

Does Public Adult Social Care Expenditure Improve Care-Related Quality of Life in England?

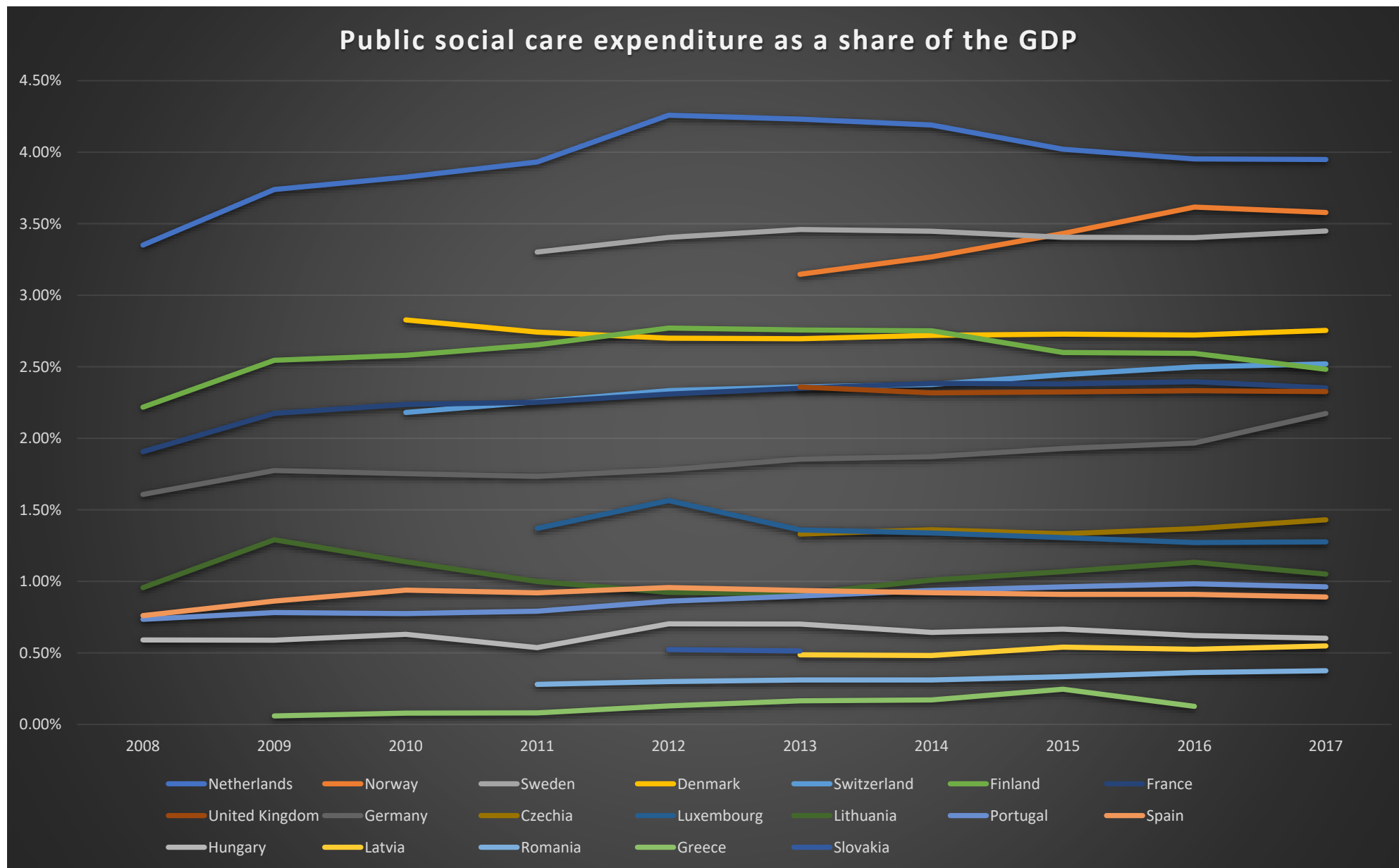
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Outline

- Introduction, research question, related studies
- Institutional background
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- Discussion and conclusion

Introduction



Introduction and research question

- Social care mostly consists of medical and social services to individuals with chronic conditions or disability that have difficulties with their activities of daily living
- Social care aims to improve quality of life but it also supports the health care sector
- Does public adult social care expenditure improve quality of life? To what extent?

