HEALTH ECONOMICS OF TREATING MALNUTRITION: COST EFFECTIVE OR COSTLY?

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Economic considerations
(limited evidence base for nutrition)

- Cost of condition (malnutrition)
- Cost-benefit analysis

  All items are in monetary terms

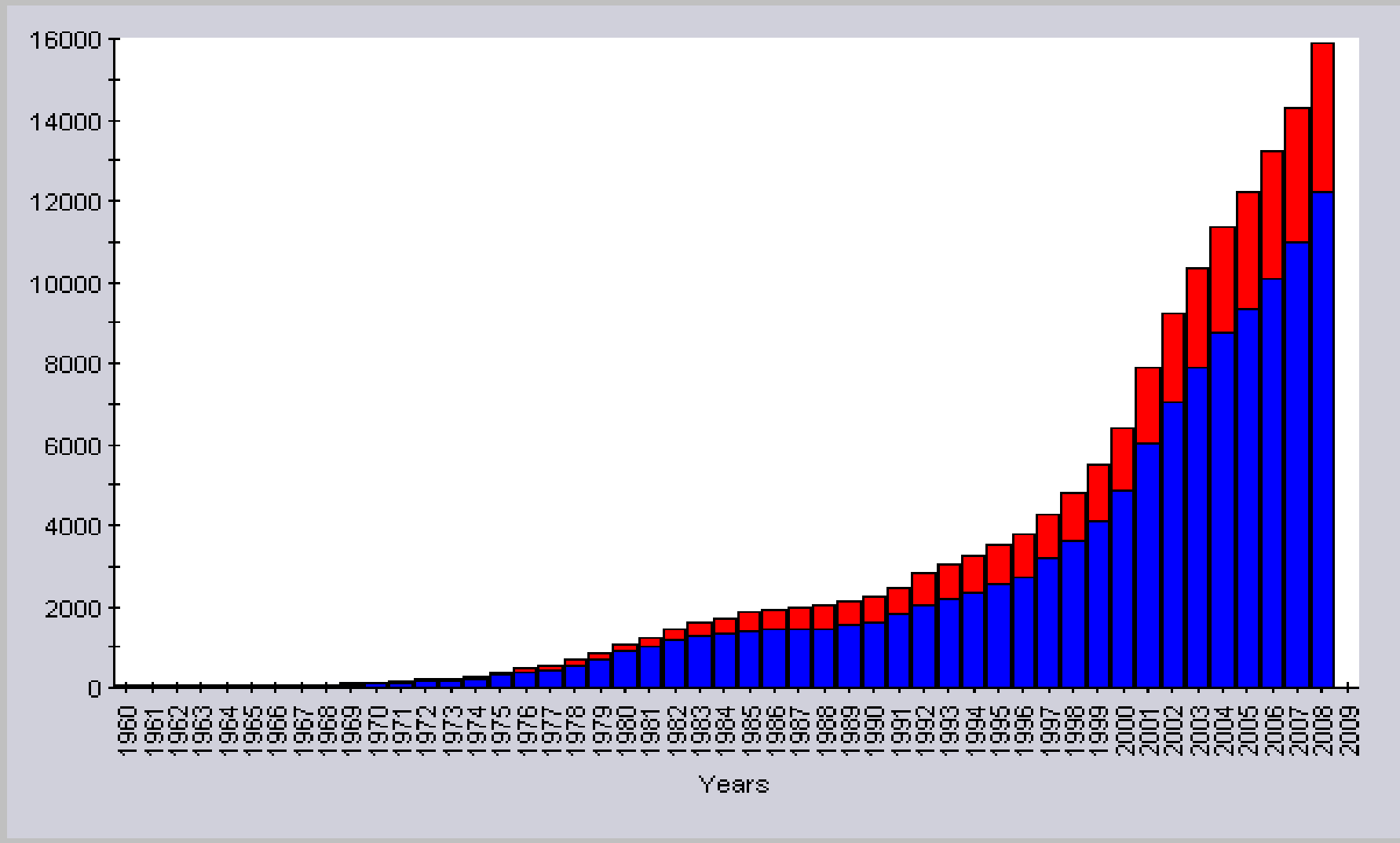
  Inform resource allocation within and between different sectors of the economy

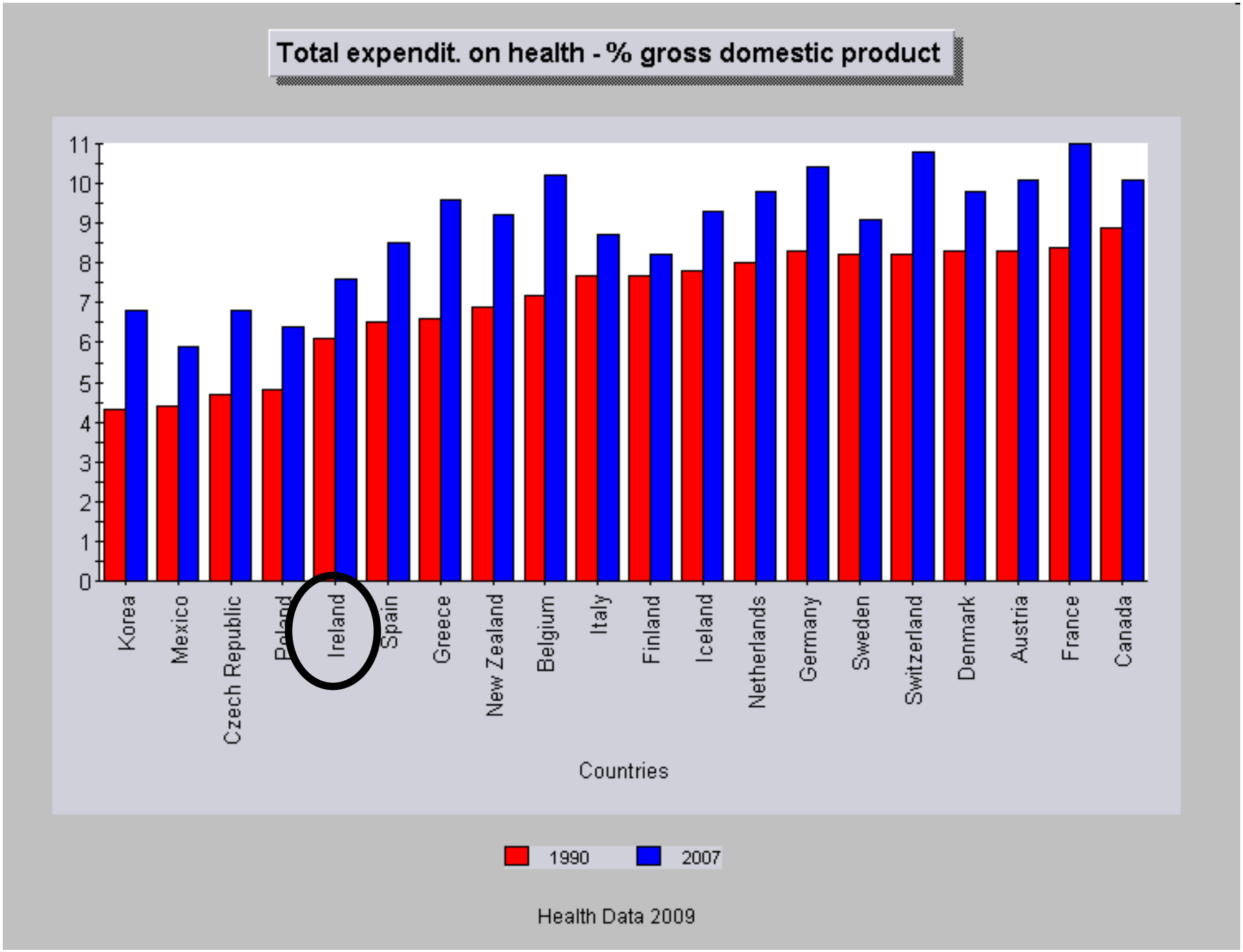
- Cost effectiveness analysis (CEA)

