-points in the new service design (Radnor et al., 2014). Simply buying into IT often fails to deliver; examples include Finnish baby-care (Stenvall et al., 2017) and Scottish Criminal Justice (Kinder, 2010).

In summary, efficiency alone without new effectiveness is a short-term response to reduced spending, often preventing new service systems and relationalities from emerging in pursuing impact cost reductions reliant upon substituting capital equipment for people - X-efficiency. Neglecting quality aspects of public production leads us to typical economic analyses of prices and quantities, where customer satisfaction and other quality questions are not taken into consideration. In many research and empirical studies and cases, Baumol´s disease approach neglects customer satisfaction and other quality aspects of public production. As is known, quality costs, but the benefits of quality are real.

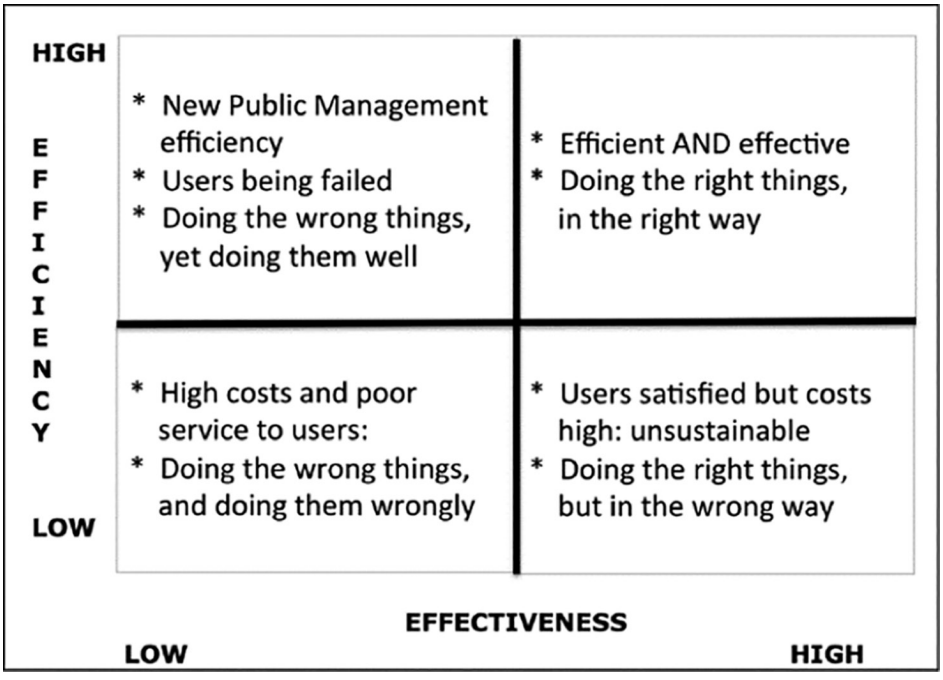

Figure 4. Efficiency and effectiveness relationship (*Source:* designed by the authors).

Research methodology

The research method is desk research, citing (a) quantitative trend analysis (Cramer et al., 2016; Vejlgaard, 2008) and (b) reference published materials relevant to the case. This includes OECD data on the returns on public funds (system of national accounts method), OECD data cleaned and indexed to illustrate trend performance in selected public services (basic year=100), and analyses were cross-referenced with published research.

The paper selects data on healthcare to illustrate public service productivity and performance, since these are services offered across developed economies (to which we limited our research, seeking to reduce variables). OECD is taken as robust and spatially generalised. This data gives figures for diverse models of healthcare (insurance and on-demand) and includes a range of different sizes of healthcare systems. Data was selected from the following countries: the USA and Japan (insurance models), France and the UK (mixed model) and Finland and Sweden (Nordic models). Countries selected include a range of sizes of advanced and comprehensive healthcare systems – the US and Japan being large, the UK mid-size, and Sweden and Finland being smaller. We judged that a larger-sized dataset, for example, all OECD countries, would introduce bias towards one or other model of provision.

We cross-checked OECD data (OECD, 2023) and manipulated statistics and the databases of tangible fixed assets and intangible capital (Intellectual property product index) in the OECD´s updated database. We have also created a database covering health expenditure per capita in some European OECD countries (World Bank, 2023). Methodologically, we rely on the statistical measurement systems of the World Bank and the OECD. Data from published sources is used to cross-reference quantitative data analysis.

Research results

Presentation of research results proceeds as follows: tangible fixed costs, intangible capital indexed and why healthcare costs are rising and why it matters. It concludes with cross-referencing with other relevant and robust published results.

Tangible fixed assets

Data from OECD (2023, Source-N111) shows incontrovertibly that tangible assets are rising in healthcare systems. For example, in France, balance sheets for non-financial assets show tangible assets doubling in value from under €40 billion to €80 billion, and in the USA, rising from US$25 billion to over US$60 billion. There is a clear trend in the cost of tangible assets rising across healthcare systems, challenging the notion that it is labour costs that are out of control.

