

Economic advantages of preventing cardiovascular diseases

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Selected background reading

- Suhrcke/McKee/Sauto Arce et al: The Contribution of Health to the Economy in the European Union. Brussels: European Commission, 2005.
- Suhrcke/Nugent/Stuckler et al: Chronic disease: an economic perspective. London: Oxford Health Alliance, 2006.
- Suhrcke/Rocco/McKee: Health: a vital investment for economic development in Eastern Europe and Central Asia. WHO European Observatory. 2007.
- Suhrcke/Sauto Arce/McKee et al.: The economic costs of ill health in the European region. WHO Regional Office for Europe, 2008.
- Suhrcke/Urban (forthcoming): Are cardiovascular diseases bad for economic growth? In: Health Economics.

The size of the economic costs depends on:

1) which type of economic costs we are talking about

2) how we measure this type of cost

→ *Not discussed here*

What type of “economic costs”?

1) Health care costs

2) Productivity costs

a) Microeconomic costs

b) Macroeconomic costs

3) “Welfare” costs

4) Public-policy-relevant vs –irrelevant costs

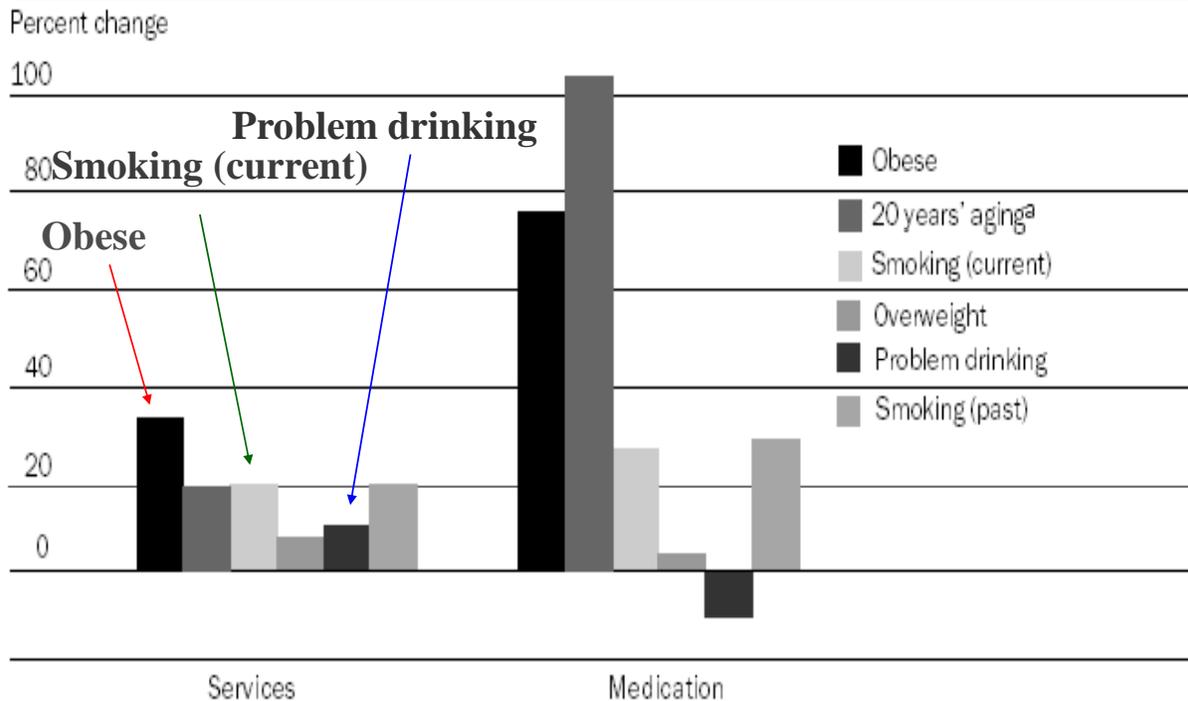
1) Health care costs

- Does improving health reduce health care costs?
(⇔ Does ill health increase health care costs?)
 - “Health care costs” defined how?

