

Institution: University of Sussex
Unit of Assessment: UoA 19 Business and Management
Title of case study: Changing the framework for industrial policy: from fixing market failures to shaping and creating markets
<p>1. Summary of the impact</p> <p>Research led by Professor Mazzucato has changed the framework used by UK and EU policy-makers to design innovation and industrial policy. Her work on <i>The Entrepreneurial State</i> has influenced how policy-makers think beyond a 'market-failure' framework and use in its place a 'mission-oriented' framework: not only fixing market failures but actively trying to shape and create markets. This new framework has fed into specific areas of sector-related policy including life sciences. The influence has been acknowledged directly in ministerial speeches; cited by a 2012 Department for Business, Innovation and Skills policy paper; and discussed extensively in the international media, including lead articles in <i>The Economist</i>, the <i>Financial Times</i> and <i>Forbes</i> which have recognised the 'heretical' nature of this work.</p>
<p>2. Underpinning research</p> <p>Mazzucato's work on the economics of innovation policy has debunked myths of the state's role in the economy as simply 'fixing' market failures, or at best 'facilitating' innovation through horizontal measures – commonly promulgated by governments worldwide. Her work on <i>The Entrepreneurial State</i> [see Section 3, R1, R2] points to the ways in which the state has, through the direct funding of high-risk areas and mission-oriented planning, provided the courageous, high-risk investments that have led to the development of new technologies and sectors. The work, funded initially by an FP7 EU grant, began while Mazzucato was at the Open University, but was subsequently expanded through a Ford Foundation grant that Mazzucato received soon after joining Sussex in 2011. This new work has culminated in a trade book for Anthem [R1] and three journal articles [R2, R4, R5], as well as various forms of policy papers.</p> <p>The work argues that major technological revolutions from the Internet to biotech, to clean-tech today, have required an active 'entrepreneurial' state, willing to support new areas, and take major risks in doing so. In a detailed study of Apple Computers, Mazzucato [R1] uncovers how every technology that makes the iPhone so 'smart' was 'picked' by public-sector funding (the Internet by DARPA, GPS by the US Satellite programme, touchscreen display by the CIA, communication technology and the voice-activated SIRI also by the Defence Department), and traces its funding back to public sources, with Apple Inc itself also receiving early support through a public grant (Small Business Investment Company programme, SBIC).</p> <p>The examples she provides go beyond military funding, extending to areas like biotechnology and health, where 75 per cent of the most radical new medicines come from public funding (e.g. through National Institutes of Health in the US). She illustrates how the traditional 'market-failure' framework cannot justify such broad-based and heavy support, and indeed leads to the accusation of 'picking winners'. Key messages she highlights are for government to rely less on tax incentives, and more on direct support to broadly defined 'missions' (putting a man on the moon in the past, tackling climate change in the future) which will require direct seed finance to high-growth innovative companies willing to engage with such high-level missions, and to direct support for new broadly defined technologies.</p> <p>Her research has also emphasised how such risk-taking by entrepreneurial states will inevitably produce many losses: for every Apple there is a Solyndra (bankruptcy), and thus argues that the state must think more strategically about how to reap a return on the upside of such investments to fund such losses, as well as the next round of funding. She has encouraged policy-makers to consider retaining equity, a 'golden share' of the IPR, or using income-contingent loans/grants.</p>

Impact case study (REF3b)

Indeed, her follow-up study on Apple's business model [R4] has focused on the need to consider this 'risk-reward' problem also by considering the need to de-financialise the real economy so that the companies earning the benefits re-invest their profits into production rather than financialised practices like share buy-backs [R3, R5].

3. References to the research

- R1** Mazzucato, M. (2013a) *The Entrepreneurial State: Debunking Private vs Public Sector Myths*. London: Anthem Press.
- R2** Mazzucato, M. (2013b) 'Finance, innovation and growth: finance for creative destruction vs destructive creation', in Mazzucato, M. (ed.) special issue of *Industrial and Corporate Change*, 22(4): 869–901.
- R3** Mazzucato, M. (2012) *Rebalancing What?* Policy Network Policy Brief <http://www.policy-network.net/publications/4201/Rebalancing-What->
- R4** Lazonick, W., Mazzucato, M. and Tulum. O. (2013) 'Apple's changing business model: what should the world's richest company do with all those profits?', *Accounting Forum*, 37(4): 249–267.
- R5** Lazonick, W. and Mazzucato, M. (2013) 'The risk–reward nexus in the innovation–inequality relationship: who takes the risks? Who gets the rewards?', in Mazzucato, M. (ed.) special issue of *Industrial and Corporate Change*, 22(4): 1093–1128

Outputs can be supplied by the University on request.