Rising non-labour costs

As intellectual property embedded into physical assets (especially ICTs) gains in importance in public services, and as Radnor et al. (2014) note, service designs aim to substitute capital for labour. However, there are also examples, such as Finnish baby-care (Stenvall et al., 2017) and Scottish Criminal Justice (Kinder, 2010), that the promise of fixed asset productivity may not be crystallised.

X-efficiency without redesign of roles, relationships and responsibilities is a recipe for rising costs without productivity enhancement, when more effectiveness resulting from service redesign is needed. We further argue that measures of productivity in public services cannot, as Baumol (2012) insists, exclude customer satisfaction: service quality. Productivity is too complex to reduce it to doing the wrong thing more efficiently, and doing the right thing cannot ignore quality, as judged by service users.

Analysis of intellectual property intangible assets for our six countries (using N-112) also shows a significant increase, by over 160% for the USA, with only Japan not having a significant rise. Again, this demonstrates a significant increase in non-labour costs.

One way to measure the relative importance of intangible assets is to use the intellectual property product (IPP) index to elaborate on the trends of intangible factors in the economy. Figure 5 presents IPP index trends of some OECD countries. These trends are based on variable N 112 in the OECD national accounts. This IPP trend index analysis shows the importance of intangible variables in these economies.

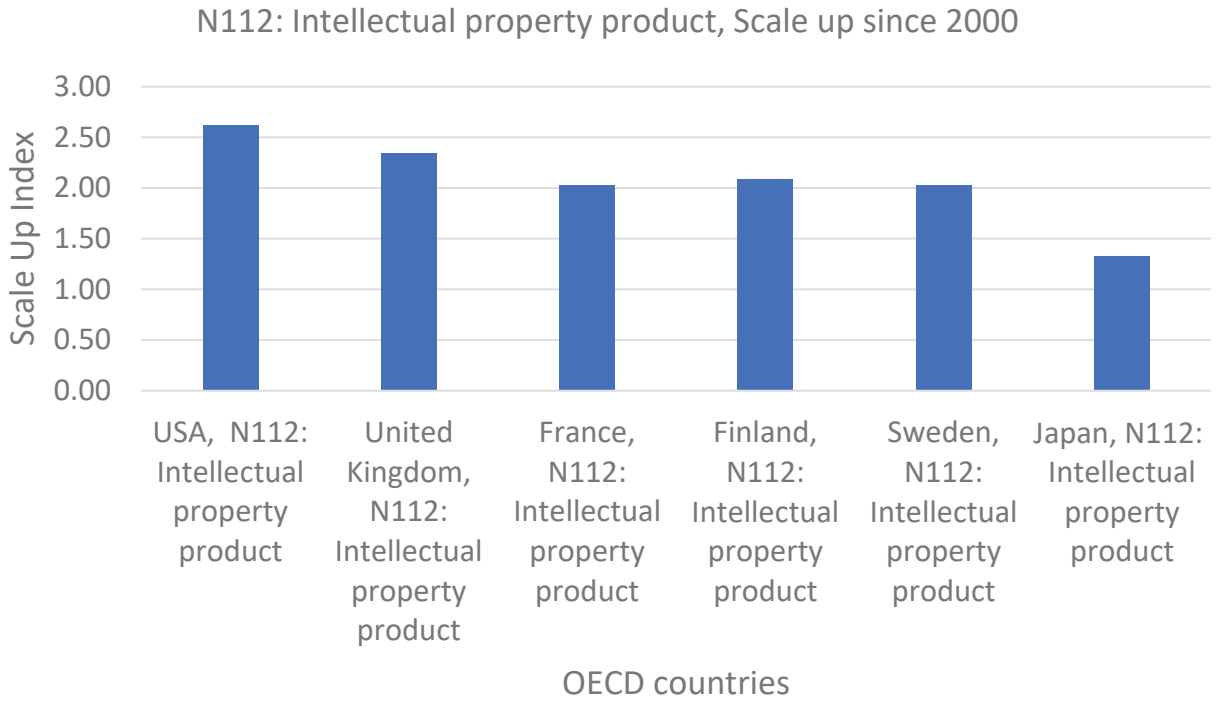

Figure 5. Intellectual property product index in some OECD countries: USA, United Kingdom, France, Japan, Sweden and Finland. Scale up index since 2000. Source: OECD 2023. Dataset: 9B. Balance sheets for non-financial assets.

Published research on healthcare costs and productivity

There are numerous theoretical and empirical reference studies of health care and health expenditure, including Catlin and Cowan (2015), Chernew *et al*. (2009), Dong and Phillips (2008), Vuorensyrjä (2013) and Wanless (2002). OECD figures show the USA spending $12,500 per capita on healthcare per year (double the UK and Canadian figures), even though 11% of working people have no healthcare coverage. As will be shown, the main cost rises are not labour costs; they are costs of pharmaceuticals and the administration of an insurance-based scheme. Mulchay *et al*. (2024) note that the price of pharmaceuticals is higher in the USA because there is no state control of prices, which bodies such as NICE in the UK control. USA prices are 36% higher than other OECD countries. USA drug costs are rising at 13% per year (BCBS, 2017).