Related studies (1 of 3)

- Forder et al. (2014, HE) is one of the first study to explore the effects of public social care expenditure on care-related quality of life
 - Focus on home care for users aged 65 and above
 - Cross-sectional survey data, 301 users
 - Employ IV approach
 - They estimate a threshold of £50K per SC-QALY

Related studies (2 of 3)

- Forder et al. (2018, HE) explores the effects of social care expenditure on care-related quality of life
 - Focus on community care services with no distinction between public and private services
 - Cross-sectional survey data, 622 users
 - Employ IV approach
 - They estimate a threshold of £15K (low-need group) and £19K (high-need group) per SC-QALY

Related studies (3 of 3)

- Other studies focus on the effect of public social care expenditure/services on:
 - Mortality (Watkins et al. 2017)
 - Hospital outcomes (e.g. Fernandez and Forder, 2008, Forder, 2009, Gaughan et al., 2015)
- So, what is the effect of *total* public social care expenditure on quality of life?

Institutional background (1 of 4)

- Our study focuses on Adult Social Care in England which is under the responsibility of 152 local authorities:
 - Long-term care
 - Residential care
 - Nursing care
 - Community care
 - Short-term care
 - Assistive equipment, adaptation and technologies
 - Information and early intervention services
 - Auxiliary social care services

Institutional background (2 of 4)

- Type of adult social care expenditure in 2017/18

Variable	Total (£000)	Prop
Total national current expenditure for adult social care	21,159,164	
National current expenditure for long-term support	16,044,896	75.8%
National current expenditure for short-term support	895,319	4.2%
National current expenditure for equipment, adaptations and technologies	411,921	1.9%
National current expenditure for information and early intervention	290,022	1.4%
National current expenditure for auxiliary social care activities	2,063,491	9.8%
National current expenditure for commissioning and service delivery	1,453,516	6.9%

Institutional background (3 of 4)

- Most adult social care services can be accessed only after assessment of needs and financial eligibility criteria
- Ineligible users can still purchase adult social care services provided by local authorities or in the private market
- All individuals can receive informal care from family and friends

Institutional background (4 of 4)

- Local authorities mostly fund adult social care using revenues from council tax and business rates and grants from the central government
 - Council tax is the main source of local revenues
 - Business rates tax revenues can be only partially used by local authorities
 - Grants from the central government are distributed according to a relative needs formula

Data sources

- Various sources in the public domain including NHS Digital, Census, Ministry of housing website, and Government website
 - Adult Social Care Survey
 - Adult Social Care Financial Returns
 - Short and Long Term Support
 - Others

Adult Social Care Survey (ASCS)

- ASCS is an annual cross-sectional survey since 2010/11 and includes a large questionnaire
- The target population includes adult long-term care users, who are represented through a stratified sample with a response rate always above 30%
- The final sample is based on ASCS in 2017/18 and includes 49,907 across 149 local authorities
- The ASCS provides ASCOT score and user characteristics

Expenditure and activity data

- Adult Social Care Finance Returns (ASC-FR) in 2017/18
 - It includes public expenditure on all services, overheads, and commissioning and delivery services
 - Focus on long-term care expenditure only as well
- Short and Long Term Support (SALT) in 2017/18
 - Number of users receiving public long-term care services

