State and self investments in health in an older population
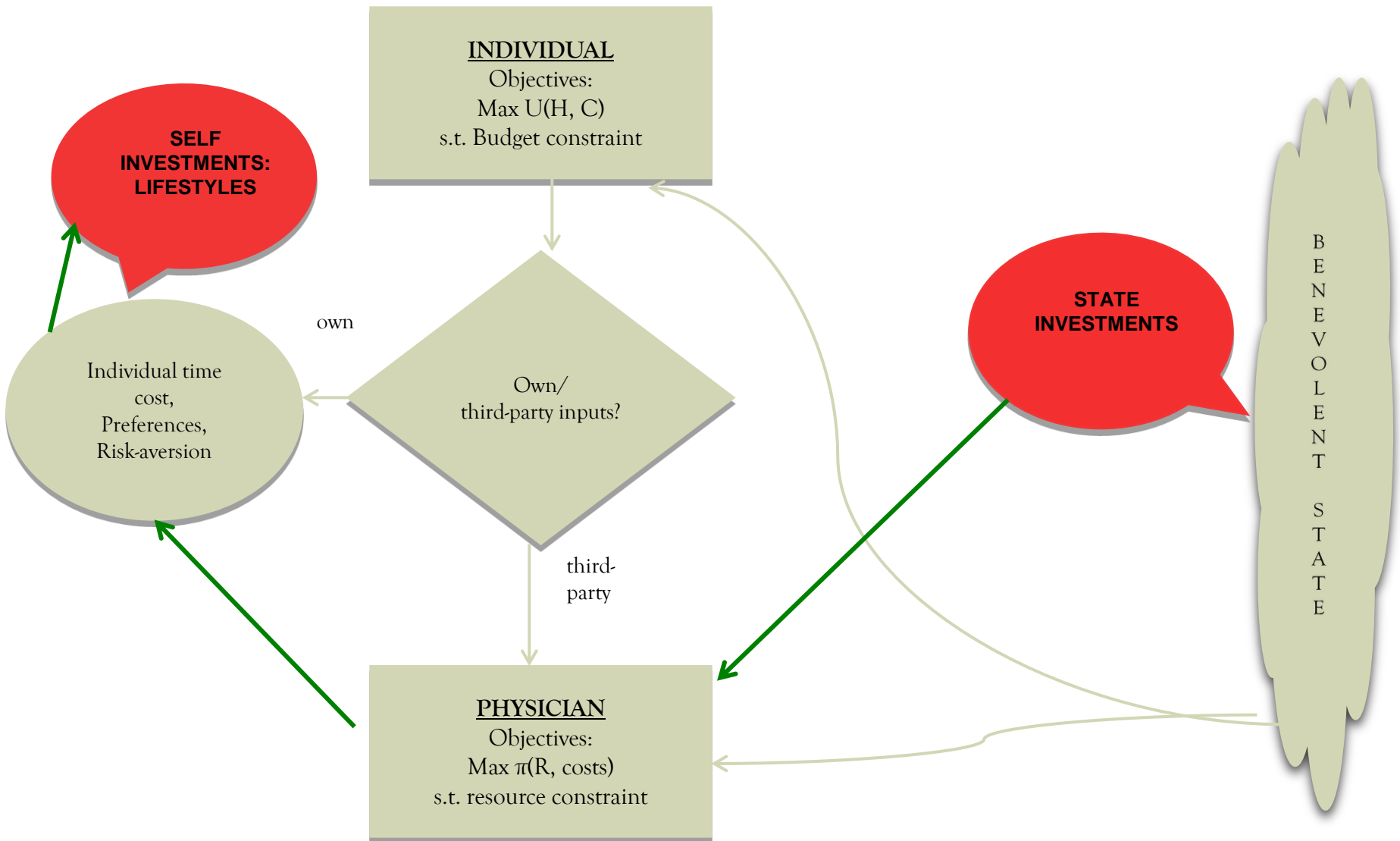
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Outline

○ A simple model of State and Self investments in Health

○ Motivation

○ Our previous research on State and Self Investments

○ Current ongoing research:

A (relatively) Simple Model of State and Self Investments

Motivation

○ Why looking at the relation between State and Self Investments?

