

**Revise and Expanded Slides from the  
Conference on “Innovation Consensus”  
April 19, 2012**

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*Part of the work cited in these remarks was done under the auspices of The Conference Board Program on Intangible Capital. The data presented are derived from the research of a number of colleagues, including Carol Corrado, Janet Hao, Kirsten Jaeger, and Bart van Ark. Citations are summarized on the last slide. Opinions are solely those of the author. The research is copyrighted to a number of sources, and should not be quoted or reproduced without the express permission of the authors or relevant copyright holders.*

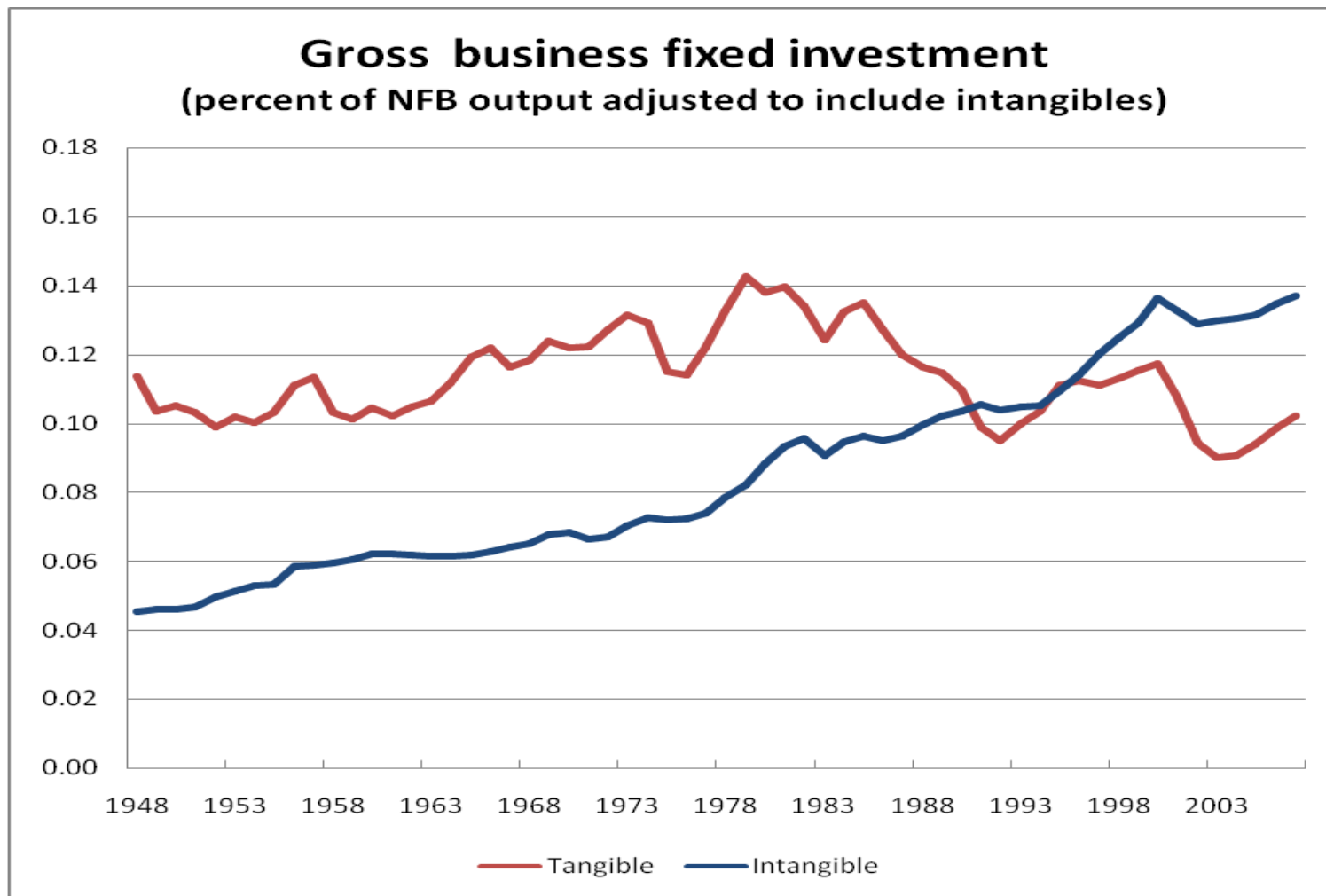
- ***Where is America in terms of innovation and competitiveness?***
  - America is the international leader in the knowledge/information economy
- ***Why?***
  - America invests heavily in knowledge assets
    - human and non-human
    - public and private
- ***How?***
  - By recognizing that innovation involves more than invention, more than science and technology
  - Business innovation involves investment in broad range of intangible capital
    - full R&D more than just scientific R&D
    - intangibles include product design, brand equity, and organizational capability via worker training and matching, management systems, strategic planning