Variables at user level

Variable at the user level	Mean	Std Err	Std Dev
Outcome			
Care-related quality of life	0.822	0.003	0.192
Gender			
Male user (ref)	41.8%	0.005	0.493
Female user	58.2%	0.005	0.493
Age			
User aged 65 years old or younger (ref)	42.8%	0.016	0.495
User older than 65 years old	57.2%	0.016	0.495
Ethnicity			
User of white ethnicity (ref)	90.0%	0.006	0.300
User of non-white ethnicity	8.3%	0.006	0.276
User who did not state ethnicity	1.7%	0.002	0.130
Language			
User whose questionnaire was in English (ref)	99.88%	0.0005	0.0351
User whose questionnaire was in non-English European languages	0.02%	0.0001	0.0142
User whose questionnaire was in South Asian languages	0.06%	0.0005	0.0254
User whose questionnaire was in Middle Eastern languages	0.04%	0.0002	0.0197
Type of support			
User who received physical support (ref)	54.8%	0.014	0.498
User who received sensory support	1.6%	0.001	0.124
User who received support with memory and cognition	5.2%	0.003	0.221
User who received learning disability support	28.0%	0.016	0.449
User who received mental health support	8.3%	0.005	0.276
User who received social support	2.2%	0.002	0.146
Help with questionnaire			
User who did not receive help with questionnaire	18.0%	0.005	0.384
User whose questionnaire was read by someone else	49.8%	0.006	0.500
User whose questionnaire was translated by someone else	23.7%	0.010	0.425
User whose questionnaire was only filled in by someone else	40.7%	0.004	0.491
User whose questionnaire was talked through with someone else	29.4%	0.003	0.456
User whose questionnaire was answered without asking by someone else	9.0%	0.003	0.287
Questionnaire version			
User who received a standard questionnaire (ref)	72.3%	0.016	0.448
User who received an easy-read questionnaire	27.7%	0.016	0.448
Other care received			
User who received informal care	80.6%	0.004	0.396
User who received private social care services	36.7%	0.006	0.482
User who received informal care and private social care services	32.4%	0.006	0.468
Observations		49,907	

Variables at local authority level (1 of 3)

Variable at the local authority level	Mean	Std Dev	Min	Max
Expenditure and activity				
Public adult social care expenditure (£000s)	140,414	103,508	15,739	585,225
Public long-term care expenditure (£000s)	106,585	82,544	8,636	482,208
Number of long-term care users	5,627	4,085	415	22,585
Public adult social care expenditure (£000s) per user	26	5	15	43
Public long-term care expenditure (£000s) per user	19	3	11	28
Type of local authority				
Inner London borough (ref)	8.1%	0.273	0	1
Outer London borough	13.4%	0.342	0	1
County	17.4%	0.381	0	1
Metropolitan district	24.2%	0.430	0	1
Unitary authority	36.9%	0.484	0	1
Activities of daily living in the past two years				
Users who cannot manage personal hygiene by themselves 2016/17	44.3%	5.9%	26.2%	58.8%
Users who cannot manage continence by themselves 2016/17	23.1%	4.6%	10.9%	35.3%
Users who cannot dress by themselves 2016/17	33.4%	5.5%	18.0%	46.4%
Users who cannot feed by themselves 2016/17	8.3%	2.3%	2.6%	21.2%
Users who cannot ambulate by themselves 2016/17	26.6%	4.6%	14.6%	38.2%
Users who cannot manage personal hygiene by themselves 2015/16	43.3%	7.0%	3.9%	59.8%
Users who cannot manage continence by themselves 2015/16	22.1%	4.6%	3.9%	35.8%
Users who cannot dress by themselves 2015/16	32.2%	6.1%	3.9%	50.5%
Users who cannot feed by themselves 2015/16	7.8%	2.2%	3.9%	14.7%
Users who cannot ambulate by themselves 2015/16	25.8%	5.0%	3.9%	39.6%
Disability				
People who are sight impaired 2016/17	0.5%	0.2%	0.1%	1.3%
People who are hearing impaired 2010	0.4%	0.3%	0.0%	1.6%
People who are sight and hearing impaired 2016/17	0.04%	0.04%	0.00%	0.2%
People aged 65 and above with dementia	6.4%	0.5%	5.1%	9.2%
People whose disability does not limit daily activities (ref)	82.3%	3.3%	74.4%	88.8%
People whose disability limits daily activities a little	9.2%	1.4%	6.0%	12.3%
People whose disability limits daily activities a lot	8.4%	2.0%	4.7%	14.2%
Disability deprivation 2015: quartile 1 (ref: least deprived)	23.5%	0.425	0	1
Disability deprivation 2015: quartile 2	25.5%	0.437	0	1
Disability deprivation 2015: quartile 3	25.5%	0.437	0	1
Disability deprivation 2015: quartile 4 (most deprived)	25.5%	0.437	0	1
People aged 18-64 claiming Disability Living Allowance	2.6%	3.1%	0.4%	17.6%
People aged 65 and above claiming Attendance Allowance	2.4%	3.1%	0.4%	20.2%