Grants:

European Commission, Collaborative Project: *Finance, innovation and growth* (FINNOV). (2 million Euros) Principal Investigator (PI), Coordinator and PI of EC FP7 (2009-2012) www.finnov-fp7.eu. 7 partners including SPRU

Institute for New Economic Thinking, Finance and Innovation: *A Schumpeter-Minsky synthesis*. (\$200,000) Principal Investigator (PI) with Randy Wray, 2012-2014

Ford Foundation, Reforming Global Finance initiative: *Financial markets and the entrepreneurial State*. (\$200,000) Principal Investigator (PI), 2012-2014

4. Details of the impact

Mazzucato's work has changed political discourse about how governments should drive innovation. As a result of private meetings with ministers, public presentations, think-tank publications and media appearances, both the UK government and opposition have taken on board her view that the state has a more direct role to play in the development of innovative industries. A letter from the office of Chuka Umunna MP (Shadow Business Secretary) notes that her work makes a cross party 'contribution to improving the quality of public debate and political discourse' [C1]. Influence on discourse is demonstrated in speeches as well as public endorsement of her work, but there is also concrete evidence of changing policies and new government programmes. This influence is felt in Europe as well as the UK.

In terms of a fundamental underpinning of policy approaches to innovation, Minister of State David Willetts has cited her work on *The Entrepreneurial State* in two recent speeches, where he credits Mazzucato with introducing into the UK the understanding of the state as not only fixing markets but also shaping them [C2a/b]. The work was referenced in BIS's key 2012 growth paper which underpinned the government's growth agenda [C3] and her influence on the Secretary of State for Business, Innovation and Skills, Vince Cable's growth strategy was highlighted in the CBI's *Business Voice* magazine [C4]. Cable cited Mazzucato in his August 2013 speech on why he set up the Catapult Centres, and Mazzucato was invited to present her views alongside Cable at the launch of the government's Innovation Strategy which took place at Nesta on 21 November 2012.

Her research has had an impact on the Labour Party's Shadow BIS Strategy, with the Special Advisor for Chuka Umunna MP stating that his flagship 'Active State' agenda, which culminated in a speech he gave in Liverpool in March 2012, was greatly influenced by Mazzucato's insistence on

a new framework (C1b). In listing what government must do to nurture innovation-led growth, Umunna states in this speech *"For some, this might be viewed largely as an extension of the 'market failures' argument. I'd take that. But it seems to me that there is a difference between government positively adding new dimensions to the market, and government simply oiling an existing machine."* (C1b).

The work showing the effect of US government investment on Apple has influenced the government's approach to 'picking' technologies for investment, noted by Willets in the 'Our High Tech Future' speech (C2a) and this has fed through into sector policies. Willett's has acknowledged Mazzucato's influence not only on his understanding of technologies needing direct support (the basis of his '8 Great Technologies' initiative) but also the UK's Life-Sciences Strategy, when he said; *"Our initiatives aimed at bridging the valley of death have been influenced by Mariana's work that has shown that even in the US government goes close to market in supporting life sciences. We are now doing the same in Britain."* (C1b). Indeed, her work was referenced in the House of Commons oral evidence taken before the science and technology committee 'Bridging the "valley of death": Improving the commercialisation of research' (C5).

The influence of the research has not been restricted to the UK. The head of policy in the Dutch Ministry of Economic Affairs wrote that: *"Professor Mazzucato's vision has had a significant impact on current policy discussions in the Netherlands on innovation policy, specifically in relation to the role of mission-oriented research and the role the government can have in this area."* (C6a) This is the result of Mazzucato's presentation to the Dutch Ministry of Economic Affairs, and a direct briefing of the Minister, Herald Kamp in January 2013. Following her presentation to economists in the department, Mazzucato then recorded a 15-minute interview for the national TV news (C6b), and a two-page spread in the NRC newspaper on Feb 3 2012 (C6c). This prompted much discussion in social and traditional media, these, as acknowledged by Deputy DG for Enterprise and Innovation, Wessling, 'also indirectly influence policy-making'.

Her work has also had a strong influence in the European Commission, where Mazzucato sits on two 'high level panels' influencing EC innovation policy. Clara de la Torre, the Director of the EC's DG on Research and Innovation states in a letter *"...your powerful advocacy has motivated many of my colleagues here and in national authorities and your research has provided new scientific evidence for the rationale of research and innovation policies."* (C7a). Indeed, the EC chose an interview with Mazzucato on her thinking to launch its new Horizon 2020 magazine (C7b).