○ The UK National Health Service (NHS) has increased its investment both on the promotion of health behaviour change and on the supply of effective health care interventions

○ The latter may influence individual behaviour, but most evaluations focus on the planned health effects of medical treatment or health promotion

Motivation II

We consider two possible unplanned effects :

i. the State provides insurance for losses caused by ill-health. More comprehensive insurance may induce individuals to take more risks and exert less effort on health production (the "crowding-out hypothesis")

ii. greater investment by the State increases life expectancy, which, in turn, increases the returns to individual health investments. Individuals may therefore exert more effort and take healthier lifestyles (the "complementarity hypothesis")

Motivation III

State and Self investments in two research studies with focus on:

i. <u>General Population</u> – perhaps complementarity effect prevails as returns to self investments are bigger?

ii. <u>Old Population</u> – perhaps crowding-out prevails as returns to self investments are smaller?

i. Our previous research on State and Self Investments (JHE, 2011)

○ We analysed a population with cardiovascular problems facing serious health decisions and a health behaviour (i.e. smoking cessation) with little doubt on its effectiveness on health

○ We focused on a direct measure of State investment (i.e. prescription of statins) that improves health

○ We controlled for the often associated, informational intervention (i.e. smoking cessation advice)

Data

○ The Health Survey for England (HSE) is an annual series of nationally-representative cross-sectional surveys that began in 1991

○ It collects information on diagnoses, health behaviours and prescribed medicines

○ The "core" part includes questions on general health, smoking, prescribed medicines, demographic and socio-economic indicators

○ The "boost" sample focuses on different demographic groups and health topics each year, e.g. cardiovascular disease, physical activity, eating habits, oral health, accidents, asthma

○ We used data from the waves of the HSE where there was a specific focus on cardiovascular disease (1998, 2003 and 2006)

Model structure

The model structure is based on a classification of variables into:

- those (more) important to the patient's decision (quitting smoking)

- those (more) important to the doctor's decisions (advice and prescription)
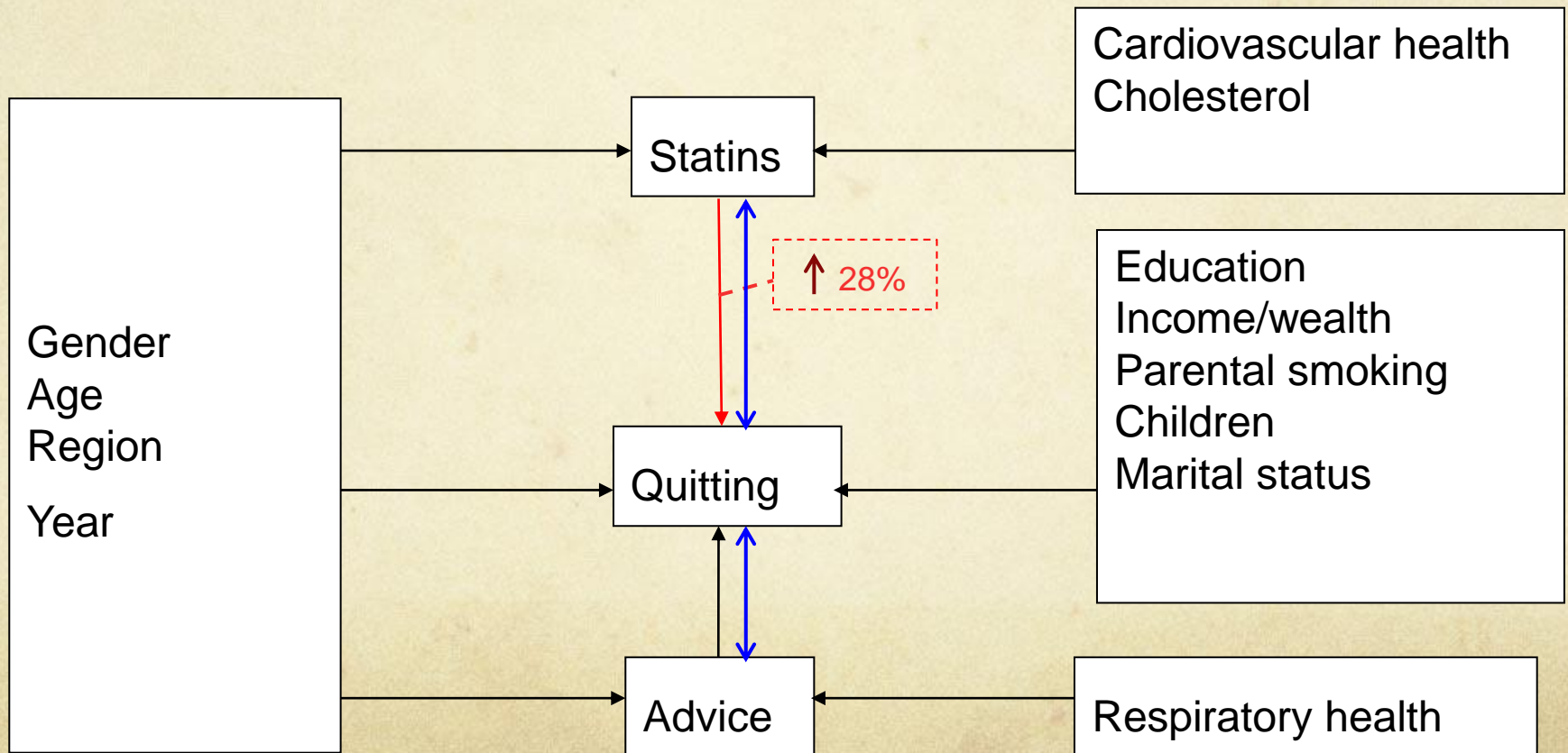
ii) Our ongoing research on State and Self investments in *older population*