  Costs are expressed in relation to an effect e.g. number of infections, or hospital infections or cases of DVT

  Cost per QALY is a special form of CEA – cost-utility analysis

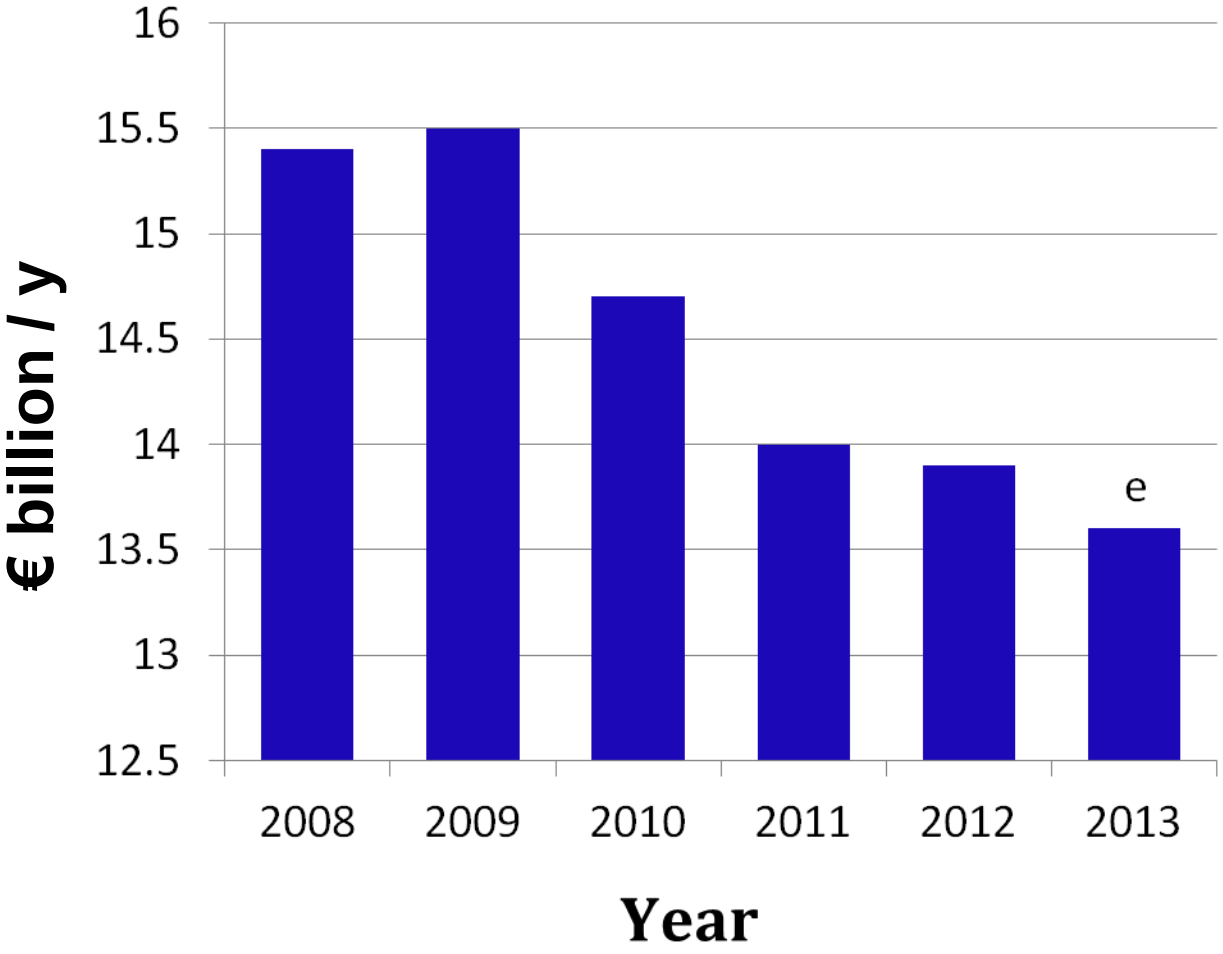
  Usually restricted within a sector e.g. health sector


Ireland expend. on health - Million NCU
16000
14000
12000
10000
8000
6000
4000
2000
0
1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009
Years
Public
Private


Total expendit. on health - % gross domestic product
11
10
9
8
7
6
5
4
3
2
1
0
Korea
Mexico
Czech Republic
Poland
Ireland
Spain
Greece
New Zealand
Belgium
Italy
Finland
Iceland
Netherlands
Germany
Sweden
Switzerland
Denmark
Austria
France
Canada
Countries
1990
2007
Health Data 2009