Variables at local authority level (2 of 3)

Variable at the local authority level	Mean	Std Dev	Min	Max
Tenure				
Households with more than a person (ref)	69.4%	3.6%	53.5%	77.4%
Single-person households aged 0-64	18.6%	4.1%	11.9%	36.0%
Single-person households aged 65 and above	12.0%	2.1%	6.0%	16.7%
People in household with up to 0.5 persons per bedroom (ref)	13.7%	3.1%	5.4%	23.0%
People in household with 0.5 to 1.0 persons per bedroom	48.2%	5.6%	24.5%	55.1%
People in household with 1.0 to 1.5 persons per bedroom	21.7%	2.0%	16.9%	27.0%
People in household with over 1.5 persons per bedroom	16.4%	7.5%	6.8%	47.0%
People who are house owners	62.1%	11.4%	26.1%	80.9%
Socio-economic status				
Population density per 10,000 people	0.2722	0.3259	0.0063	1.5814
People who are students or in a non-routine occupation (ref)	82.7%	4.6%	72.6%	92.6%
People who are in routine occupation	11.2%	3.3%	4.0%	19.7%
People who never worked and are long-term unemployed	6.1%	2.6%	2.6%	14.3%
Education deprivation 2015: quartile 1 (ref: least deprived)	23.5%	0.425	0	1
Education deprivation 2015: quartile 2	25.5%	0.437	0	1
Education deprivation 2015: quartile 3	25.5%	0.437	0	1
Education deprivation 2015: quartile 4 (most deprived)	25.5%	0.437	0	1
Income deprivation 2015: quartile 1 (ref: least deprived)	23.5%	0.425	0	1
Income deprivation 2015: quartile 2	25.5%	0.437	0	1
Income deprivation 2015: quartile 3	25.5%	0.437	0	1
Income deprivation 2015: quartile 4 (most deprived)	25.5%	0.437	0	1
People with income support	1.7%	1.8%	0.2%	10.8%
People with pension credit	6.6%	7.6%	1.3%	43.3%

Variables at local authority level (3 of 3)

Variable at the local authority level	Mean	Std Dev	Min	Max
Informal unpaid carer characteristics				
Male carers (ref)	31.2%	3.3%	20.6%	39.8%
Female carers	68.8%	3.3%	60.2%	79.4%
Carers aged 18-64 (ref)	56.0%	9.1%	33.5%	81.2%
Carers aged 65 and above	44.0%	9.1%	18.8%	66.5%
Carers of white ethnicity (ref)	80.7%	19.2%	23.5%	100.0%
Carers of non-white ethnicity	12.8%	17.8%	0.0%	71.5%
Carers who did not state ethnicity	6.4%	9.7%	0.0%	67.3%
Carers with Physical impairment	20.5%	4.0%	13.9%	50.0%
Carers with sight or hearing loss	16.5%	3.5%	0.0%	24.3%
Carers with long-standing illness	28.6%	4.6%	0.0%	41.0%
Carers who is retired	50.4%	7.8%	23.1%	65.5%
Carers who is employed	18.9%	4.2%	7.9%	29.4%
Carers who is self-employed	4.8%	2.1%	0.9%	16.7%
Carers who is unemployed	21.3%	4.5%	12.4%	36.4%
Carers who is not in paid work because of caring role	22.3%	7.2%	10.2%	52.0%
Carers who is in paid work but do not feel supported by their employer	3.9%	1.6%	0.0%	12.5%
Carers who is self-employed but unable to balance work and caring role	1.5%	0.9%	0.0%	4.9%
Carers with no financial difficulties because of caring role (ref)	53.4%	7.0%	34.1%	68.9%
Carers with financial difficulties because of caring role	46.6%	7.0%	31.0%	65.9%
Carers who live with care recipient (ref)	75.1%	8.1%	41.4%	90.1%
Carers who do not live with care recipient	24.9%	8.1%	9.9%	58.6%
Carers in caring role for less than 6 months (ref)	0.5%	0.6%	0.0%	4.6%
Carers in caring role between 6 months and 1 year	2.3%	1.1%	0.0%	5.0%
Carers in caring role for more than 1 year	97.2%	1.4%	93.7%	100.0%
Carers who provide personal care	68.8%	6.3%	23.9%	82.1%
Carers who provide physical help	57.7%	6.0%	16.5%	71.0%
Carers who provide other practical help	92.5%	2.9%	82.2%	98.4%
Carers who provide help with medicines	76.7%	5.7%	52.2%	90.3%
Carers who provide emotional support	84.0%	3.4%	69.8%	93.5%
Carers who care for no more than 19 hours per week (ref)	14.9%	6.0%	5.4%	43.2%
Carers who care for 20 hours or more although may vary	6.8%	2.0%	0.0%	15.1%
Carers who care for 20 to 49 hours per week	15.5%	3.1%	9.0%	24.1%
Carers who care for no less than 50 hours per week	50.9%	8.0%	28.4%	75.5%
Carers who care for other unspecified amounts of time	11.8%	4.9%	0.0%	24.3%
Instruments				
Council tax base per user	26.6	7.9	13.5	56.5
Business rate tax base per user	1.3	0.6	0.4	4.0
Area cost adjustment index 2013/14	1.041	0.058	1.000	1.198

