Medical Research and the UK economy: Complementarity and the Rate of Return

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Spillovers in medical research

Sussex et al. 2016 “Quantifying the economic impact of government and charity funding of medical research on private research and development funding in the United Kingdom.” BMC Medicine, 14:32
Biomedical and health care research expenditure in the UK since 1982

Expenditure (£ million, constant 2012 prices)

Year


Expenditure (Government, Charity, Public (Government & Charity), Private)
1. Is there a long run equilibrium relationship between the level of
   • Government and charity biomedical and health research expenditure in the UK; and
   • Private sector pharmaceutical R&D expenditure in the UK?
2. Are these complements or substitutes in the long run?
3. What is the long-run **elasticity** of private spend with respect to public spend?

1. Does public spend really affect private?
2. Positively or negatively?
3. How much bang for the bucks?
What we found

• 1% increase in ‘public’ expenditure on R&D will lead eventually to between 0.38% and 1.12% increase in private expenditure on R&D. Best model suggests an elasticity of 0.81

• £1 increase in public+charity research spend produces an eventual £0.99 increase in private pharmaceutical industry R&D in the UK

• => 15%-18% real rate of return to the economy from public investment in medical research in the UK
“Conclusions: The public’s decisions about how much to donate to cancer research or other medical research charities are not greatly affected by (hypothetical) changes to government plans about the amount of public funding of cancer or other medical research.”