Given the high risks that an active government agenda entails, Mazzucato has also highlighted the importance of earning back a reward on the upside, to cover the losses on the downside. In a recent article in *Research Fortnight*, it was stated that Mazzucato's work is directly influencing the way that the Labour Party is considering allowing government to earn back a return on its investments (C8). Her work on risks and rewards is highlighted in an influential Report written by the High Pay Centre (C9) where it is stated that her work presents a framework for understanding the "relationship between value creation and value extraction".

One of the key ways in which Mazzucato's work has influenced the political discourse on industrial policy and post-crisis economic recovery is through her high profile media activity. Mazzucato has contributed actively to broader policy and media discussion of industrial policy and post-crisis economic recovery. In the past eighteen months, she has appeared twelve times on BBC Newsnight, five times on the Radio 4's Today Programme (once with Vince Cable), and several times on BBC World News, Bloomberg and Sky News. She has written regularly for *The Guardian* newspaper, and her TedGlobal talk generated extensive coverage from CNN, Le Monde, NY Times, Forbes [C10].

In the *Independent*, journalist Margareta Pagano has written that Mazzucato's work on the role of the government in being the lead engine of innovation-led growth should be "bed-time reading for all MPs". In a book review in the *Financial Times* Martin Wolf concludes, *"This book has a controversial thesis. But it is basically right. The failure to recognise the role of the government in driving innovation may well be the greatest threat to rising prosperity."* And most notably, *The Economist*, which usually depicts the State as a menace to innovation, admitted in a recent review of her book in the prestigious Schumpeter Column, *"Ms Mazzucato is right to argue that the*

state has played a central role in producing game-changing breakthroughs, and that its contribution to the success of technology-based businesses should not be underestimated.”

5. Sources to corroborate the impact

- C1** Chuka Umunna MP:
 a) Letter dated 20 May 2013
 b) Active State Agenda speech (March 2012)
<http://www.newstatesman.com/uk-politics/2012/03/active-government-chuka-umunna>.
 c) Speech at CIPFA (June 2013)
<http://www.labourbisteam.org.uk/chuka-umunna-speech-to-cipfa-annual-conference>.
- C2** Rt. Hon. David Willetts MP:
 a) Two recent speeches cited Mazzucato' work: Our High Tech Future' speech in Jan 2012 (http://www.conservatives.com/News/Speeches/2012/01/David_Willetts_Our_high_tech_futu_re.aspx); October 2012 Bernal
http://www.bbk.ac.uk/downloads/BernalLecture2012_DavidWilletts.pdf/view
 b) BBC Newsnight interview with Willetts who claims influence of Mazzucato's work on UK Innovation Strategy <http://www.youtube.com/watch?v=DT0r4CdoMTY>
 c) In a letter dated 24 June 2013, Willetts wrote that Mazzucato's work 'helped to change my thinking about the role of government in innovation and that is reflected in our policies'.
- C3** BIS:
<http://www.bis.gov.uk/assets/BISCore/innovation/docs/E/11-1386-economics-innovation-and-research-strategy-for-growth.pdf> that "provided the underpinning" for the the government's 2012 'Innovation and research strategy for growth'
<https://www.gov.uk/government/publications/government-innovation-and-research-strategy>
- C4** CBI Business Voice <http://www.cbi.org.uk/media-centre/news-articles/2012/11/cbi-report-is-calling-for-a-more-coherent-approach-to-industrial-strategy/>
- C5** Parliament Evidence
<http://www.publications.parliament.uk/pa/cm201213/cmselect/cmsctech/uc348-iii/uc34801.htm>.
- C6** Dutch Ministry of Economic Affairs:
 a) A letter dated 5th April 2013.
 b) <http://rtl.ksya.net/video/rtl-z-interview/mariana-mazzucato/8f2c648cfd1e3fa1aefb31beba2d6533>
 c) scanned newspaper article: http://marianamazzucato.com/file_upload/000000000079.pdf
- C7** European Commission:
 a) a letter dated 22 October 2013
 b) http://horizon-magazine.eu/article/hidden-keys-europe-s-rd_en.html
- C8** **Research Fortnight**
<http://www.researchprofessional.com/0/rr/news/uk/politics/2013/10/shadow-science-minister-eyes-public-return-on-research-investment.html>
- C9** High Pay Centre http://marianamazzucato.com/file_upload/000000000073.pdf
- C10** Media reports:
Independent: <http://www.independent.co.uk/news/business/comment/margareta-pagano/margareta-pagano-the-unknighting-of-fred-goodwin-can-only-be-redeemed-by-genuine-reform-6377757.html>
Financial Times: <http://www.ft.com/cms/s/2/32ba9b92-efd4-11e2-a237-00144feabdc0.html>
The Economist: <http://www.economist.com/news/business/21584307-new-book-points-out-big-role-governments-play-creating-innovative-businesses>.