# U.S. Intangible Investment Rates in the *Nonfarm Business Sector 2006*

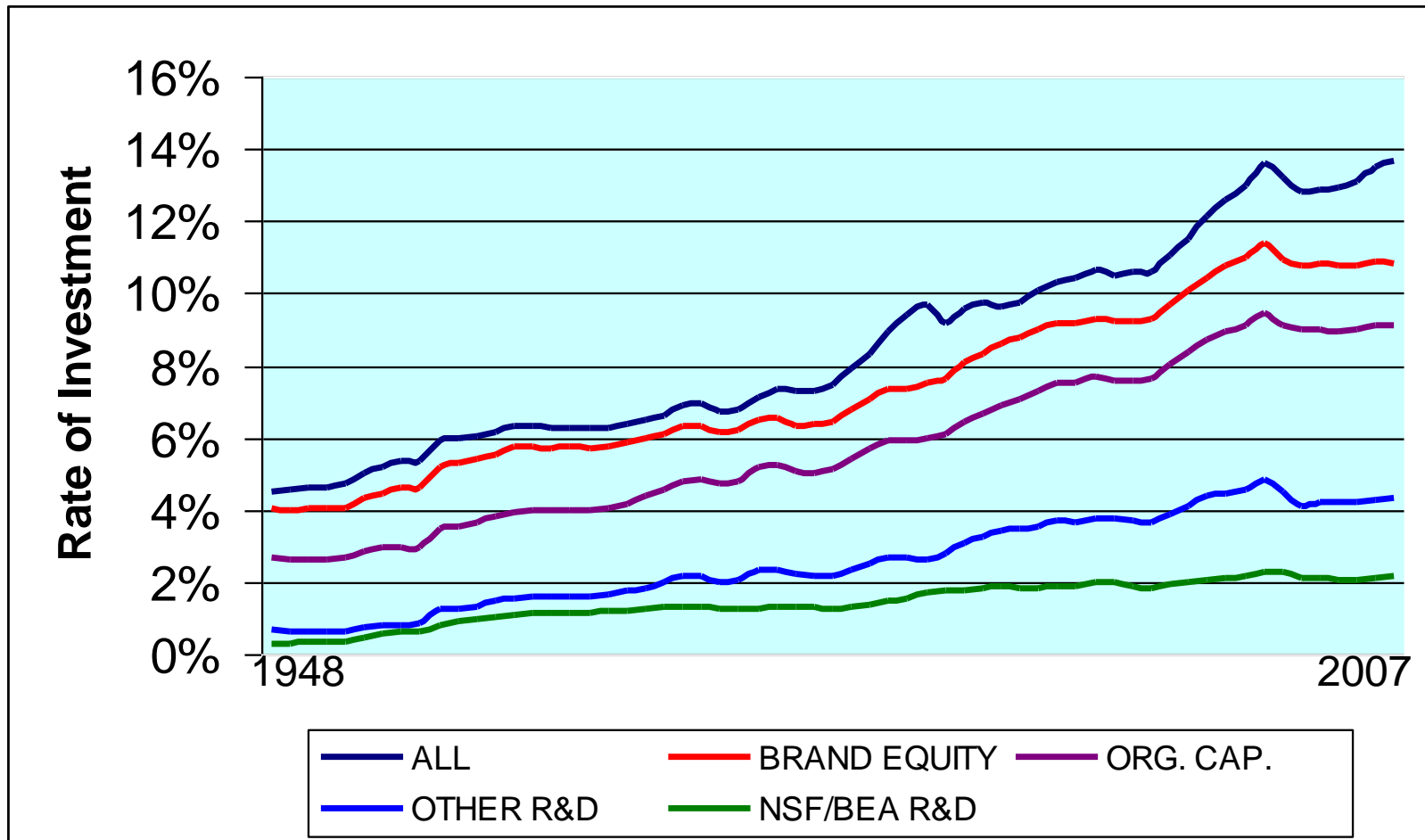
<b>1. Computerized Info</b>	<b>1.61</b>
<b>2. Innovative property</b>	<b>5.31</b>
<b>a) conventional R&amp;D (NSF/BEA)</b>	<b>2.13</b>
<b>b) other R&amp;D</b>	<b>2.16</b>
<b>c) mineral exploration</b>	<b>1.02</b>
<b>3. Econ. competencies</b>	<b>6.58</b>
<b>a) Brand equity</b>	<b>1.75</b>
<b>b) Firm-specific Human Capital</b>	<b>1.37</b>
<b>c) Organizational structure</b>	<b>3.35</b>
<b>Total Intangible Investment</b>	<b>13.49</b>
<b>“Core” Investment ex soft &amp; design</b>	<b>10.35</b>
<b>Memo: Tangible rate of Investment</b>	<b>9.71</b>

