Evidence to the Productivity Commission

Productivity in the Adult Social Care Sector

Bernard H Casey

SOCial ECONomic RESearch

London and Frankfurt

October 2021

b.casey@soceconres.eu

The author is a retired academic who has worked at various universities and research institutes in the UK and abroad. He was, at one time, a senior economist at the OECD and was a frequent consultant to the European Commission.

repose to call of 24-9-21

Productivity in the Adult Social Care Sector

The current adult social care labour force in England consists of 1.67m people. As such, it is greater than the relevant NHS workforce (1.3m).[1] The total number of people in work at this time in the whole of England was some 27.4m.[2] Accordingly, the social care workforce makes up rather over six per cent of the total English workforce.

What we know about productivity

As a part of the service sector, productivity measurement is difficult.[3] Output could be measured in terms of care hours provided. The fact that many care workers are employed part-time of itself makes this difficult. However, hours of care provided makes no reference to the quality of the care that is delivered. The fact that funders of ambulant care (care at home) pay for minimum periods of service – sometimes no more than 15 minutes – is widely recognised to diminish quality. In residential care homes, understaffing is equally recognised as a problem.[4]

Since the early 2010s, the ONS has started to include a quality component into its adult social care productivity measure – basing this on returns from the NHS Digital Adult Social Care Survey (ONS, 2019; *ibid*, 2021). Latest figures indicate that productivity has been more less flatlining over the past decade. In this respect, social care is performing less well than the economy as a whole.

Figure 1: Adult social care productivity growth
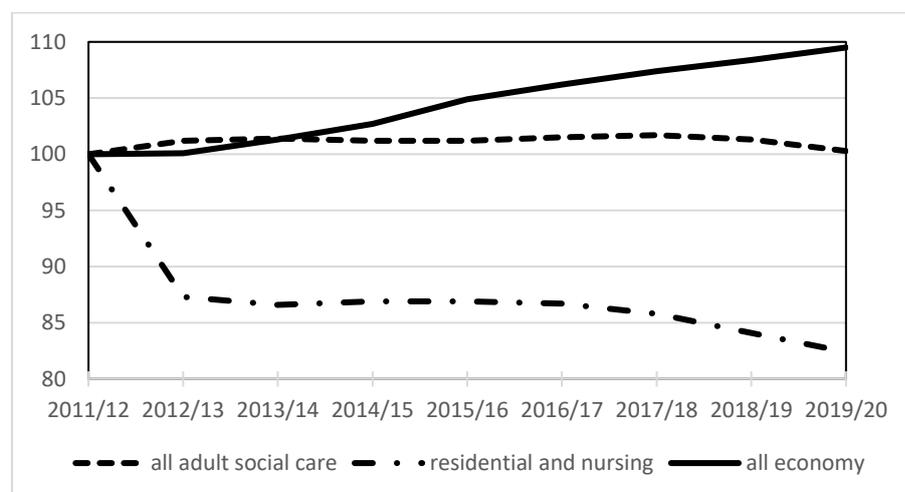
Source: ONS and own calculations (residential and nursing fell by 12.7 % in 2011/12)

---

[1] See Skills for Care at https://www.skillsforcare.org.uk/adult-social-care-workforce-data/Workforce-intelligence/publications/national-information/The-size-and-structure-of-the-adult-social-care-sector-and-workforce-in-England.aspx.

[2] See https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/datasets/headlinelabourforcesurveyindicatorsforallregionshi00.

[3] It is to be noted that the sole publication of the Productivity Institute concerning productivity in the health service (Coyle *et al*, 2021) does not deal with adult social care at all. One study of productivity in low wage industries (Forth and Aznar, 2019) shows value added per worker in social care as £13 per hour in 2015 – lower than any other sector bar agriculture (£12). However, this study uses output as measured in national accounts and suffers from the deficiencies these have.

[4] See AgeUK, 2020.