If labour costs are not driving up healthcare costs and thereby lowering productivity, what are the causes of rising costs? Here, two are highlighted: firstly, citizen lifestyle or self-induced ill-health from poor diet, smoking, etc and secondly, the rising costs of pharmaceuticals. Both of these are exogenous to a healthcare system – both lower productivity, neither are labour costs.

Simply taking expenditure per capita as an indicator of productivity ignores demand-related output figures; in the case of healthcare, demand is rising as populations age. Similarly, social factors resulting in obesity, drug addiction and rising mental health problems cannot be excluded from productivity computation. Service output per capita is as important as capital spend per staff member.

Since the early days of industrialisation, post-industrial economies have shifted toward service- and technology-based industries, which have made intangible assets such as human capital, social capital, innovative products and knowledge, innovative services, brands, patents, software, customer relationships, databases, platforms, and distribution systems increasingly important for economies. This aspect is very important for cultural industries, too (Towse, 2005), which have claimed to suffer from Baumol´s disease (Baumol, 1997; Last & Wetzel, 2010). Lev and Gu's (2016) call for the *End of Accounting* and Haskel and Westlake's (2018) analysis of *Capitalism without Capital* consider these issues.

Constructing and interpreting 'facts' in social research is always difficult; this is especially so in the healthcare sector. Also, indirect costs such as salary loss, pain, and stress (Yousefi et al., 2014) and in the US, enrolment rates (Boston Globe, 2016), the Affordable Care Act has led to 18 million more Americans gaining healthcare coverage. A particular difficulty in health and social care is that the boundaries are drawn differently between institutions in different countries, making FEC difficult.

Tangible lifestyle choices by (potential) patients add significantly to healthcare costs. BCBS (2017), who with 100 million subscribers covering a third of the US insured population, calculates that one in five adult smokers adds $170-billion pa in costs to the US system; the one-third obese add $147 billion, the one in six alcohol abusers add $185 billion. Cancer treatments cost the US system $157 billion pa, arthritis $128 billion, and heart disease/stroke - $315 billion. In summary, tangibles outside of the healthcare system are a significant cost driver. The Russian Federation is an interesting country in this sense because in the Russian Federation, health expenditure has risen eightfold from 1995 to 2014, and from 2000-2020 it has risen threefold.

As Appleby (2013) and BCBS (2017) note, the major cost driver in healthcare is the cost of pharmaceuticals. In the US the $450 billion pa spent on prescription drugs grows at an annual 13% rate; costs to the healthcare system (i.e. not individuals) was $192 billion in 2016 and predicted by BCBS to rise to $401 billion by 2020 targeting mainly (86% of spend) chronic diseases often with expensive specialty drugs for cancer, inflammatory conditions, multiple sclerosis, hepatitis, HIV. As Claxton et al. (2012) note, the UK seeks to control pharmaceutical costs using the National Institute for Clinical Excellence (NICE), which computes a cost-benefit (in other words, if quality of life years or QALY exceeds £30,000, the pharmaceutical is deemed valuable).

Conclusions

Our research question is - does characterising public services as an intangible obfuscate the argument about their relative productivity. We conclude that basing the definition of services on intangibility obfuscates productivity. Theoretically, the paper concludes that the contingent element of intangibility in services is overemphasised and wrongly ascribes it as a necessary condition of public services since the person-to-person element remains pervasive and important in public services. In the case of Vargo and Lusch (2007, 2017), we further conclude that

ascribing logics to services, including their intangibility, suggests an uncontested meaning of services that does not exist, and in doing so subsumes agency and leadership of services by imputing a deterministic trajectory.

This paper has presented the following arguments. Firstly, that public services are not usefully characterised as intangible; the Doctor, Nurse, Teacher, and Porter perform physical tasks, without which there is no service; even e-prescribing, e-learning and alarm technology require artefacts and physical actions. This challenges Vargo and Lusch's notion of service intangibility. Both processes, creating public services and service outcomes, prominently feature tangible elements. Secondly, we challenge Baumol's (2012) argument that public services necessarily have lower productivity than other sectors, disputing his suggestion that cost alone, not quality, constitutes public service productivity. However, the paper argues that Baumol's economistic and quantitative-only view of productivity hides more than it reveals: public services are not all very intangible. Both tangible and intangible factors determine productivity: qualitative and quantitative factors. Seeking efficiency and pushing costs onto public service users is misguided when the real issues are a long-term investment to create new service models, exploit intangible information flows, and to integrate services more closely, in short, to seek new effectiveness and new governance (Avellaneda, 2015).

The key issue for public sector research is to understand how the complex interactions between tangible and intangible assets in work economies. Often, interactions include learning actions. The discussion about "Baumol's disease" has shown that these interactions are not properly understood. Our theoretically motivated new insights (Figures 2-4) help us to understand key issues of efficiency and productivity of public services.

It can realistically be expected that the role of tangible and intangible assets is different in different functions of government. If there is some kind of "Baumol´s disease," its nature is probably different between the functions of the Government. In this way, we should understand the roles of tangible and intangible assets in distinct functions of the Government. Often, discussions about "Baumol´s disease" in public production are too general, and they are not based on empirical analyses of tangible and intangible assets. It is no wonder that policy recommendations are biased in many cases in such scientific discussions and reflections. In many studies, the measurement problems of tangible and intangible production variables are not discussed too much.