- We focus on same cardiovascular problems as in previous study

- We concentrate on older people because population ageing has put huge pressure on health care demand

- "National Service Framework" for old people: specific priority for cardiovascular disease primary and secondary prevention in England.

- Therefore the target population is one that gives the highest potential returns on State investment

- But also one that potentially gives lower returns on Self investments

- We track the same individuals over time

- We use the first linkage of individual longitudinal data with GP practices

The State Investment

- Large and nation-wide government programme, the Quality and Outcomes Framework (QOF) increasing doctors income by 25%

- The QOF for general practitioners provided financial incentives for the achievements of indicators including prescription and smoking cessation advice to CHD patients.

- QOF voted in June 2003, started 1 April 2004, with measurement in April 2005.

- No analysis so far has been performed on the effect of such programme on lifestyle behaviours.

- Type of lifestyles we consider: a) incentivised lifestyle (ie. smoking cessation); and b) unincentivised lifestyles (ie. reducing alcohol drinking and increasing physical exercise).

Research Questions:

1. **Does QoF crowd-out or complement CVD patients lifestyles? (Focus on before/after QoF: 2002 and 2004):**
   a. **unincentivised lifestyles (physical activity and alcohol drinking)**
   b. **incentivised lifestyle (cigarettes smoking)**

2. Does intensity of treatment crowd-out or complement CVD patients lifestyles? (Focus on after QoF: 2004, 2006, 2008)

Data set

- English Longitudinal Study of Ageing (ELSA) is biannual panel of the population living in private households in England drawn from HSE sample in 1998, 1999 and 2001.

- Computer aided interviews and physical measurements at nurse visits every 4 years

- Information on diagnoses and health behaviours (smoking, drinking, physical activity). A lot of socio-economic variables.

- Data we have is 2002, 2004, 2006 and 2008.