Republic of Ireland

Expenditure on Health 2008-2013

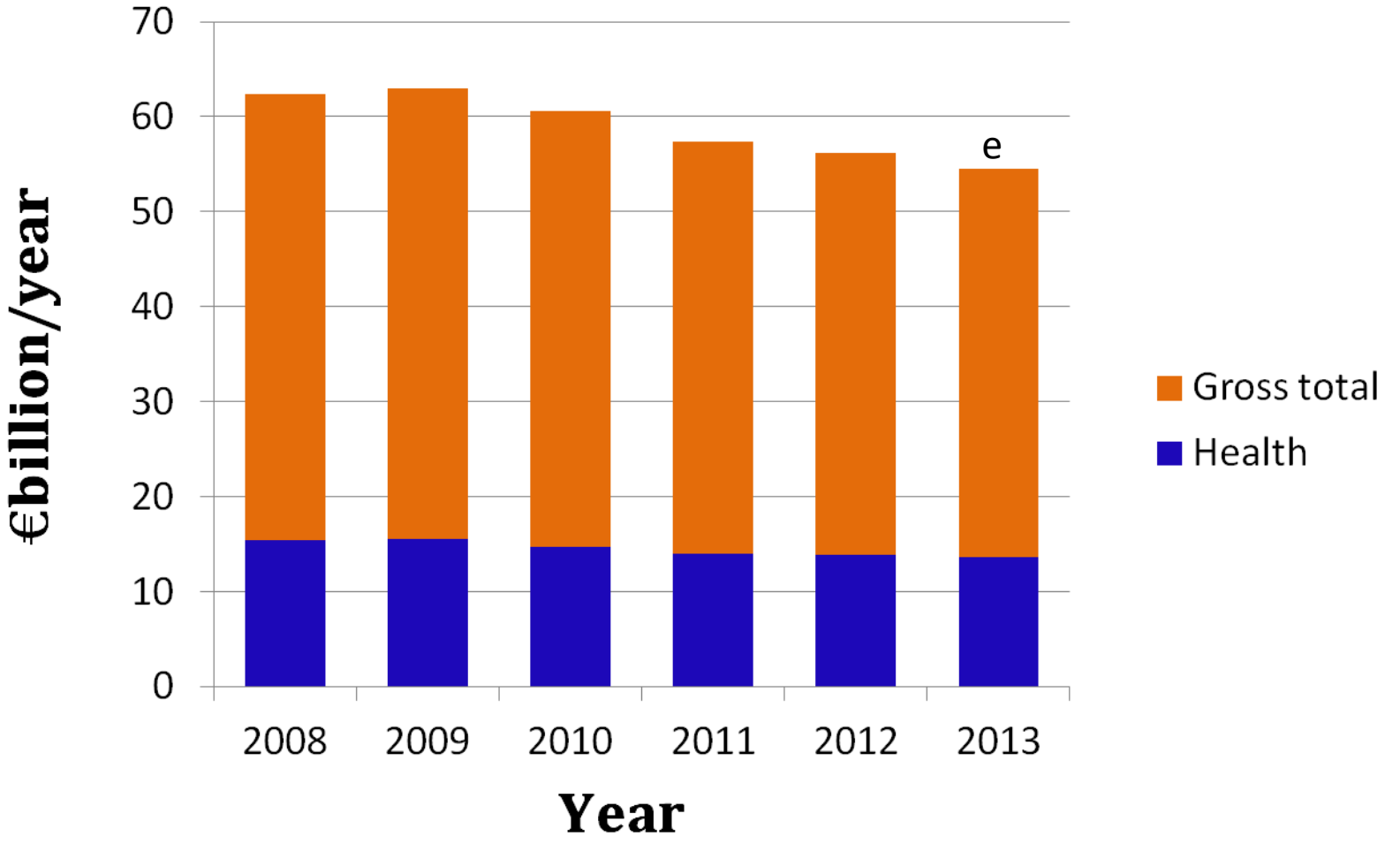


Budget 2013: Department of Finance

e = estimated

Republic of Ireland

Expenditure on Health & total gross expenditure



Budget 2013: Department of Finance

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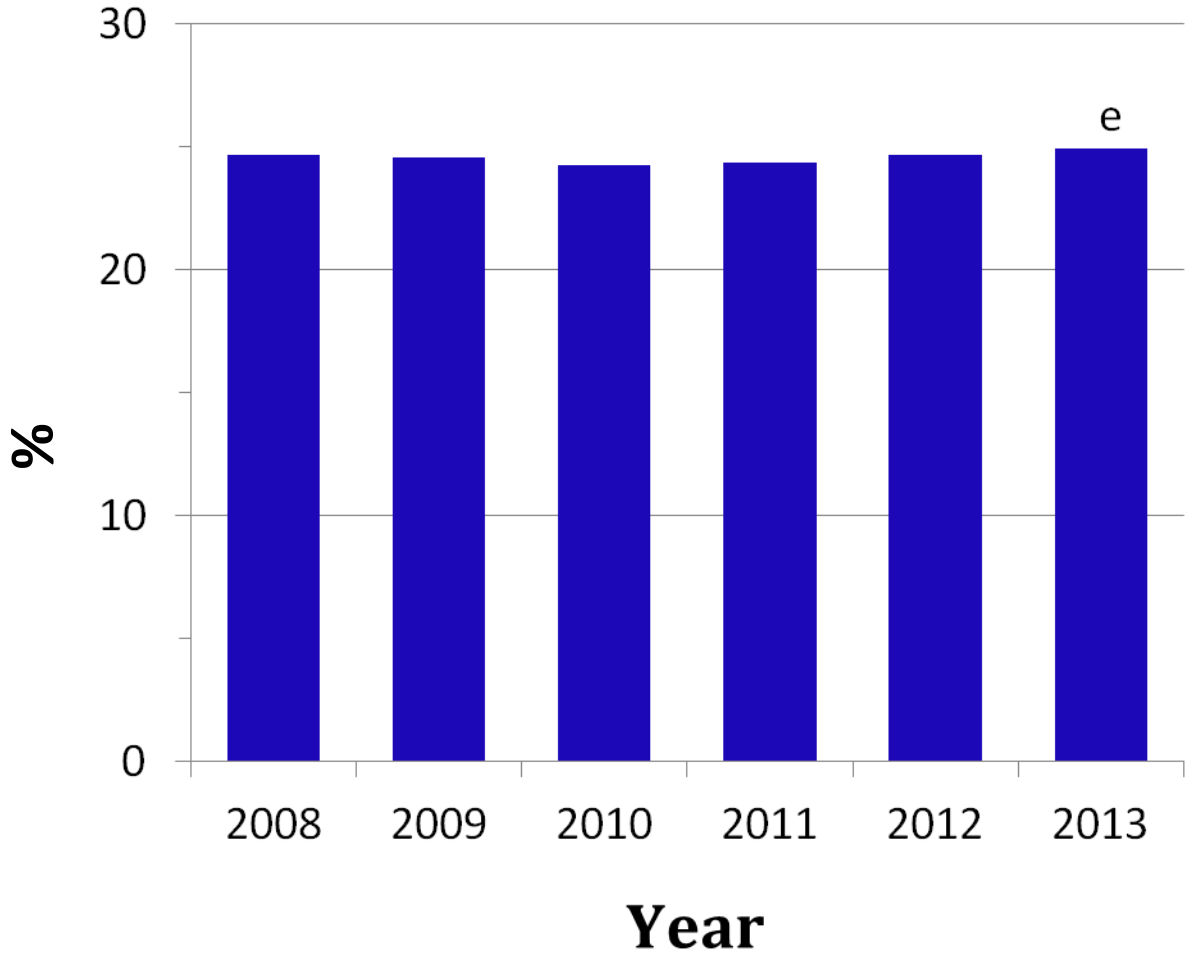
Expenditure on Health (% of gross total) 2008-2013