There is an urgent need to measure the scale and use of intangible assets in the public sector. Cinca *et al.* (2001:25) presented a suggestion about key classes of intangible assets in the public sector (Table 1). This kind of concrete measurement could reveal that much of public sector production is actually tangible, and not fully intangible as William Baumol claimed in his book "Cost Disease" and in many other articles (Baumol, 2012).

The concept of "asset boundary" should be defined carefully, or at least more carefully than it has been done in many studies of the public sector. Public investments in intangible (social, economic, scientific) and tangible (physical) infrastructures are key issues in the activities of the public sector. If we do not understand how key assets are used in the functions of government, there are considerable risks that wrong policy analyses and decisions are made, as Corrado et al. (2013, 2015) suggest, and productivity losses of the public sector can be expected. Following Appleby (2013) and BCBS (2017), the paper has shown that healthcare costs are rising primarily because of tangibles – in this case, pharmaceuticals.

Based on the theoretical discussion in this conceptual and empirical trend study, it is proposed that much more research should be done in public finances that empirically evaluate the cost and revenue structures of tangible and intangible public production. Many of the estimates in previous studies have been based on more or less purposeful examples and cases, which at least are not generalizable to all sectors of public production. There are sectors of public production, where cost and benefit structures are different, and tangible/intangible aspects vary greatly. More attention should be paid to quality and customer satisfaction measurements in public economies. Our theoretical framework can be helpful in the construction of empirical studies in this field. Too uniform and simple evaluation models of public economic policy can lead us to wrong and biased conclusions concerning productivity, effectiveness, and efficiency.

Verifying, defining, and detailing tangibility/intangibility problems and alternatives are needed more in the future. Healthcare costs are rising not as a result of ageing or of salary increases resulting in lowered productivity; instead, exogenous and tangible factors are driving up costs: lifestyles and pharmaceutical costs. Table 2 summarises some of the evidence.

Costs of healthcare systems are rising, and productivity is not keeping pace with rising costs. Attributing this to falling labour productivity diverts attention from the causes of rising costs. These are exogenous to healthcare systems (pharmaceutical costs and lifestyle).

So, costs rise because of tangible pharmaceuticals and lifestyle, not intangibles. The major cost driver is tangible goods. Explanations of why these tangible goods are not benefiting from productivity increases draw attention to institutional arrangements for pricing tangible goods, such as Winters´s Oligarchy (2011) and Standing (2016) on

Table 1. Classification of intangible assets in the public sector (Cinca et al., 2001:25)

Internal organization	External structural capital	Human capital	Social and environmental commitment
Ability to innovate	Service	Attitudes of civil servants	Social commitment
Know-how	Image	Permanent training	Environmental commitment
Structural organization	Transparency	Conditions of service	
Corporate culture			
Links and contacts			

Table 2. Tangible factors (i.e. subject to Baumol's 'progressive' use of embodied technologies' impact upon healthcare productivity)

1	Baumol + global research: inexorable rise BUT figures show reducing rate of increase for the US	Appleby 2013
2	BlueCross, Blue Shield (BCBS) mention pharmaceutical and ageing population, not wages. UK NICE experience	BCBS (2017)
3	UK healthcare costs continue to rise despite a real fall in salaries (limited to 1% increase i.e. lower than inflation) and a drop in staff numbers	Appleby 2013
4	The Balance (2017) shows historically that US healthcare productivity rises and then begins to fall as enrolment in the system rises and falls	The Balance (2017)
5	UK healthcare costs rise have fallen from 12% to 6.5% between 2007 and 2016 largely due to reduced residential care i.e. changing the form of tangible service	PwC (2017):
6	Wage costs are less important than other factors in modeling UK healthcare costs, which are: demographics and lifestyle, income from Government, patient behaviors, treatment practices, technological progress, healthcare system organisation and health prices and productivity	Astol et al (2012)
7	Demographics are less significant a cost than bought-in tangibles: although more people die in institutions than at home, care for the elderly delays rather than adds costs and old-age deaths are less costly than young person deaths.	Castells (1995) Smith et al (2000) Canadian Health Service Research Foundation 2003)
8	60% cost increase in US healthcare 1940-90 are pharmaceuticals and new equipment	Newhouse (1992)
9	Fewer babies and longer lives add to social care costs - a tangible and service-expensive	(Ermisch 1989, 1999) Colombier and Weber (2009)
10	UK productivity figures	Appleby (2013)

corruption arising from the exploitation of historic IP. Lifestyle costs draw attention to the idea of social medicine: diverting spending to preventative healthcare. Control of pharmaceutical costs calls for cost controls, especially since pharmaceutical company profits are reportedly 29% (EBITDA) relationships to 19% for S&P 500 companies. Baumol is wrong to ignore levels of service quality and cost of quality; he also wrongly argues that labour costs and productivity doom healthcare to unaffordability, when policy changes are available that can control costs. None of this denies the need for investment in healthcare technology such as robotic surgery and AI-enabled diagnostics. It may be that monies saved from excessive pharmaceutical costs can be reinvested in such technologies. Healthcare resources will remain a mix of tangible and intangible. There is an obvious need to integrate the intellectual capital theory into the theory of public production so that both tangible and intangible are measured in the right way. Typically, (1) residential buildings, (2) commercial, industrial, and other buildings, (3) civil engineering works, (4) plant and machinery, (5) stocks and work in progress, and other tangible assets are typical categories of tangible assets (Holder, 1998). These tangible assets are often needed in health care services and infrastructures.