1. Does QoF crowd-out or complement CVD patients lifestyles?

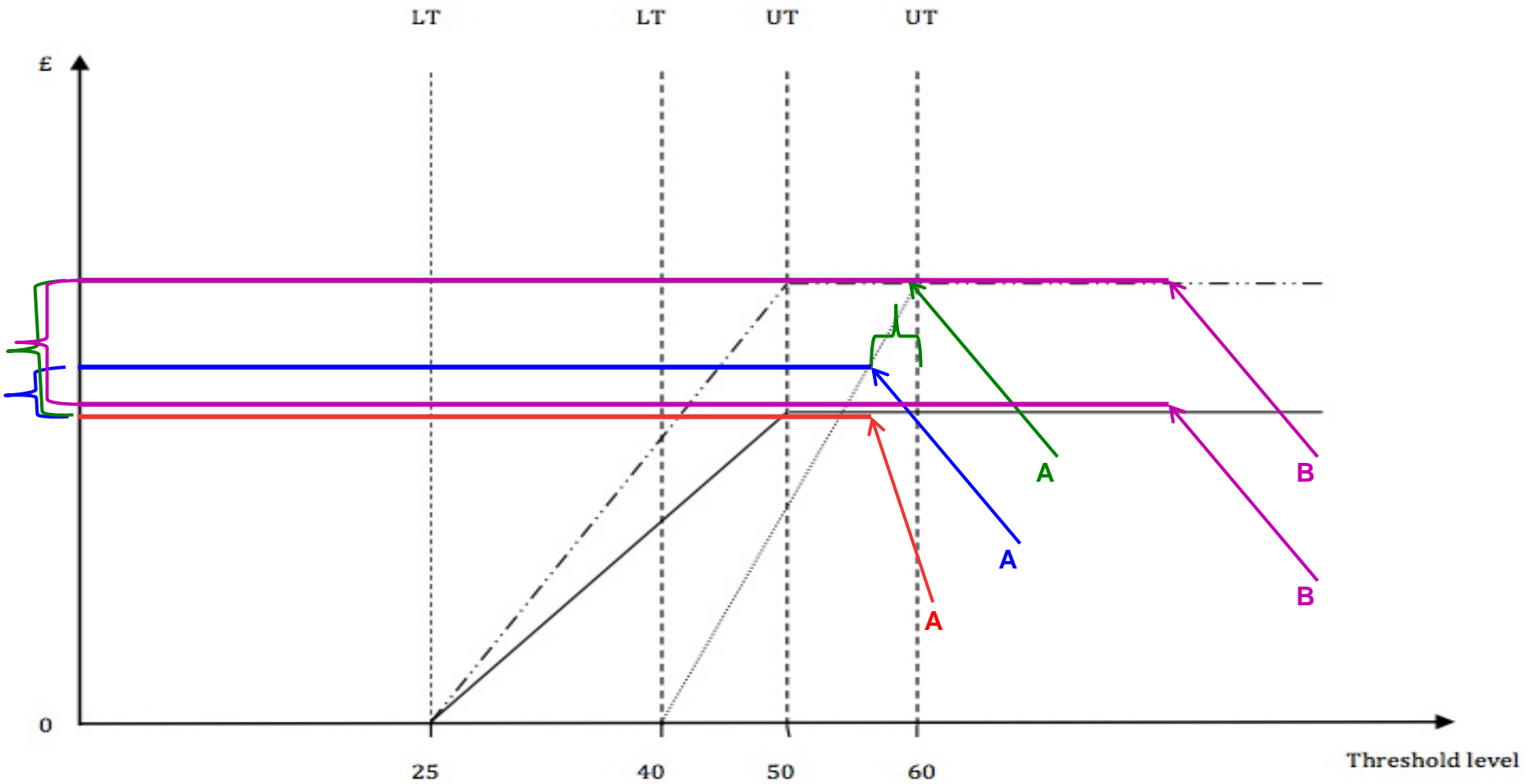| Lifestyles	BEFORE QoF		AFTER QoF	
	Female	**Male**	**Female**	**Male**
More Physical Activity**:				
CVD patients (treatment)	0.49 (2,948)	0.47 (2,356)	0.47 (2,458)	0.43 (1,909)
Patients with other conditions (control)	0.45 (387)	0.45 (170)	0.41 (301)	0.38 (130)
Less alcohol drinking:				
CVD patients (treatment)	0.46 (2,586)	0.26 (2,421)	0.44 (1,868)	0.24 (1,689)
Patients with other conditions (control)	0.46 (357)	0.22 (166)	0.42 (247)	0.19 (113)
Number of cigs per day*:				
CVD patients (treatment)	13.42 (456)	14.7 (293)	11.39 (366)	11.96 (247)
Patients with other conditions (control)	14.3 (62)	14.7 (21)	9.3 (36)	13.6 (15)

Research Questions:

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The Quality and Outcomes Framework

o   Several quality indicators for CHD.

o   CHD10=proportion of people on beta blockers

o   Look at whether CHD10 crowds out or complements old people investments in their own health

o   We focus on a specific indicator CHD10 because: a) largest change in revenue by achievement; b) it measures prescription of drugs to lower BP and we have a measure in ELSA and c) not affected by doctors' exception reporting.