Direct costs of cardiovascular disease (EU15, 2002)

The most up to date figures will be available at the conference

Additional p.c. cost associated with obesity, ageing, smoking, and drinking (US, 1998)



Does a healthy lifestyle save health care expenditures?

	Healthy living	Obese	Smokers
Life expectancy at age 20 (years)	64.4	59.9	57.4
Expected remaining lifetime health care costs p.c. at age 20 (€)	281,000	250,000	220,000

Source: van Baal et al 2008

How improved health could affect lifetime health care costs?

Less disease and disability at a given point in time, for a given population, or at a given age → DECREASE

Additional life years → INCREASE

Lower acute health care costs of dying at older ages → DECREASE

Higher long term care costs of dying at older ages → INCREASE

→ Bottom line effect ??

2) Productivity costs

a) Microeconomic

b) Macroeconomic

- More relevant economic cost categories...
- ...but challenging to assess empirically (→ causality?)

2 a) Productivity costs: microeconomic

- Labour productivity & supply
- Personal investment in education
- Saving
- Fertility

Examples of microeconomic costs

Wages and earnings

- Chronic disease (US):
Men earn 5.6% less; women earn 8.9% less
- Tobacco use (Netherlands): Wages 10% lower
- Obesity (US):
Wages reduced by US\$0.71 per hour

Labour supply

- Chronic disease (Ireland):
Men 66% less likely to work;
women 42% less likely to work
- Diabetes:
People 2.1-fold less likely to work

A quantitative example: Health & retirement in Europe

- European Community Household panel, eight waves (1994-2001), nine EU countries (older workers)
- Dependent variable: retirement
- Explanatory variables:
 - Health stock
 - Health shock
 - Income / wealth, education, demographics (gender, cohabit, children at home)

A one-unit change in the health measure leads to a change in the probability to retire by x% (pooled results):

	Self-report retirement	Retirement (broad)
Health <u>stock</u>	-13%	-17%
Health <u>shock</u> :		
small	0%	+14%
medium	+44%	+50%
large	+47%	+106%

Source: Hagan/Jones/Rice 2006

2 b) Productivity costs: macroeconomic

- Historical contribution of health to economic development
 - 30-40% of today's economic wealth
 - In some cases health > education
- Cross-country studies
 - Worldwide samples: One year life expectancy increase corresponds to 4% GDP growth
 - What about high-income countries and NCDs/CVDs specifically?

A quantitative example: CVD and economic growth

- 26 high-income countries
- 1960-2000 in 5-year intervals
- Dependent variable: per capita income
- Explanatory variables:
 - Initial income per capita
 - Secondary schooling
 - Openness of the economy
 - Health proxy: **cardiovascular disease mortality rate at working age**

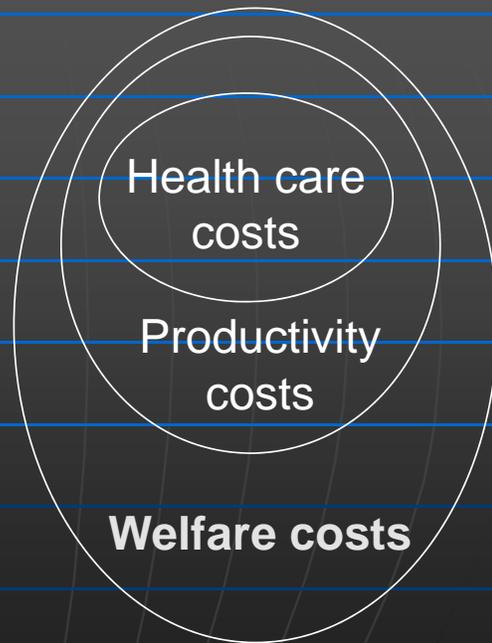
“A ten percent increase in CVD mortality rate among the working age population decreases the per capita income growth rate by about one percentage point.”