References

Abler, D. (2004). Multifunctionality, agricultural policy, and environmental policy. *Agricultural and Resource Economics Review*, 33(1), 8–17. https://doi.org/10.1017/S1068280500005591

Alford, J. (2016). Coproduction, interdependence and publicness: Extending public service dominant logic. *Public Management Review*, *18*(5), 673–691. https://doi.org/10.1080/14719037.2015.1111659

Appleby, J. (2013). *Spending on health and social care over the next 50 years.* Kings Fund.

Avellaneda, C. N. (2015). Government performance and chief executives' intangible assets: Motives,

networking, and/or capacity? *Public Management Review*, *18*(6), 918–947. https://doi.org/10.1080/14719037.2015.1051574

Axtle-Ortiz, M. A. (2013). Perceiving the value of intangible assets in context. *Journal of Business Research*, *66*(3), 417-424. https://doi.org/10.1016/j.jbusres.2012.04.008

Bailey, S. J., Anttiroiko, A.V., & Valkama, P. (2016). Application of Baumol's cost disease to public sector services: Conceptual, theoretical and empirical falsities. *Public Management Review*, *18*(1), 91–109. https://doi.org/10.1080/14719037.2014.958092

Bardach, E. (1998). *Getting agencies to work together – the theory and practice of managerial craftsmanship*. Brookings Institution Press.

Basu, L. (2018). *Media amnesia – rewriting the economic crisis*. Pluto Press.

Baumol, W. J. (1997). *Baumol's cost disease: The arts and other victims* (R. Towse, ed.). E. Elgar.

Baumol, W. J. (2012). *The cost disease*. Yale University Press.

BlueCross BlueShield (BCBS) (2017). *Growth in specialty drug spending from 2013 to 2014.* https://www.bcbs.com/about-us/capabilities-initiatives/health-america/health-of-america-report/growth-specialty-drug

Birch, J. W., & Cramer, C. A. (1968). Macroeconomics of unbalanced growth: Comment. *The American Economic Review, 58*(4), 893–896.

Bowen, J., & Bowers, M. R. (1986). A marketing contingency approach to service organizational structure. In M. Venkatesan, M. D. Schmalensee, & C. Marshall (eds.), *Creativity in services marketing: What's new, what works, what's developing* (pp. 78–82). American Marketing Association.

Boyer, R. (1990). *Regulation theory.* Macmillan.

Cardao-Pito, T. (2012). Intangible flow theory. *American Journal of Economics and Society*, *71*(2), 328–353. https://doi.org/10.1111/j.1536-7150.2012.00833.x

Catlin, A. C., & Cowan, C. A. (2015). *History of health spending in the United States, 1960-2013*. Centres for Medicare and Medicaid Services.

Chapman, B. (2003). *Baumol's disease: The pandemic that never was*. Monash University.

Chernew, M. E., Hirth, R. A., & Cutler, D. M. (2009). Increased spending on health care: Long-term implications for the nation. *Health Affairs, 28*(5), 1253–1255. https://doi.org/10.1377/hlthaff.28.5.1253

Cinca, C. S., Molinero, C. M., & Queiroz, A. B. (2001). An approach to the measurement of intangible assets in public sector using scaling techniques. *Discussion papers in Accounting and Finance, AF01-4*, University of Southampton.

Ciprian, G. G., Valentin, R., Madalina, A., & Lucia, M. (2012). From visible to hidden intangible assets. *Procedia – Social and Behavioural Sciences, 62*, 682–688. https://doi.org/10.1016/J.SBSPRO.2012.09.116

Clark, J. M. (1921). *The social control of business*. Chicago University Press.

Claxton, K., Palmer, S., Spackman, E., Bojke, L., & Longworth, L. (2012). Informing a decision framework for when NICE should recommend the use of health technologies only in the context of an appropriately designed programme of evidence development. *Health Technology Assessment, 16*(46), 1-323. https://doi.org/10.3310/hta16460

Colwell, R. J., & Davis, E. P. (1992). Output and productivity in banking, *Scandinavian Journal of Economics, 94,* 111–129. https://doi.org/10.2307/3440252

Corrado, C., Haskel, J., & Jona-Lasinio, C. (2015, April 16–17). *Public intangibles: The public sector and economic growth in the SNA* [Paper presented at the IARIW-OECD Special Conference "W(h)ither the SNA?", Paris, France. http://old.iariw.org/papers/2015/corradoetal.pdf

Corrado, C., Haskel, J., Jona-Lasinio, C., & Iommi, M. (2013). Innovation and intangible investment in Europe, Japan, and the United States. *Oxford Review of Economic Policy,* 29(2), 261–286. https://www.jstor.org/stable/23607143

Cowen, T. (1996). Why I do not believe in the cost-disease. Comment on Baumol. *Journal of Cultural Economics*, *20*(3), 207-214. https://www.jstor.org/stable/41811149

Cowen, T., & Grier, R. (1966). Do artists suffer from a cost-disease? *Rationality and Society*, 8(1), 5–24. https://doi.org/10.1177/104346396008001001

Coyle, D. (2014) *GDP: A brief but affectionate history.* Princeton University Press.