Methods: empirical strategy

- We implement the following multilevel model:

$$CRQoL_{ij} = \mu + \beta \text{expenditure}_j^{\text{public}} + \gamma n_{ij} + \delta N_j + \theta g_j + \omega P_{ij} + \phi c_{ij} + \alpha_j + \varepsilon_{ij}$$

- We estimate this regression by WLS and cluster standard errors to account for sample design
- β captures the marginal effect of public adult social care expenditure
 - It is likely to be downwards biased

Methods: addressing endogeneity

- Instrumental variables for expenditure must be:
 - Relevant
 - Exogenous
- Funding system approach is valid conditional on socio-economic status:
 - Council tax base
 - Business rates tax base
 - Area Cost Adjustment index

Results: main analysis

Variable	(1)	(2)	(3)	(4)
	Adult Social Care		Long term-care	
	OLS	IV	OLS	IV
Current expenditure (£000s) per user	0.0019*** (0.0006)	0.0031*** (0.0009)	0.0020*** (0.0008)	0.0044*** (0.0013)
Observations	49,907	49,907	49,907	49,907

*** = p-value<0.01, ** = p-value<0.05, * = p-value<0.1

First-stage IV results

Variable		(1)	(2)	(3)	(4)
		Adult social care		Long term-care	
Instruments	Council tax base per user	0.693*** (0.035)	0.666*** (0.041)	0.485*** (0.485)	0.489*** (0.033)
	Business rate tax base per user		-0.114 (0.249)		-0.073 (0.208)
	Area cost adjustment index for older adult 2013/14		23.847*** (8.983)		-0.8230 (7.804)
Observations		49,907	49,907	49,907	49,907
First stage Kleibergen-Paap rk Wald F statistic		399.8	159.6	316.2	110.0
Over-identification test (Hansen J statistic) p-value		-	0.583	-	0.436

*** = p-value<0.01, ** = p-value<0.05, * = p-value<0.1

Discussion and conclusion (1 of 2)

- We find that by increasing public adult social care expenditure per user by £1,000, CRQoL increases by 0.0031 SC-QALYs
 - This translates into about £323K per SC-QALY
- Various reasons why this effect is relatively small
 - Heterogeneity of effects across services
 - Heterogeneity of effects across CRQoL distribution
 - Important role of effects on mortality

Discussion and conclusion (2 of 2)

- There are limitations about what we can learn from this study:
 - Effect on mortality and inequality?
 - Effect on productivity across sectors?
 - Changes in the eligibility levels?
- Our findings can inform policy makers about the effects of changes in public adult social care expenditure on quality of life

Thank you!