Source: Suhrcke/Urban 2006

Dep. income p.c.	GMM CVD endogenous (1)	GMM CVD endogenous (2)	GMM CVD exogenous (3)	GMM CVD endogenous (4)	GMM small sample correction (5)	OLS (6)	FE (7)
Lag income p.c.	0.77 ^{***} (24.75)	0.70 ^{***} (5.05)	0.52 ^{***} (5.58)	0.67 ^{***} (5.77)	0.54 ^{***} (3.11)	0.83 ^{***} (8.73)	0.51 ^{***} (3.93)
2 nd lag income p.c.	-	0.03 (0.24)	0.75 ^{***} (3.83)	0.49 ^{***} (2.88)	0.52 ^{***} (3.53)	0.32 ^{***} (2.77)	0.31 ^{**} (2.49)
3 rd lag income p.c.	-	-	-0.50 ^{***} (-3.07)	-0.37 ^{***} (-2.68)	-0.30 ^{***} (2.03)	- 0.28 ^{***} (-3.70)	-0.12 (-0.82)
Lagged Openness	0.03 (1.61)	0.04 ^{**} (2.49)	0.05 ^{***} (2.96)	0.04 ^{**} (2.38)	0.03 (1.47)	0.03 ^{***} (3.13)	0.08 (1.01)
Lag share of secondary schooling	0.00 (0.12)	0.10 ^{**} (2.49)	0.11 ^{***} (3.61)	0.09 ^{***} (3.06)	0.09 ^{**} (2.24)	0.04 [*] (1.91)	0.02 (0.80)
Lagged CVD	-0.10 ^{***} (-3.08)	-0.07 ^{**} (-2.41)	-0.07 ^{***} (2.57)	-0.08 ^{***} (3.31)	-0.09 ^{**} (2.20)	-0.03 (-1.38)	-0.10 ^{***} (-2.60)
Hansen-Test	0.99	0.99	0.96	0.99	0.99	-	-
AR1	0.00 ^{***}	0.00 ^{***}	0.01	0.00	0.03	-	-
AR2	0.01 ^{***}	0.01 ^{***}	0.09 [*]	0.99	0.98	-	-
# observations	164	164	141	143	143	143	143

3) “Welfare” costs

- Welfare costs of ill health exceeds any of the narrow cost concepts hitherto presented!
- How much do people value health & life? How to measure such non-market goods?



Economic value of life expectancy gains (mainly due to NCDs) from 1970-2003 in % of GDP

Austria	33%
Finland	32%
France	30%
Greece	29%
Ireland	34%
Netherlands	30%
Norway	31%
Spain	29%
Sweden	29%
Switzerland	30%
Turkey	38%
UK	31%

Source: Suhrcke et al. 2008

4) Public-policy relevant vs. public-policy irrelevant costs

*When do “costs” justify public policy intervention?
→ the quest for market failures in NCDs*

“If people want to be fat, smell like ashtrays and die early, let them.”

The Economist, 9/11/2006

“The state has no business with your plate”

Financial Times, 3/09/2006

“Intercontinental health nannyng”

The Economist, 6/03/2003
on WHO’s Framework Convention
on Tobacco

Market failures in NCDs?

- External costs
- Insufficient information
- Myopia, irrationality
- Time-inconsistent preferences / 'internalities'

Cost of smoking caused by a 24-year old smoker in the US (in US\$)

	Mean cost per smoker	Cost per pack
Private cost	141,181	32.78
Quasi-external cost	23,407	5.44
External cost	6,201	1.44

External costs: some conceptual considerations

- Where to draw the line between external and internal?
- “Quasi-externalities”: intra-household effects
- “Classical” externalities (from collectively financed programmes)
- How communicable are non-communicable diseases?

Conclusions

- Are the economic costs of CVDs “high”?
 - It depends on which “costs” we mean!
 - No doubt that the most relevant economic costs, i.e. welfare costs, are substantial.
- Any policy implications?
 - Highlighting the potential importance of the problem
 - Providing some rationale for public intervention
 - Input into cost-effectiveness evidence