What is more, even if an output could be determined, the labour market is not a competitive on, so that there is no good reason for wages to reflect marginal productivity. Most basic care workers are paid at the statutory minimum wage or little above it. Most of care is paid for out of constrained public finances, but private self-payers also have limited resources.[5]

With respect to productivity, the care workforce also displays the classic symptoms of the "Baumol curse". This initially alluded to the productivity of a string quartet. Productivity cannot be enhanced by removing one member from the quartet and expecting an equivalent output. Indeed, the product would be destroyed.[6] Insofar as social care involves a high proportion of one-to-one work the apparent scope for productivity growth in the sector – holding quality constant – is also constrained. This contributes to pressure on keeping wages as low as possible.

The need for productivity enhancement

At the same time, the proportion of the population likely to be in need of care is growing. The population aged 80 and above is projected to be the fastest growing part of the population for many decades to come. All things being equal, this demands a higher number of people working in adult social care. The author has made projections for Germany – a country with a rapidly ageing population. These show that, by 2050, the proportion of the workforce so employed would increase from its current 2.5 per cent to some 7 per cent. The only mitigating factor would be an improvement in the physical and mental health of the old people concerned – in other words, a substantial reduction in their "dependency". Even with the best estimates of the latter, the share of care staff in the total workforce would have risen to nearly 3.5 per cent by 2050.[7]

Figure 2: Projections of the care workforce in Germany
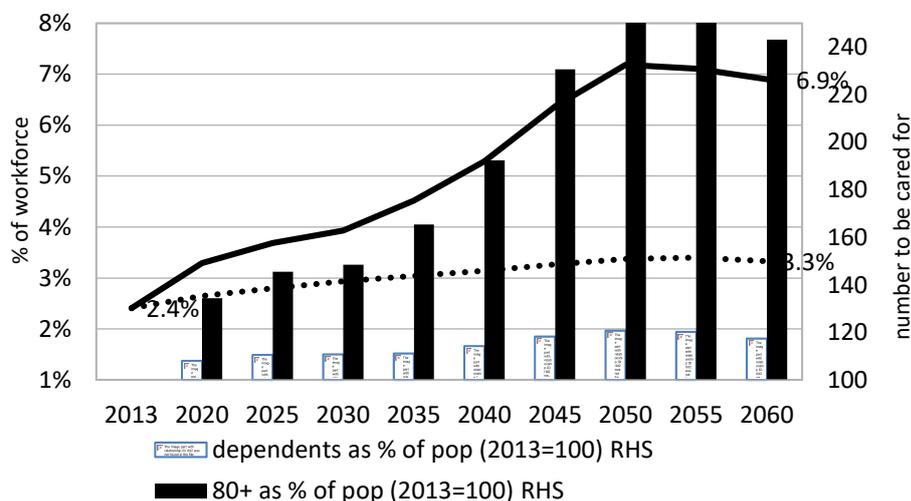
Source: Statistisches Bundesamt and own calculations

---

[5] According to Skills for Care, 73 per cent were paid less than the national living wage. https://www.skillsforcare.org.uk/adult-social-care-workforce-data/Workforce-intelligence/publications/Topics/Pay-rates.aspx.

[6] See Baumol and Bowen, 1966. The curse is sometimes referred to as "Baumol's cost disease" and sometimes as the "Baumol effect". Baumol (1993) expanded on the subject to cover education and healthcare.

[7] For the UK, PA Consulting quotes a figure of 800,000 more care workers being required in England by 2035 (PA 2020). This is nearly 50 per cent more than there are currently.

On this basis, the country might come close to the situation of the island of the west coast of Scotland, where the economy operated – or rather didn't – on the basis of every family taking in the next family's washing.[8]

Baumol, himself, saw solutions as lying in society's willing ness to allocate a greater share of resources to sectors such as education and health – pointing out that this greater share would be financed out of a rapidly rising level of total income. He did not talk of productivity except in the sense that it is this that enabled the higher total income that can be allocated to such services (Baumol, 1993). The Productivity Commission, however, faces a much more fundamental problem – is there any way in which the productivity of what is already six per cent of the English workforce can be enhanced whilst wages are not cut further and quality can be enhanced? Even better, could earnings be increased and quality improved? Addressing these issues requires turning to the issues of technology.