Budget 2013: Department of Finance

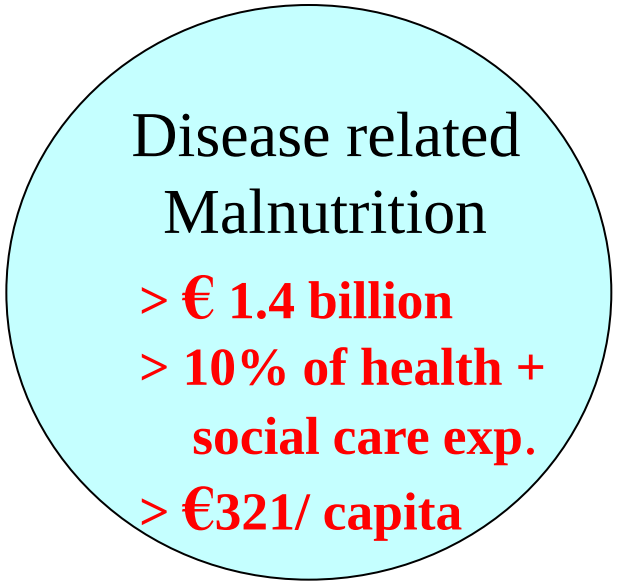
e = estimated

IRELAND 2007

Total public expenditure on health & social care

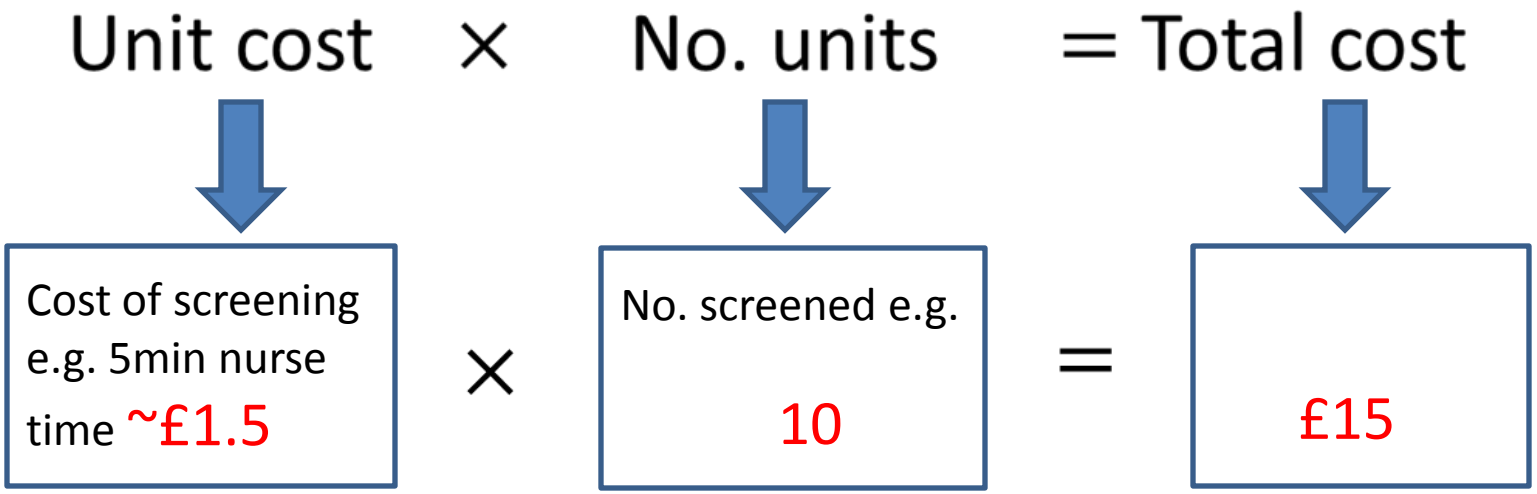
~ €13.7 billion

~€3,142/capita



Rice & Normand 2012

Calculating cost of a procedure (nutritional screening)



Cost in a country for a year

Hospital inpatients	= unit cost × No screened/year
Hospital outpatients	= unit cost × No screened/year
Nursing homes	= unit cost × No screened/year
GP surgeries	= unit cost × No screened/year
GRAND TOTAL	**= Sum of above**

Calculating other costs

- **Nutritional screening**
- **Nutritional assessments***
- **Nutritional interventions****

  (includes net ingredient costs of ONS, ETF, PN)
- **Resource use*****

  (includes GP visits, hospital admissions and LOS)

* Requires information about proportion screened who are malnourished and referred for assessment by a dietitian and its cost

** Requires information about use of ONS, ETF and PN and its cost

** Requires information about resource use and its cost

Calculating resource impact of intervention

1. Cost of current pathway (as described)

2. Cost of proposed pathway (same methodology)

(increased screening, assessment, and intervention and change in resource use* e.g. effect of intervention on hospital LOS)

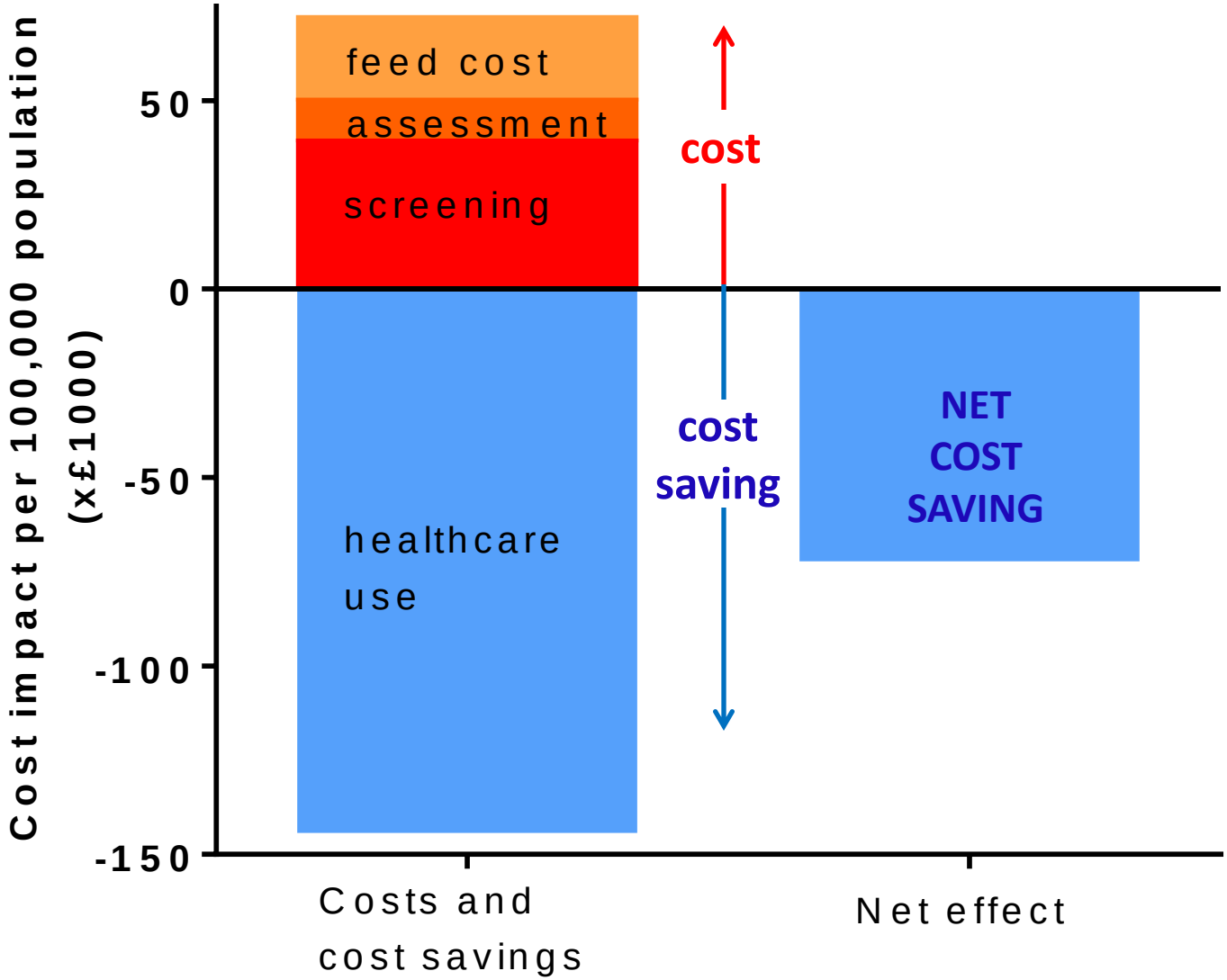
3. Impact of intervention

= Costs of proposed pathway – current pathway

Resource impact per 100,000 people

Areas of resource impact	Cost of impact (£1000s)
Increase in screening – direct costs (5 min nurse)	38.9
Increase in nutritional assessments (45 min dietitian)	10.8
Increase in nutritional intervention (ingredient costs etc)	22.0
Decrease in secondary care activity (mainly hospital stay)	-143.6
NET cost	-71.8