Cramer, T., van der Duin, P., & Heselmans, C. (2016). Trend analysis. In P. van der Duin (ed.), *Foresight in organizations: Methods and tools* (pp. 40–58). Routledge.

Davies, R. B., & Guillin, A. (2014) How far away is an intangible? Services FDI and distance. *The World Economy*, 37(12), 1731–1750. https://doi.org/10.1111/twec.12142

Dayal McCluskey, P. (2016, January 3). Health expenses surging in Mass. *The Boston Globe*. https://www.bostonglobe.com/business/2016/01/03/health-care-costs-rising-faster/WUfquz4gBEjncURDm20b6L/story.html

Dewey, J. (1930). What I believe. In J. Dewey (ed.), *The collected works of John Dewey: The later works, 1925-1953* (Vol. 5, pp. 267–278). Southern Illinois University Press.

Dong, Z., & Phillips, M. R. (2008). Evolution of China's health-care system. *The Lancet, 372*(9651), 1715–1716. https://doi.org/10.1016/s0140-6736(08)61351-3

Easterly, W. (2002). *The elusive quest for growth: Economist's adventures in the tropics*. MIT Press.

Fan, Y. W., & Ku, E. (2010). Customer focus, service process fit and customer relationship management profitability: The effect of knowledge sharing. *Service Industries Journal, 30*(2), 203–223. https://doi.org/10.1080/02642060802120141

Ferris, J. S., & West, E. G. (1996). The cost disease and government growth: Qualifications to Baumol. *Public Choice, 89*(1–2), 35–52. https://www.jstor.org/stable/30024147

Fogel, R. (1999). Catching up with the economy, *American Economic Review*, *89*(1), 1–21. https://www.jstor.org/stable/i300825

Gaertner, G. H., & Ramnarayan, S. (1983). Organizational effectiveness, an alternative perspective. *Academy of Management Review*, *8*(1), 97–107. https://doi.org/10.2307/257172

Galbraith, J. K. (1994). *World economy since the wars: A personal view.* Houghton Mifflin.

George, B. (2003) *Authentic leadership. Rediscovering the secrets to creating lasting value*. John Wiley & Sons.

Gershuny, J., & Miles, I. (1983). *The new service economy: The transformation of employment in industrial societies.* Praeger Publishers.

Gustafsson, A., Högström, C., Radnor, Z., Friman, M., Heinonen, K., Jaakkola, E., & Mele, C. (2016). Developing service research – paving the way to trans-disciplinary research. *Journal of Service Management*, *27*(1), 9–20. https://doi.org/10.1108/JOSM-03-2015-0098

Hartwig, J., & Krämer, H. M. (2022). Baumol's cost disease in times of rising income inequality. In L. Fiorito, S. Scheall, & C. E. Suprinyak (eds.), *Research in the history of economic thought and methodology: Including a symposium on the work of William J. Baumol: Heterodox inspirations and neoclassical models* (Vol. 40B, pp. 27–48). Emerald Publishing Limited.

Haskel, J., & Westlake, S. (2018). *Capitalism without capital: The rise of the intangible economy.* Princeton University Press.

Hickman, L. A. (1992). *John Dewey's pragmatic technology*. Indiana University Press.

Holder, A. (1998). Developing the public sector balance sheet. *Economic Trends, 540,* 1–10.

Hughes, B. B., Kuhn, R., Peterson, C. M., Rothman, D. S., & Solorzano, J. R. (2011). *Improving global health: Patterns of potential human progress.* Paradigm.

Jansson, J. O. (2013). *The economics of services – micro-foundations, development and policy.* E. Elgar.

Johnson, D. R., Bruininks, R. H., Martha, L., & Thurlow, M. L. (1987). Meeting the challenge of transition service planning through improved interagency cooperation. *Exceptional Children*, *53*(6), 522–530.