Conventionally, it is assumed that improving employee training leads to an increase in productivity. With respect to one-to-one personal service, if there is an impact, it might be assumed to be in terms of quality rather than quantity. Skills for Care, the body concerned with vocational training in the sector, describes how training increases skills, confidence, knowledge and behaviours that support the overall delivery of care, and how this can help reduce time in managing staff performance. In addition, by developing staff, the latter are likely to stay longer, which can save money by reducing the costs of recruitment. If, having been given training, employees feel more committed, they might deliver better care than otherwise (Moriaty *et al*, 2018). It is certainly the case that the sector has seen a massive increase in the number of employees, even at the lowest level, holding an approved qualification. Currently, nearly half (48 per cent) of direct care workers in England have one.[9] Moreover, in 2016/17, nearly one in five apprenticeships in England in were in the care sector (SfC 2020).

The role of automation

If productivity cannot be enhanced by training, the alternative is to increase capital. At first sight, this might seem a strange option. After all, in almost any presentation illustrating the opportunities for jobs to be automated, social care appears as an outlier. Graphs will show opportunities for automation/AI (vertical axis) and wage/skill level (horizontal axis) that present downward sloping lines. Yet one-to-one, personal service jobs are both low on wages/skills and low on automation risk.

Efforts at automation have been made in at least one country – Japan. Japan is experiencing a rapidly ageing population. What is more, it is an extremely closed society. Unlike many countries – including the UK and Germany – that have relied upon immigrant labour to supply the care sector,

---

[8] This story is variously attributed to Marx, Keynes, Mark Twain and William Morris and is widely circulated. The initial reference seems, in fact, to be to the Isle of Man (Dicey, 1866).
[9] See https://www.skillsforcare.org.uk/adult-social-care-workforce-data/Workforce-intelligence/publications/national-information/The-state-of-the-adult-social-care-sector-and-workforce-in-England.aspx. The qualification is not necessarily a social care specific one.

Japan has largely avoided this route.[10] Instead, Japan has turned to the introduction of IT and robots. Given these preferences – an apocryphal story was of a survey that showed that the majority of older people preferred to be treated by a robot than a foreigner – such a course is not surprising.[11] Examples are also to be found in some Nordic countries.

Along with IT-based procedures that facilitate management and information exchange by care providing bodies, automated interventions can be placed into three categories: viz
   1) transfer aid robots, which assist care workers with moving individuals such as from bed to wheelchair and from a wheelchair to a bathroom;
   2) mobility robots, which assist residents with eating, movement, toileting and bathing; and
   3) communication and monitoring robots, which provide comfort and interaction for people receiving care, allow communication between the carer and the cared for person and between different care staff.

Devices can be installed in people's own homes or installed in residential facilities. They can also be placed into smartphones. They enable carers to carry out heavy physical tasks, enable people to undertake tasks without assistance and provide companionship between (informal) carers and for people being cared for.[12] By reducing effort and stress on care givers, devices can improve the quality of the care they deliver.

It is widely acknowledged that the use of technology raises questions, including that of safety (Sharkey and Sharkey, 2012). Yet determining liability of care staff and care homes is not new. Digitalisation and data transfer raise questions of ethics, but these are pervasive and not specific to long-term care or health service specific (Source ETHICS). Last, many argue that the use of robots and devices depersonalises care and thus diminishes its quality (Wachsmuth, 2018). Countering that is the response of a parent of a disabled adult child who pointed out that a smart toilet enormously increased the self-confidence and life satisfaction of the latter.[13]

Some have reported a reluctance of the care workforce to engage with technologies (OECD, 2020). On the other hand, changing the skill mix and placing more emphasis on technology-based solutions might help to attract and retain workers. The workforce is overwhelmingly female. Germany, in the late 1970s, had sought to improve female apprentices into what had been traditionally male occupations under the headline *Mädchen in Männerberüfe* (Girls in Men's Jobs) (Heinz and Krüger, 1981). The care sector could play that headline in reverse.

---

[10] There have been some limited attempts to hire from the Philippines on a temporary basis, with those recruited being able to stay only if they have passed rigorous language tests. These exercises have not proved successful. See, *inter alia*, Emont, 2017.

[11] The story was widely reported, including in "respectable" sources – see, for example, Sender, 2015. There was, indeed, a survey carried out in 2013 that showed some 60 per cent of people in Japan were happy to be cared for by a robot – see Cabinet Office, 2013. Higher shares (c 80 per cent) have been found in later surveys – see Japan Times, 2018.