NICE 2012


Cost impact per 100,000 population (x£1000)
50
0
-50
-100
-150
feed cost
assessment
screening
healthcare use
cost
cost saving
NET COST SAVING
Costs and cost savings
Net effect

NICE 2012

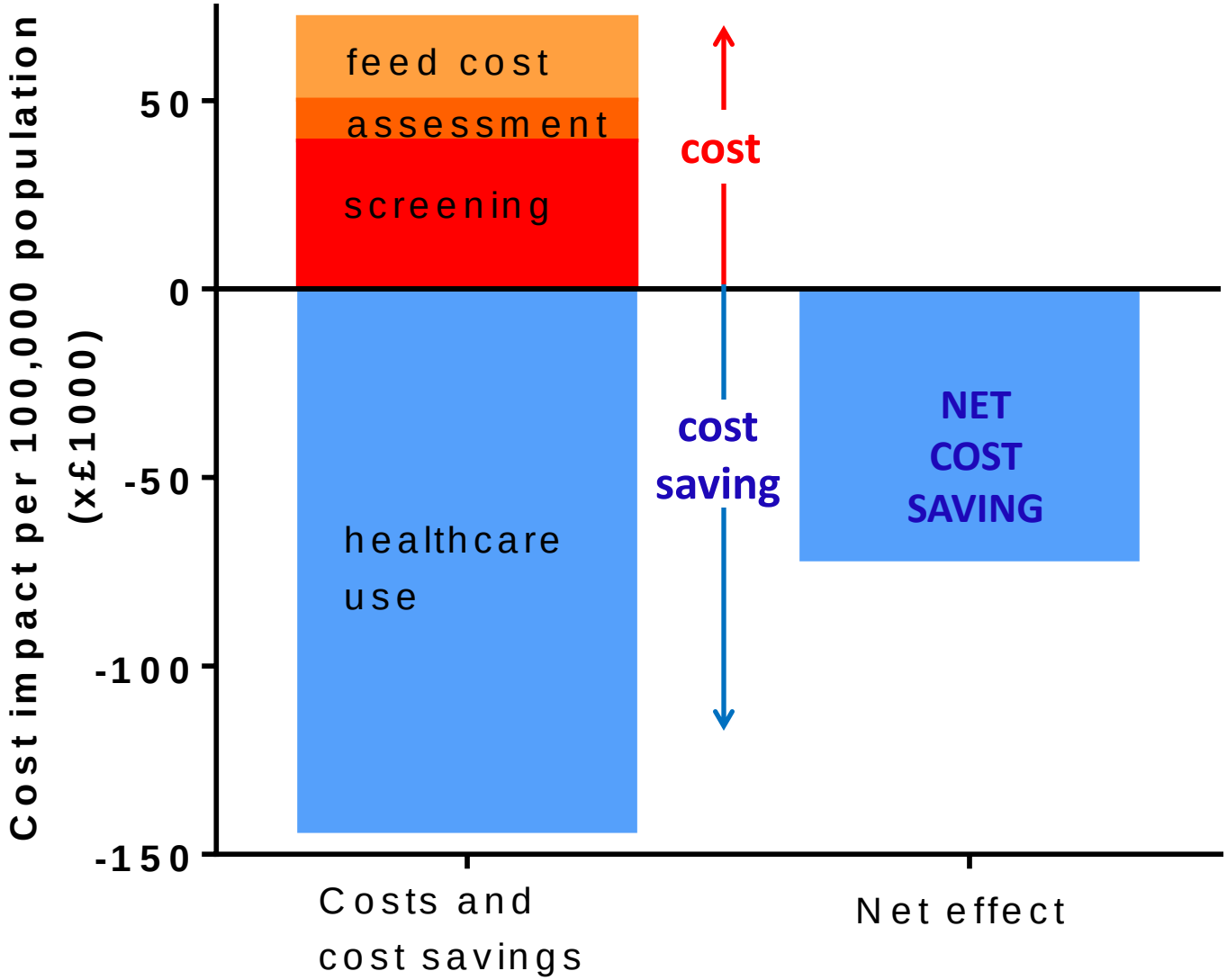
Time taken to screen using ‘MUST’

	Time (min)	
	Healthcare worker	Self-screening (OPD)
Some screening tools	10-15	?
‘MUST’ paper version	≤ 5	5*
‘MUST’ electronic version	≤ 3	3**
‘MUST’ wifi electronic system	≤1	1.29***
‘MUST’ modified wifi electronic system	?≤ 0.5	?0.5