Kaivo-oja, J. (1995). Työntekijä tehokkaan tuotannon inhimillisenä resurssina kunnassa. X-tehokkuusteorian näkökulma. *Kunnallistieteellinen aikakauskirja, 22*(3), 187–200. https://kansalliskirjasto.finna.fi/Record/arto.013709774

Kessler, D. (1991). A comment on technological imperatives, productivity and insurance costs. The *Geneva Papers on Risk and Insurance, 16*, 170–172. https://doi.org/10.1057/gpp.1991.14

Kinder, T. (2000). A sociotechnical approach to the innovation of a network technology in the public sector – the introduction of smart homes in West Lothian. *European Journal of Innovation Management, 3*(2), 72–90. https://doi.org/10.1108/14601060010322284

Kinder, T. (2010). E-government service innovation in the Scottish criminal justice information system. *Financial Accountability & Management*, *26*(1), 21–41. https://doi.org/10.1111/j.1468-0408.2009.00489.x

Kinder, T., & Burgoyne, T. (2013). Information processing and the challenges facing lean healthcare. *Financial Accountability and Management, 29*(3), 271–290. https://doi.org/10.1111/faam.12016

Kinder, T., Klaes, M., & Molina, A. (1999). Sociotechnical alignment in the build-up of a telemedicine constituency in Scotland. *Science and Public Policy*, *26*(6), 415–435. https://doi.org/10.3152/147154399781782185

Kotler, P. (1984). *Marketing management: Analysis, planning and control*. Prentice Hall.

Krueger, A. B. (2001). An interview with William J Baumol. *Journal of Economic Perspectives, 15*(3), 211–231. https://doi.org/10.1257/jep.15.3.211

Laitinen, I., Kinder, T., & Stenvall, J. (2018). Local public service productivity and performance measurement. *International Journal of Knowledge-Based Development*, *9*(1), 49–75. https://doi.org/10.1504/IJKBD.2018.10011607

Last, A.-K., & Wetzel, H. (2010). *Baumol's cost disease, efficiency, and productivity in the performing arts:*

An analysis of German public theatres (University of Lüneburg Working Paper Series in Economics, No. 173). University of Lüneburg.

Leibenstein, H. (1966). *Allocative efficiency and X-efficiency.* Oxford University Press.

Lev, B. & Gu, F. (2016). *The end of accounting and the path forward for investors and managers*. Wiley.

Liu, Y., Rao, K., Wu, J. & Gakidou, E. (2008). China's health system performance. T*he Lancet, 372,* 1914–1923. https://doi.org/10.1016/S0140-6736(08)61362-8

Mariani, L., & Cavenago, D. (2013). Redesigning welfare services for policies effectiveness: The non-profit organisations (NPOs) perspective. *Public Management Review*, *15*(7), 1011–1039. https://doi.org/10.1080/14719037.2012.758307

McGuire, L. (2012). Slippery concepts in context. *Public Management Review*, *14*(4), 541–555. https://doi.org/10.1080/14719037.2011.649975

Mitchell, R. C., & Carson, R. T. (1989). *Using surveys to value public goods: The contingent valuation method.* Resources for the Future.

Mouzas, S. (2006). Efficiency versus effectiveness in business networks. *Journal of Business Research, 59*(10–11), 1124-1132. https://doi.org/10.1016/j.jbusres.2006.09.018

Mulcahy, A. W., Schwam, D., & Lovejoy, S. L. (2024). International prescription drug price comparisons: Estimates using 2022 data. *RAND Health Quarterly, 11*(3), 5. https://www.rand.org/pubs/research_reports/RRA788-3.html

Newhouse, J. P. (1992). Medical care costs: How much welfare loss? *Journal of Economic Perspectives, 6*(3), 3–21. https://www.jstor.org/stable/2138297

Nordhaus, W. D. (2008). Baumol's diseases: A macroeconomic perspective. *Journal of Macroeconomics*, *8*(1), 1–39. https://www.degruyter.com/document/doi/10.2202/1935-1690.1382/html

OECD (2023). *9B Sheet. Balance sheets for non-financial assets. NS13: General government. Database*. OECD.

Osborne, S., Bond, S., Dutton, M., & Honore, E. (2012). *The opportunities and challenges of the changing public services landscape for the third sector in Scotland. A longitudinal study year one report: Baseline findings.* Scottish Government.

Osborne, S. P. (2017). From public service-dominant logic to public service logic: Are public service organisations capable of co-production and value co-creation? *Public Management Review, 20*(2), 225–231. https://doi.org/10.1080/14719037.2017.1350461

Osborne, S. P., Radnor, Z., & Strokosch, K. (2016). Co-production and the co-creation of value in public services: A suitable case for treatment? *Public Management Review*, *18*(5), 639–653. https://doi.org/10.1080/14719037.2015.1111927

Osborne, S. P., Radnor, Z., Kinder, T., Vidal, I., & Jenei, G. (2015). The SERVICE framework: A public-service-dominant approach to sustainable public services. *British Journal of Management*, *26*(3), 424–438. https://doi.org/10.1111/1467-8551.12094

Osborne, S. P., Radnor, Z., Vidal, I., & Kinder, T. (2014). A sustainable business model for public service organisations? *Public Management Review, 15*(2), 165–172. https://doi.org/10.1080/14719037.2013.872435

Ostrom, A. L., Parasuraman, A., Bowen, D., Patrício, L., & Voss, C.A. (2015). Service research priorities in a rapidly changing context. *Journal of Service Research*, *18*(2), 127–159. https://doi.org/10.1177/1094670515576315

Oulton, N. (2001). Must the growth rate decline? Baumol's unbalanced growth revisited. *Oxford Economic Papers*, *53*(4*),* 605–627. https://doi.org/10.1093/oep/53.4.605

Pascale, R. T., & Athos, A. (1981). *The art of Japanese management. Applications for American executives.* Simon and Schuster.