[12] A much-quoted example of the last is "Paro", the communicative seal. It is often shown being "petted" by a single elderly person, but Paros were also distributed to children displaced following the Fukushima tsunami (Ito, 2012).

[13] This story was communicated by the former head of the Australian National Disability Insurance Agency (NDIA) at a conference.

Japan has sought to encourage robotisation not merely across sectors such as manufacturing but also in areas such as social care.   The Ministry of Economy, Trade and industry (METI) has estimated that sales of service robots for the nursing and care industry – currently $1.6bn – will be worth $11bn by 2035 – a time when over one in seven of the population will be aged 80+. Subsidies to care homes to promote their use have been available for several years now (METI, 2017). However, whilst there is much information available on what automation/robotisation and improved IT can do with respect to manufacturing, there is very much less available about what its impact has been either services or, more specifically, in the care sector itself.[14]

The productivity impact of automation

One example does stand out – a study of robots in residential care and nursing homes in Japan based upon information collected in 2017 (Eggleston *et al*, 2021). This looked at whether there was an impact of robot use on employment and wages. Productivity, *per se*, was not measured. The results reported suggest that, if anything, there was an increase in numbers employed in non-regular jobs – part-time and temporary workers – and a decrease in earnings of both regular and non-regular employees.

Both the positive employment impact and the negative wage impact can, in fact, be interpreted in productivity terms. Employment is measured in persons, not in hours. It was possible that more employees were employed at fewer hours. More were employed when they were needed, but fewer when they were not. Earnings falls, the study's authors concede, might well have resulted from regular workers having to work less, particularly "out of hours" and at night. This might have been because monitoring devices took on some tasks they had previously had to do. Thus, although the results have often been portrayed as countering arguments that robots are job-killers, they can also be presented as suggesting opportunities for productivity enhancement.

Conclusions

The Productivity Commission should direct attention to a sector that is both large and growing. It should investigate both how productivity is measured, and what the implications of its current level for the medium term will be. It should look at opportunities for productivity enhancement – both by drawing from information that is available and by carrying out its own research.

This note commenced by referring to the "Baumol curse". In the course of it being produced, the author read about how, at the delayed World Expo in Dubai that opened on 1st October, there would be a robot orchestra playing Beethoven (Kerr, 2021).[15] If a solution has been found here, the implications are enormous. The use of a robot orchestra, and not only a robot string quartet, could be seen as opening a way for a high-wage, high-productivity, automated arts sector – and what is more, one with no immigration, too. It might be possible to do the same in the social care sector. The prime minister's dreams could become true.[16]

---

[14] Examples of descriptions of devices can be seen at Neumann, 2016 and Hirukawa, 2018).
[15] More details are at https://www.expo2020dubai.com/en/news/20190626-germany-pavilion.
[16] The speeches/statements laying out these aims are reported by Strauss and Parker, 2021.

References

AgeUK (2020) *Time to bring our care workers in from the cold*. London: AgeUK at https://www.ageuk.org.uk/globalassets/age-uk/documents/reports-and-publications/time-to-bring-our-care-workers-in-from-the-cold-2nd-november-2020.pdf.

Baumol, W (1993) Health care, education and the cost disease: A looming crisis for public choice, in *Public Choice*, Vol. 77, pp. 17-28.

Baumol, W. and Bowen, W. (1966). *Performing arts: The economic dilemma*. New York: Twentieth Century Fund.

Cabinet Office, (2013)介護ロボットに関する特別世論調査」の概要 (*Outline of the Special Opinion Poll on Nursing Care Robots*) at https://survey.gov-online.go.jp/tokubetu/h25/h25-kaigo.pdf.

Coyle , D. Dreesbeimdieck, K. and Manley, A. (2021) *Productivity in UK healthcare during and after the Covid-19 pandemic*. The Productivity Institute (working paper No.002).

Dicey, E. (1866) *The Battle-Fields of 1866: The Island of Heligoland*, London: Tinsley Brothers.

Eggleston, K., Lee, Y. and Iizuka, T. (2021) *Robots and Labor in the Service Sector: Evidence from Nursing Homes*. Cambridge, MA: NBER (Working Paper 28322).