*Am J Clin Nutr 2012

** Clin Nutr abstr 2011

***Nutrition 2013 (in press)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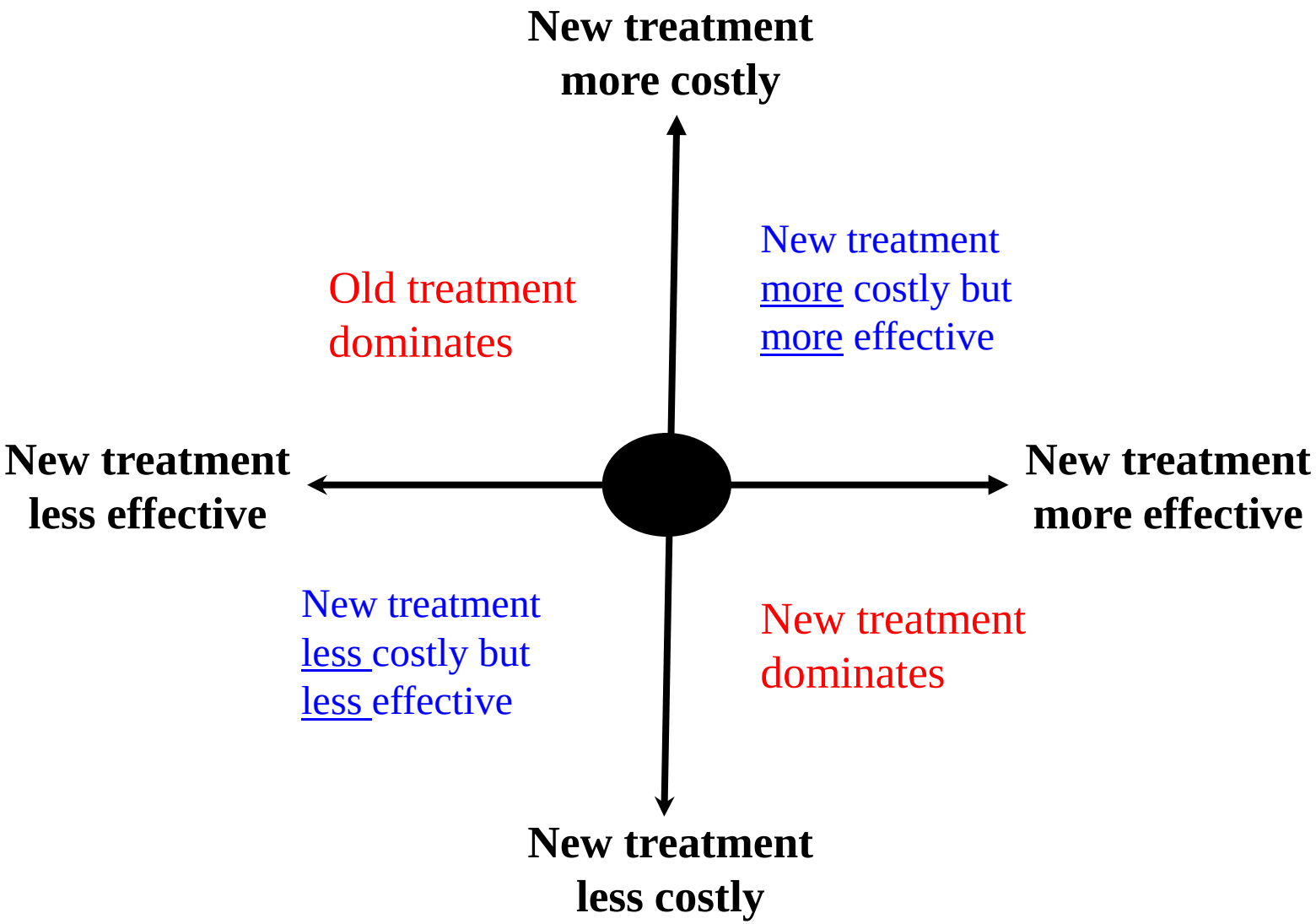
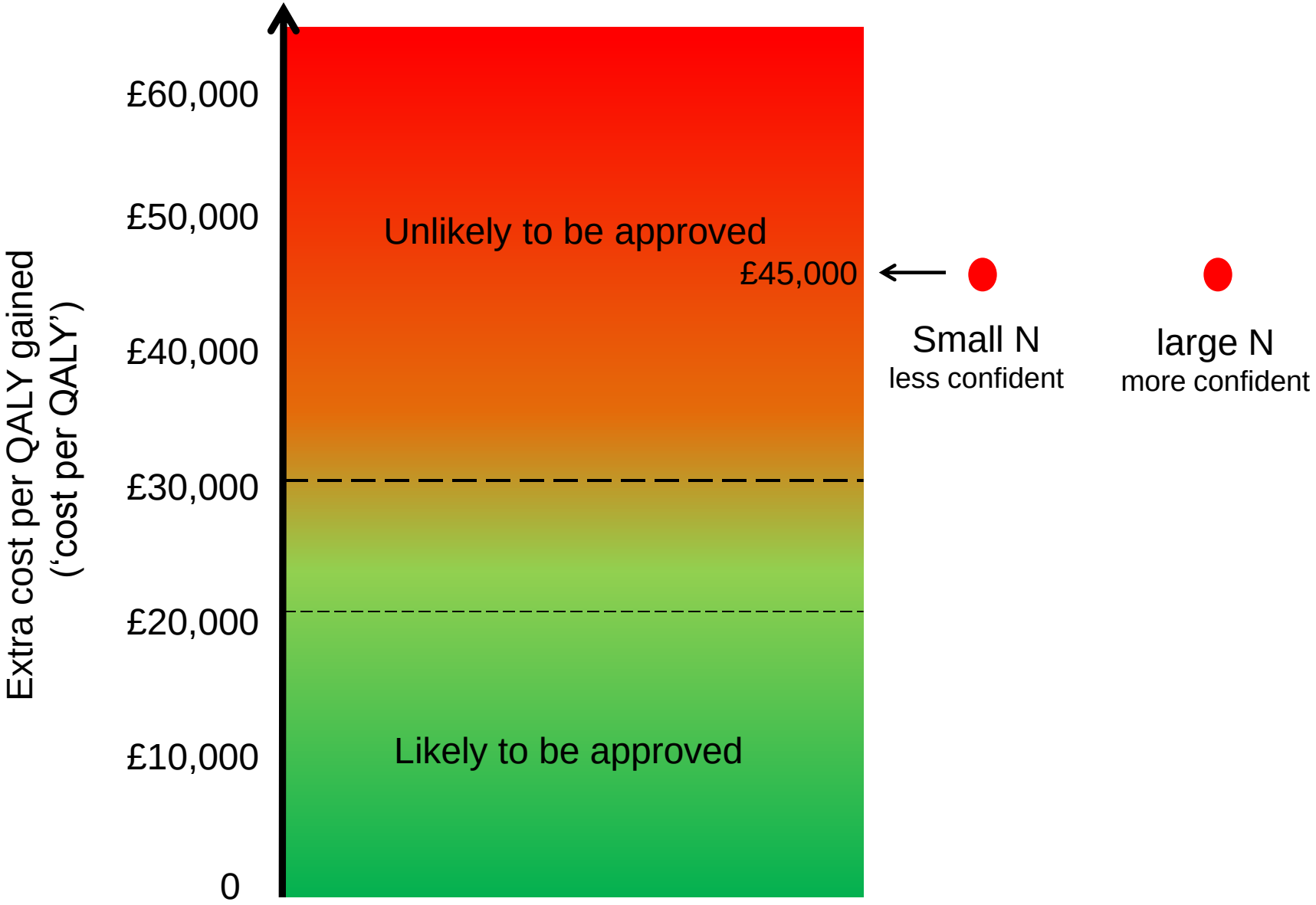
NICE 2012