The Revenue for CHD10*

LT	LT	UT	UT

£

0

Threshold level

25 40 50 60

Revenue in 2004/05

Revenue in 2005/06

Revenue in 2006/07 onwards

CHD10=Proportion of people receiving beta blockers.

Note: LT=Lower Threshold level and UT=Upper Threshold level.

The GP practice data

○ The data on quality of care and the medical record for all practices is stored in the National Health Service Quality Management and Analysis System (QMAS) database. The QMAS database contains data from approximately 9,000 family practices in England.

○ We linked this data to ELSA respondents in the nurse years in 2004 and 2008. And assuming no changes in practices we also linked in 2006 ELSA respondents

○ In 2004 we have successfully matched to practices about 85% of ELSA respondents and about 87% in wave 4.

○ Practices coverage in the ELSA is quite good. ELSA respondents correspond to about 28% of all QMAS practices in 2004 and about 32% in 2008. We have data for an average of 2 people per practice.

ELSA/GP Practice Linkage for CHD10

Sample of practices in England and ELSA by threshold level for CHD 10

	England:				ELSA/Practice linkage			
	LT	(LT, UT)	UT	Total sample	LT	(LT, UT)	UT	Total sample
2004/05	32 0.37%	966 11.26%	7,578 88.36%	**8,576**	3 0.13%	182 7.65%	2,193 92.22%	**2,378**
2006/07	42 0.50%	585 6.99%	7,745 92.51%	**8,372**	8 0.31%	134 5.19%	2,442 94.50%	**2,584**
2008/09	7 0.09%	307 3.73%	7,915 96.18%	**8,229**	0 0.00%	81 2.99%	2,625 97.01%	**2,706**

Note: LT=Lower Threshold level and UT=Upper Threshold level; (LT, UT) between lower and upper threshold. Achievements from ELSA practices are calculated from financial year of the QoF corresponding to date of interview in ELSA (April-March).