Emont. J. (2017) Japan Prefers Robot Bears to Foreign Nurses, in *Foreign Policy*, 1-3-2017 https://foreignpolicy.com/2017/03/01/japan-prefers-robot-bears-to-foreign-nurses//

Forth, J. and Aznar, A. (2019) *Productivity in the UK's low-wage industries*. York: Joseph Rowntree Foundation.

Heinz, W, and Krüger, H. (1981) Berufsfindung unter dem Diktat des Arbeitsmarkts. Zur Entstehung weiblicher Normalbiographien (Job search under the dictates of the labour market: how the norms for women come about), in *Zeitschrift für Pädagogik*, Vol. 27, No. 5, pp. 661-676.

Hirukawa, H (2018) Development and Implementation of Nursing-Care Robots, at https://fpcj.jp/wp/wp-content/uploads/2018/02/abfebfdfdc88e24150a5a2cfd1b5030f.pdf.

Ito, S. (2012) Robot seals heal hearts of Japan tsunami survivors in *Phys.Org*, at https://phys.org/news/2012-02-robot-hearts-japan-tsunami-survivors.html.

Japan Times (2018) Over 80% of Japanese positive about robotic nursing care, in *Japan Times*, 15-11-18.

Kerr, S. (2021) Robot orchestra and opera greats: Dubai bets on economic boost from 'world's greatest show', in *Financial Times*, 1-10-15.

METI (2017) *Revision of the Priority Areas to Which Robot Technology is to be Introduced in Nursing Care*. Ministry of Economy, Trade and Industry at https://www.meti.go.jp/english/press/2017/1012_002.html.

Moriarty, J., Manthorpe, J., and Harris, J. (2018). *Recruitment and retention in adult social care services*. London: Social Care Workforce Research Unit, Policy Institute at King's.

Neumann, D. (2016) *Human Assistant Robotics in Japan: Challenges and Opportunities for European Companies*. Tokyo: EU-Japan Centre for industrial Cooperation.

OECD (2020) Who Cares? Attracting and Retaining Care Workers for the Elderly. Paris: OECD.

ONS (2019) Public service productivity: adult social care, sources and methods, 2019 update, at https://www.ons.gov.uk/economy/economicoutputandproductivity/publicservicesproductivity/methodologies/publicserviceproductivityadultsocialcaresourcesandmethods2019update.

ONS (2021) Public service productivity, adult social care, England: financial year ending 2020, at https://www.ons.gov.uk/economy/economicoutputandproductivity/publicservicesproductivity/articles/publicserviceproductivityadultsocialcareengland/financialyearending2020.

PA(2020) *Robotics in Care: a Moment of Opportunity*. London: PA Consulting.

Sender, H. (2015) Reforms needed to lift Japan's economy: Two years of Abenomics has boosted little more than asset prices, in *Financial Times*, 7-4-15.

SfC (2018) *Scoping study on the emerging use of Artificial Intelligence (AI) and robotics in social care Final Report* at https://www.skillsforcare.org.uk/Documents/Topics/Digital-working/Robotics-and-AI-in-social-care-Final-report.pdf.

SfC (n. d.) *What is an apprenticeship?* at https://www.skillsforcare.org.uk/Documents/Learning-and-development/Apprenticeships/What-is-an-apprenticeship.pdf.

SfC, 2020 *The state of the adult social care sector and workforce in England* at https://www.skillsforcare.org.uk/adult-social-care-workforce-data/Workforce-intelligence/documents/State-of-the-adult-social-care-sector/The-state-of-the-adult-social-care-sector-and-workforce-2020.pdf.

Sharkey, A. and Sharkey, N. (2012) Granny and the robots: ethical issues in robot care for the elderly, in *Ethics in Information Technology*, Vol. 14, pp 14, 27-40.

Strauss, D. and Parker, G. (2021) Boris Johnson's post-Brexit immigration reforms start to bite, in *Financial Times*, 30-9-21.

Wachsmuth, I. (2018) Robots Like Me: Challenges and Ethical Issues in Aged Care, in *Frontiers in Psychology*, Volume 9, Article 432.