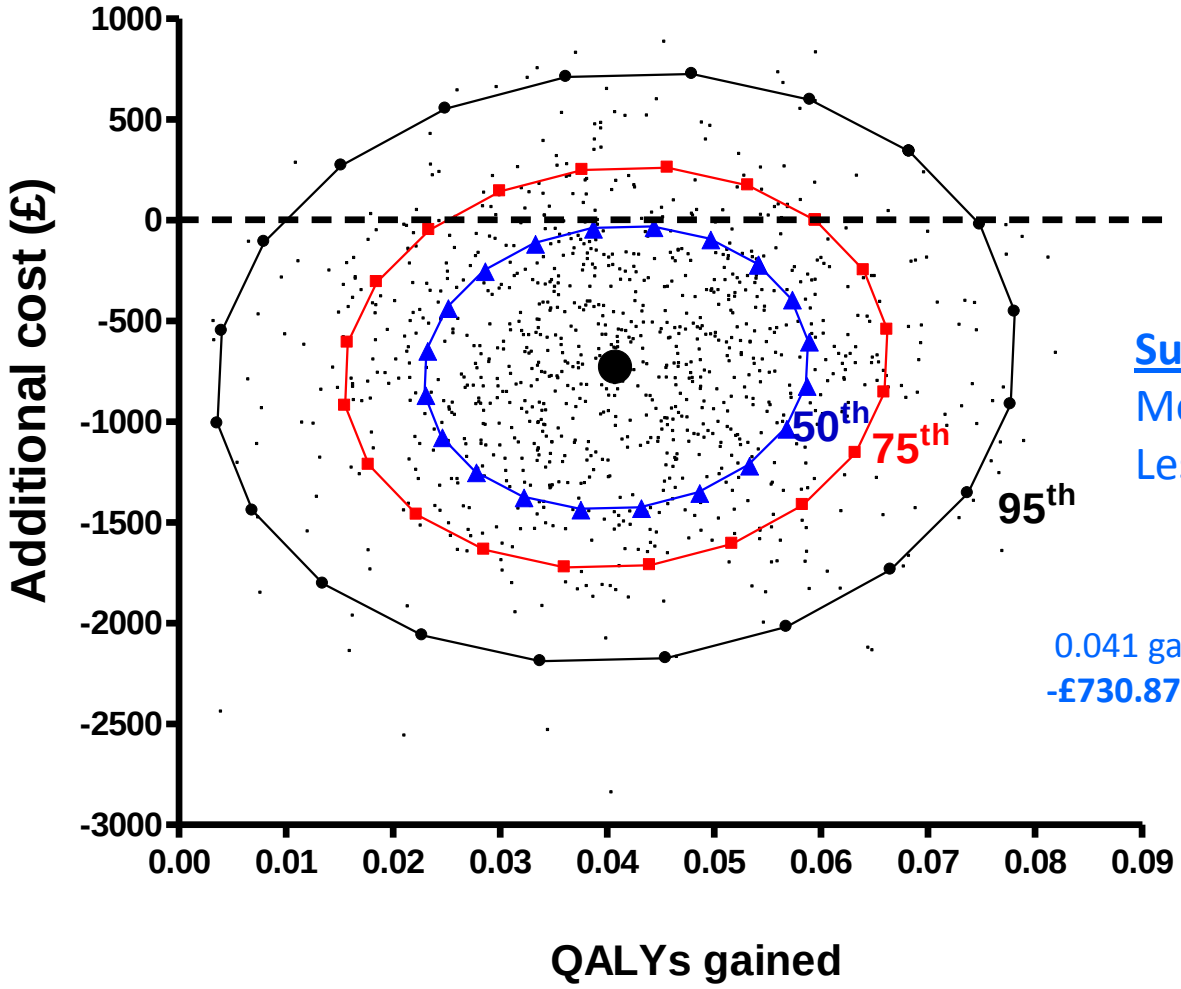
Cost effectiveness plane




Extra cost per QALY gained
('cost per QALY')
£60,000
£50,000
£40,000
£30,000
£20,000
£10,000
0
Unlikely to be approved
£45,000
Likely to be approved
Small N
less confident
large N
more confident

Supplement (milk powder) v dietary advice

malnourished COPD patients in the community



Supplement

More effective

Less cost

0.041 gained

-£730.87

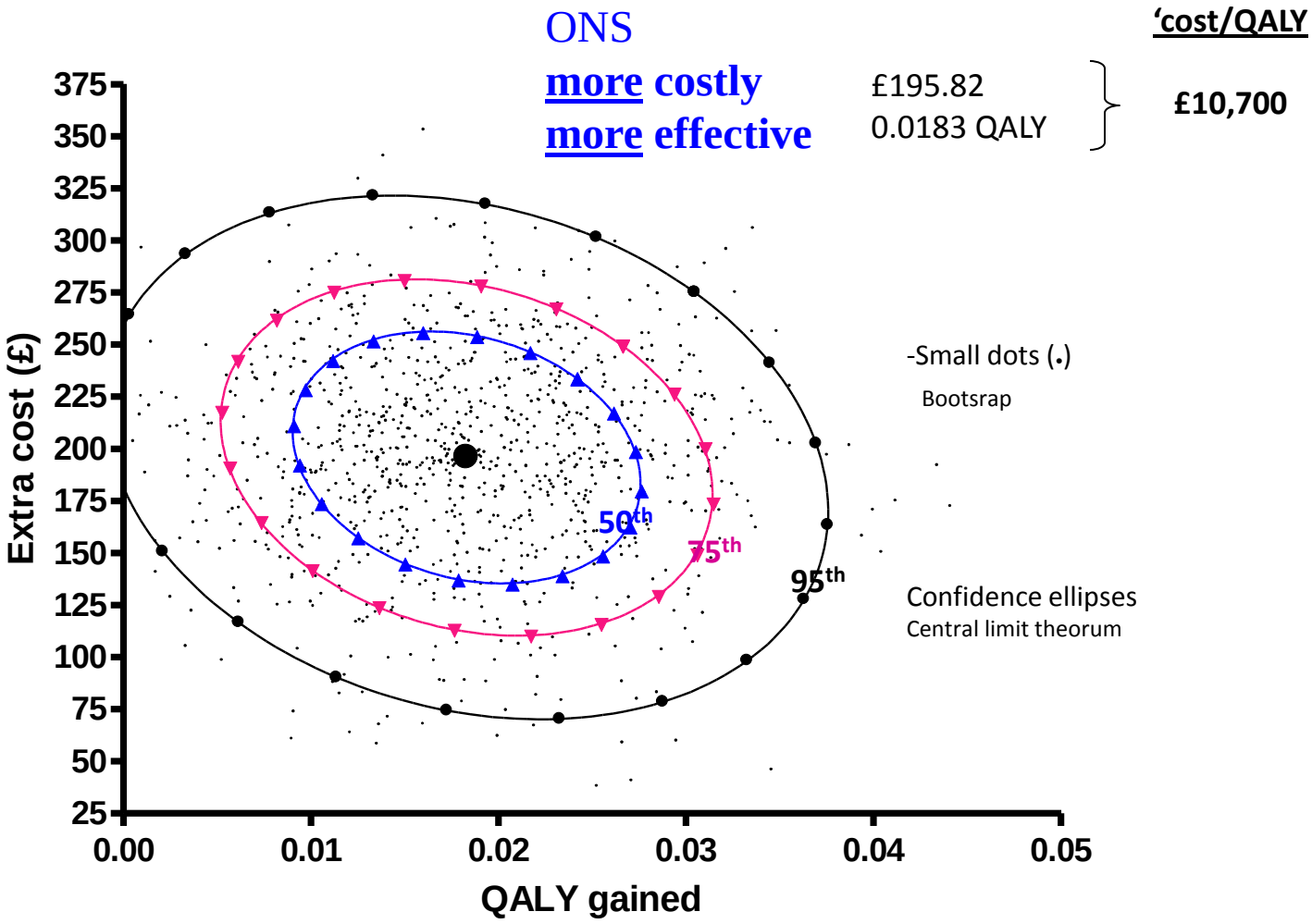
'cost/QALY'