Does **intensity** of treatment crowd-out or complement CVD patients lifestyles? *(Example on physical activity)*
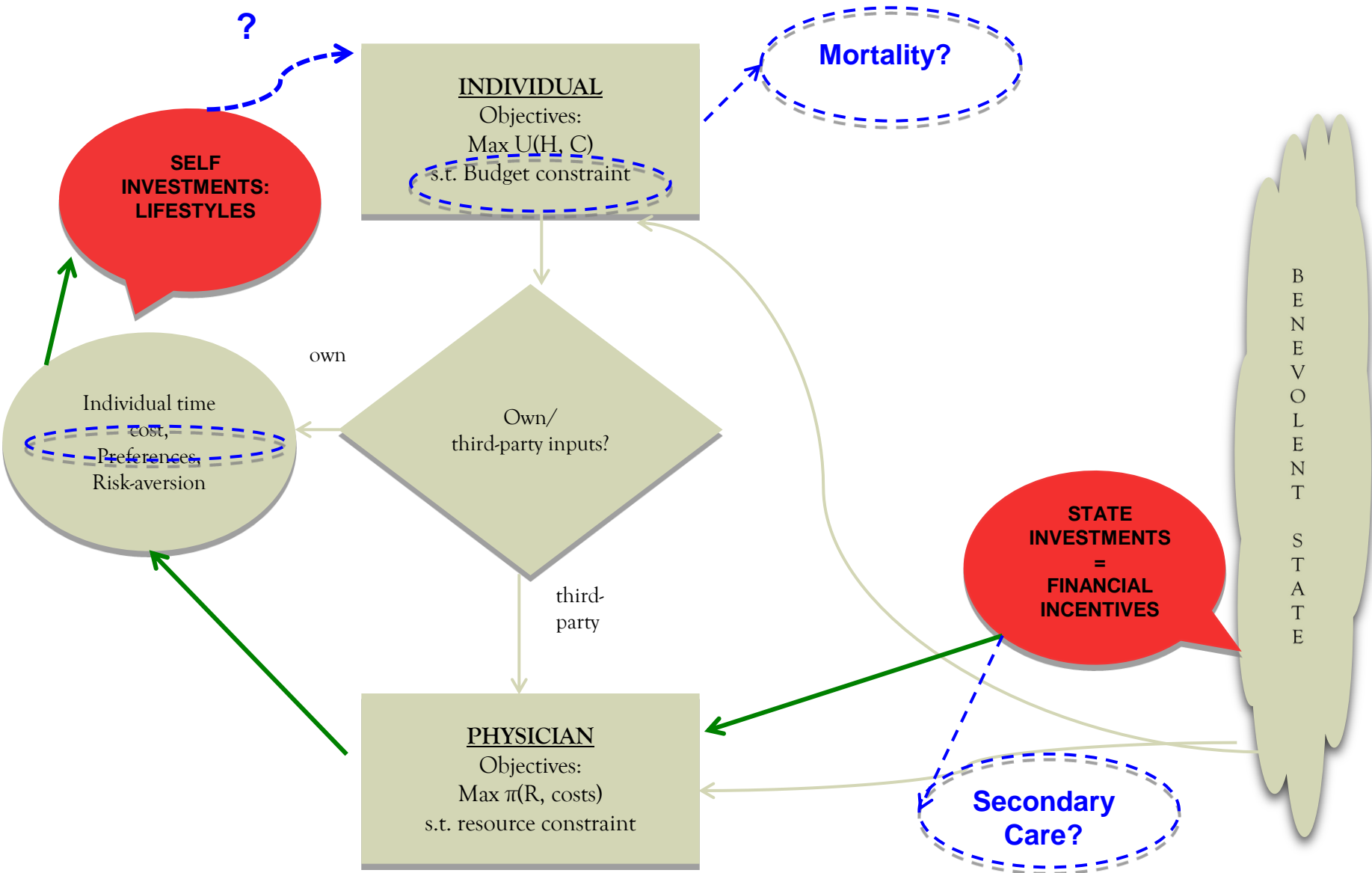
Physical activity in 2004
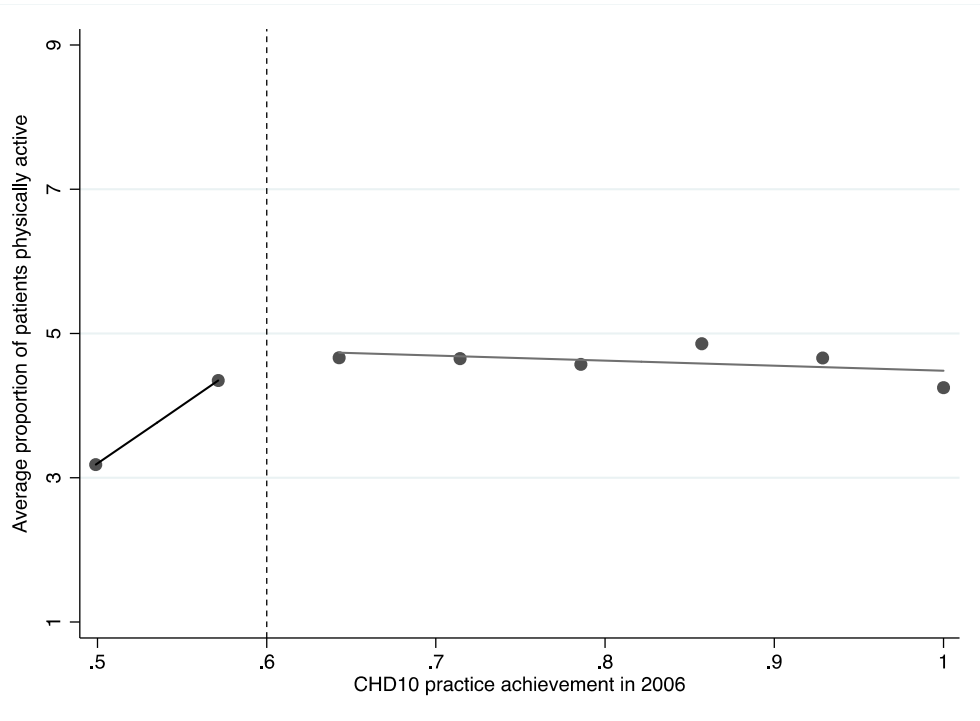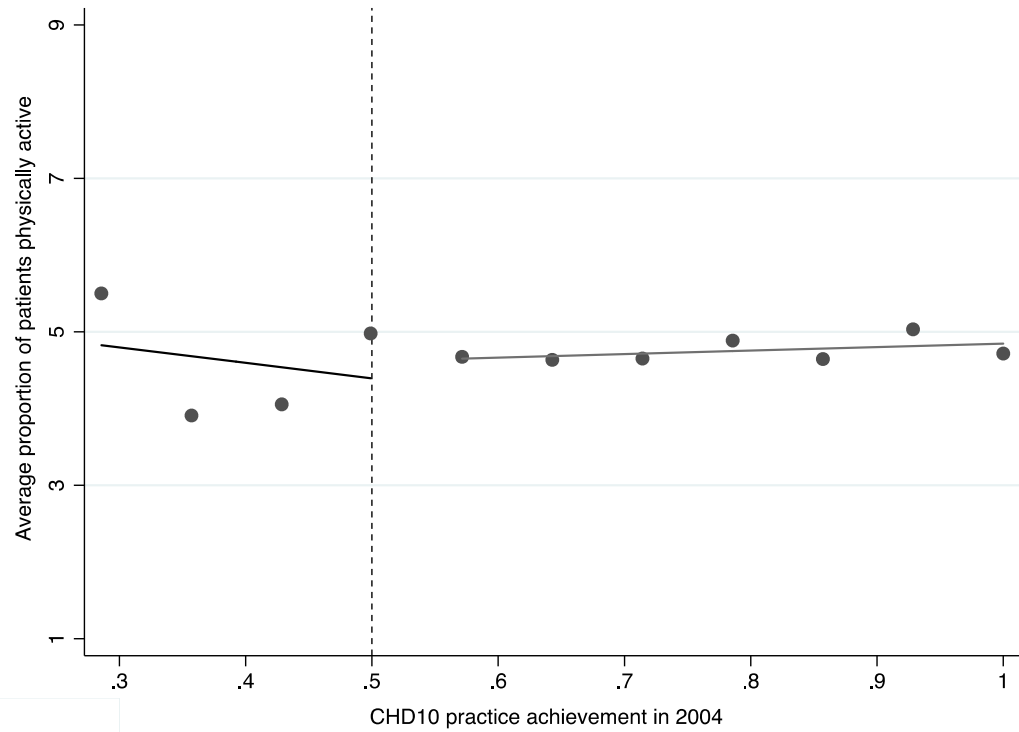
Physical activity in 2006

Conclusions

- We have analysed whether State investments crowd out or complement Self investments

- State investments are interventions aimed at reducing the effects of ill-health and self investments are lifestyle behaviours

- In the JHE research we found complementarity between doctors' prescription of statins and quitting smoking

- In the current ongoing research preliminary results show that State investments (i.e. QoF) crowd out physical activity

- This might be due to lower returns to investments for an aged population, or the particular lifestyle we look at – still ongoing.

- Further research

A Simple Model of State and Self Investments (part II)

?

SELF INVESTMENTS: LIFESTYLES

Mortality?

INDIVIDUAL
Objectives:
Max U(H, C)
s.t. Budget constraint

Individual time cost,
Preferences,
Risk-aversion

own

Own/
third-party inputs?

third-party

STATE INVESTMENTS = FINANCIAL INCENTIVES

PHYSICIAN
Objectives:
Max π(R, costs)
s.t. resource constraint

Secondary Care?

BENEVOLENT STATE

Thank you. Questions?

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Manchester Centre for Health Economics website
http://www.population-health.manchester.ac.uk/research/healtheconomics/

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