Pine, B. J., & Gilmore, J.H. (1999). *The experience economy*. Harvard Business School Press.

Radnor, Z., & Osborne, S. P. (2013). Lean: A failed theory for public services. *Public Management Review, 15*(2), 265–287. https://doi.org/10.1080/14719037.2012.748820

Radnor, Z., Osborne, S. P., Kinder, T., & Mutton, J. (2014). Operationalizing co-production in public services delivery: The contribution of service blueprinting, *Public Management Review*, *16*(3), 402–423. https://doi.org/10.1080/14719037.2013.848923

Raynor, M. E. (1998). That vision thing: Do we need it? *Long Range Planning, 31*(3), 368–376. https://doi.org/10.1016/S0024-6301(98)80004-6

Robinson, J. (1969). Macroeconomics of unbalanced growth: A belated comment. *American Economic Review*, *59*(4), 632.

Rubalcaba, L, & Kox, H. (2007). *Business services in European economic growth*. Macmillan.

Sassen, S, (2006). *Cities in a world economy*. Pine Forge Press.

Scitovsky, T. (1976). *The joyless economy: An inquiry into human satisfaction and consumer dissatisfaction.* Oxford University Press.

Shostack, G. (1977). Breaking free from product marketing. *Journal of Marketing, 41*(2), 73–80. https://doi.org/10.2307/1250637

Sparviero, S., & Preston, P. (2010). Creativity and the positive reading of Baumol cost disease. *The*

Service Industries Journal, 30(11), 1903–1917. https://doi.org/10.1080/02642060802627541

Stamp, M. E. (2014). Are the Woolf reforms an antidote for the cost disease. *Penn Law: Legal Scholarship Repository, 22,* 349–374. https://scholarship.law.upenn.edu/jil/vol22/iss2/4

Standfield, K. (2002). *Intangible management. Tools for solving the accounting and management crisis.* Academic Press.

Standing, G. (2016). *The corruption of capitalism: Why rentiers thrive and work does not pay.* Biteback.

Stenvall, J. (2017). *Kokeilut rubiikin kuutioina? Kokeilujen ja kokeilukulttuurin arviointi julkishallinnossa.* Kuntaliitton acta-sarja.

Towse, R. (2005). Alan Peacock and cultural economics. *The Economic Journal*, *115*(504), F262–F276. https://doi.org/10.1111/j.1468-0297.2005.01005.x

Triplett, J. E., & Bosworth, B. P. (2003). Productivity measurement issues in service industries: 'Baumol's Disease" has been cured. *Economic Policy Review, 9*(3), 23–33.

Van der Gaag, J., & Štimac, V. (2008). *Towards a new paradigm for healthcare sector*. Amsterdam Institute for International Development.

Vargo, S. L., & Lusch, R. F. (2004). Evolving to a new dominant logic for marketing. *Journal of Marketing, 68*(1), 1–17. https://doi.org/10.1509/jmkg.68.1.1.24036

Vargo, S. L., & Lusch, R.F., (2007). Service-dominant logic: Continuing the evolution. *Journal of Academic Marketing, 36,* 1–10. https://doi.org/10.1007/s11747-007-0069-6

Vargo, S. L., & Lusch, R.F. (2017). Service-dominant logic 2025. *International Journal of Research in Marketing, 34*(1), 46–67. https://doi.org/10.1016/j.ijresmar.2016.11.001

Vargo, S. L., Maglio, P. P., & Akaka, M. A. (2008). On value and value co-creation: A service systems and service logic perspective. *European Management Journal, 26*(3), 145–152. https://doi.org/10.1016/j.emj.2008.04.003

Vejlgaard, H. (2008). *The anatomy of a trend*. McGraw Hill.

Virtanen, P., & Stenvall, J. (2017). *Intelligent health policy: Theory, concept and practice*. Springer.

Vuorensyrjä, M. (2013). Work and labour in slow-progressive sectors of the economy. *Nordic Journal of Working Life Studies, 3,* 95–120. https://doi.org/10.19154/njwls.v3i1.2522

Walker, R. A. (2004). Is there a service economy? The changing capitalist division of labour. In T. J. Barnes, J. Peck, E. Sheppard, & A. Tickell (eds.), Reading economic geography (pp. 138–149). Blackwell Publishing.

Wanless, D. (2002). *Securing our future health care: Taking a long-term view. Final report*. HM Treasury

World Bank (2023). *Health expenditure per capita (current US$)*. https://data.worldbank.org/indicator/SH.XPD.CHEX.PC.CD

Winters, J.A. (2011). *Oligarchy.* Cambridge University Press.

Yousefi, M., Assari Arant, A., Sahabi, B., Kazemnejad, A. & Fazaeli, S. (2014). Household health costs: Direct, indirect and intangible. *Iranian Journal of Public Health*, *43*(2), 202–209. https://applications.emro.who.int/imemrf/Iran_J_Public_Health/Iran_J_Public_Health_2014_43_2_202_209.pdf