-£17,889

Based on Weekes et al 2009

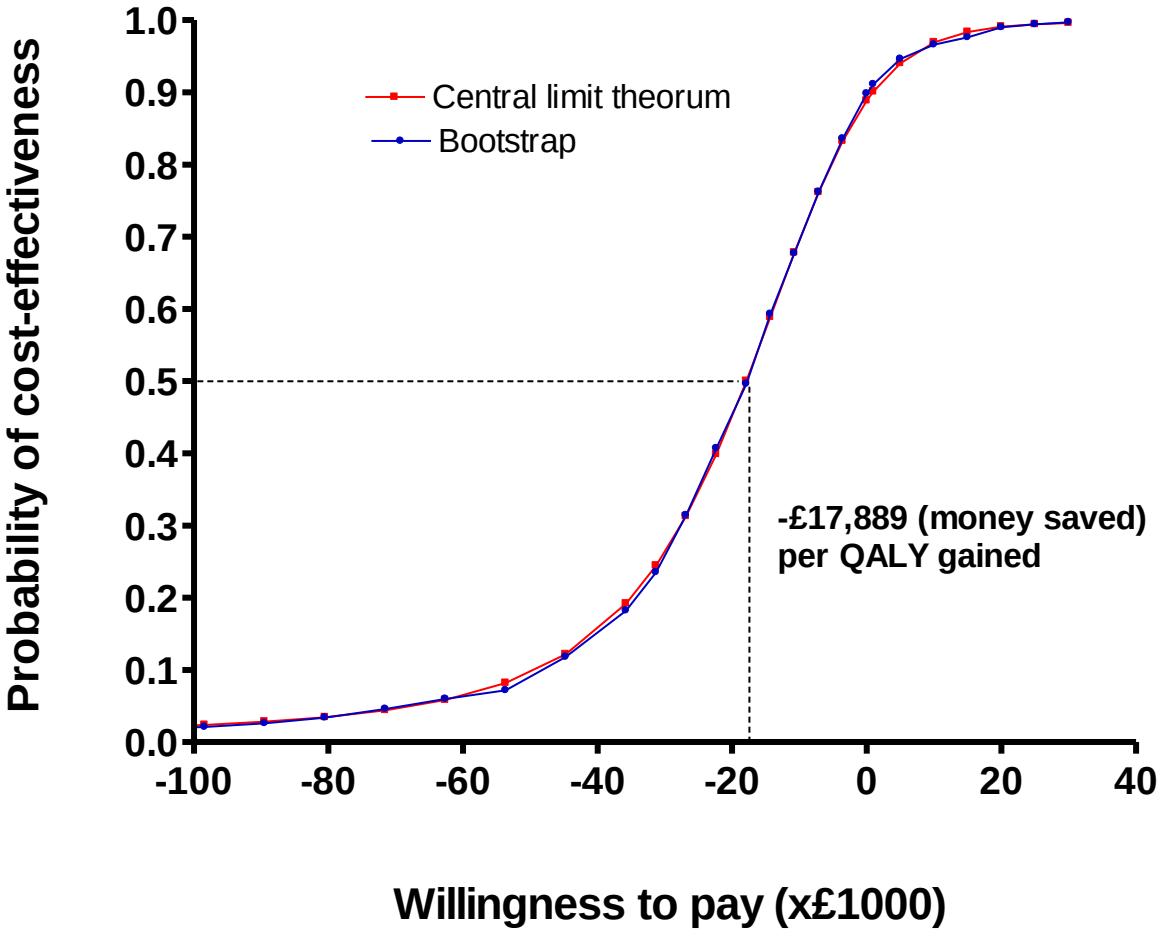
ONS v simple dietary advice

Randomised trial of malnourished elderly care home residents

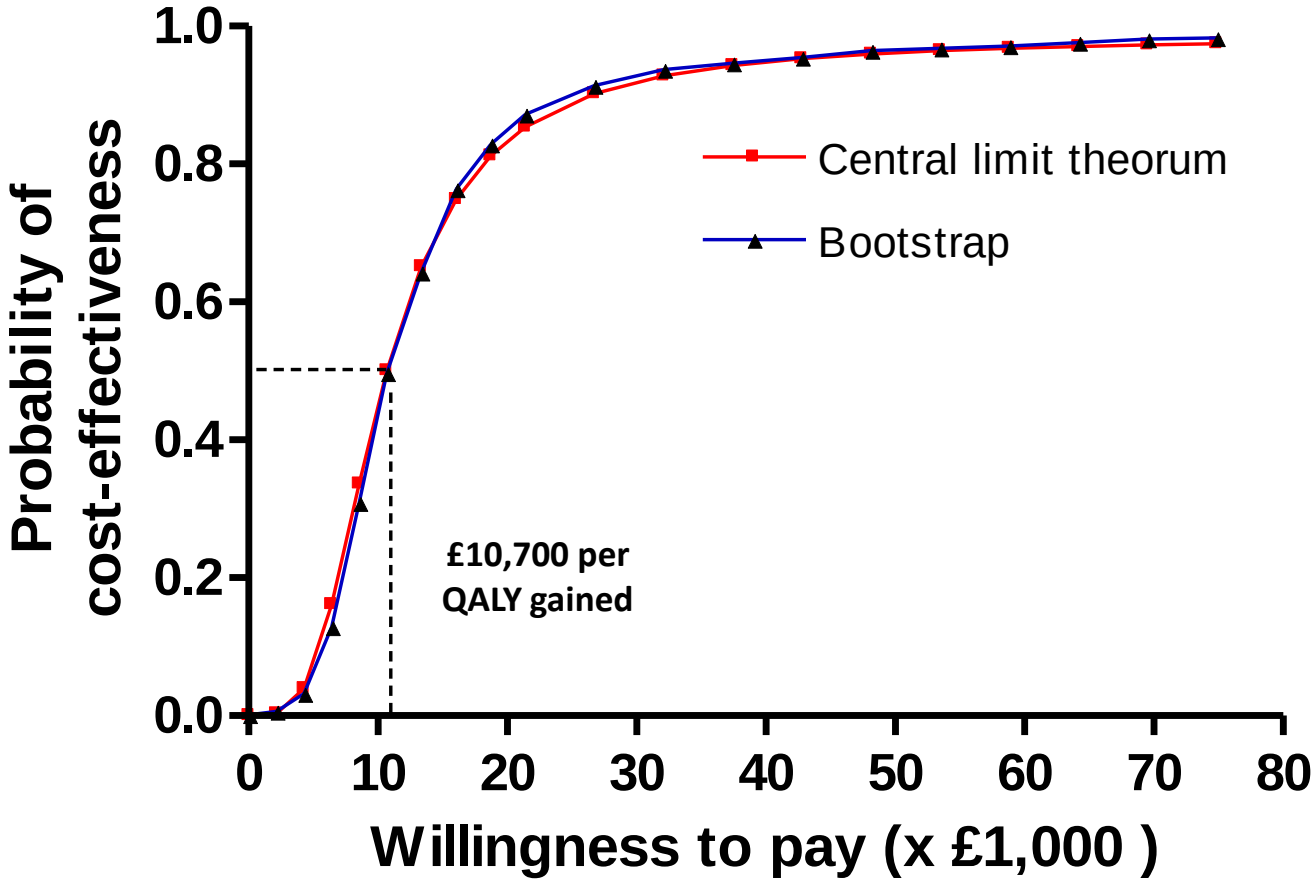


Based on Parsons et al 2009

Cost-effectiveness acceptability curve



Cost-effectiveness acceptability curve



Parsons et al 2012

Cost-effectiveness ('cost per QALY') gained by a screening programme (with supplements), by malnutrition risk and baseline mortality (>65y)

	Mortality (60d)	
	3%	5%
Malnutrition (Medium + High risk)		
4%	£9,000	£6,000
6%	£8,000	£5,700
8%	£7,200	£5,200

(NICE 2006 report; part of 2-way sensitivity analysis)

Conclusions

- The budget for healthcare has decreased in the Republic of Ireland in recent years. The effect of this on nutritional care is uncertain.

- Economic models of nutritional interventions, by NICE, suggest that improvement in nutritional care results in a cost saving and is cost-effective

- Economic models of specific conditions also indicate cost-effectiveness of oral nutritional support

- There is a need for critical systematic reviews on the economics of nutrition interventions and of existing templates for economic modelling.

Who said cost-effectiveness analysis is useful (email circular)?

- There is more money being spent on breast implants and Viagra today than on Alzheimer's research.
- This means that by 2040, there should be a large elderly population with perky boobs and huge erections and absolutely no recollection of what to do with them.