Sources: Corrado and Hulten (2010). Rates as% of expanded NFB output.

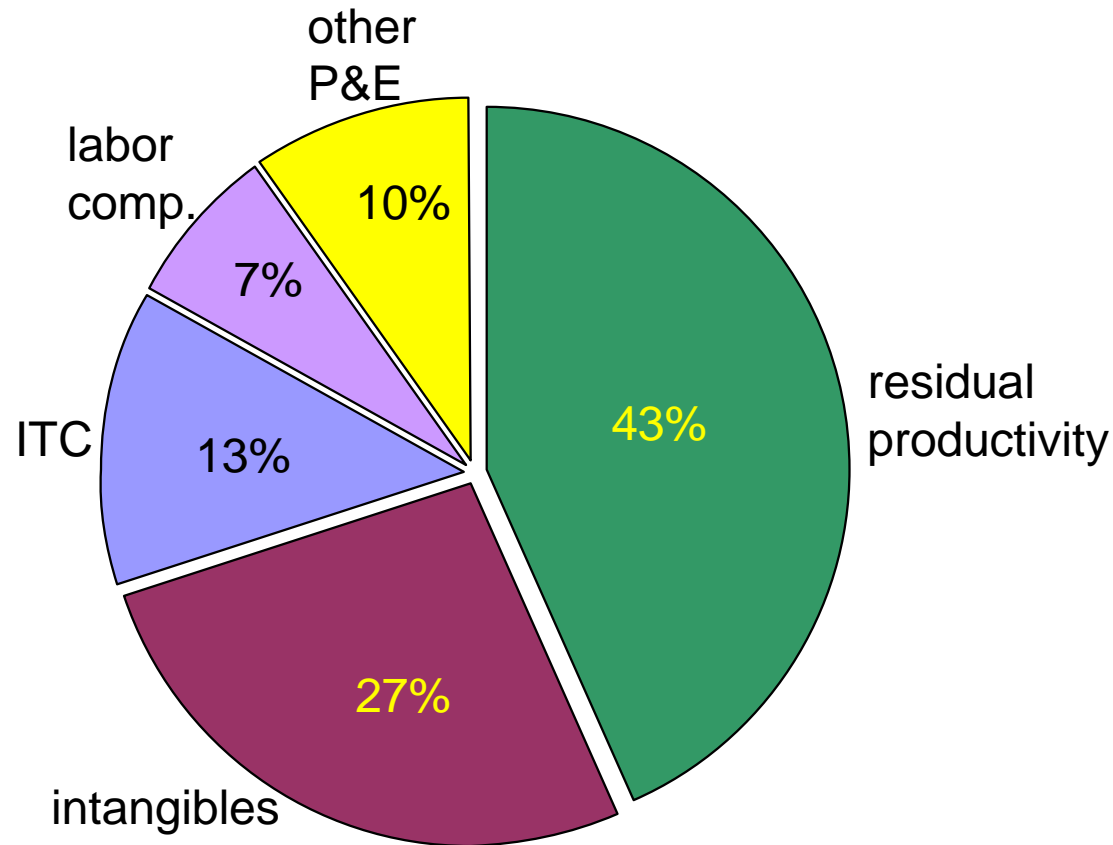
# Intangible investment is the dynamic element in U.S. business capital formation 1948-2007



# Conventional NSF R&D is only a small fraction of total intangibles; hasn't increased as share of output since late 1980s



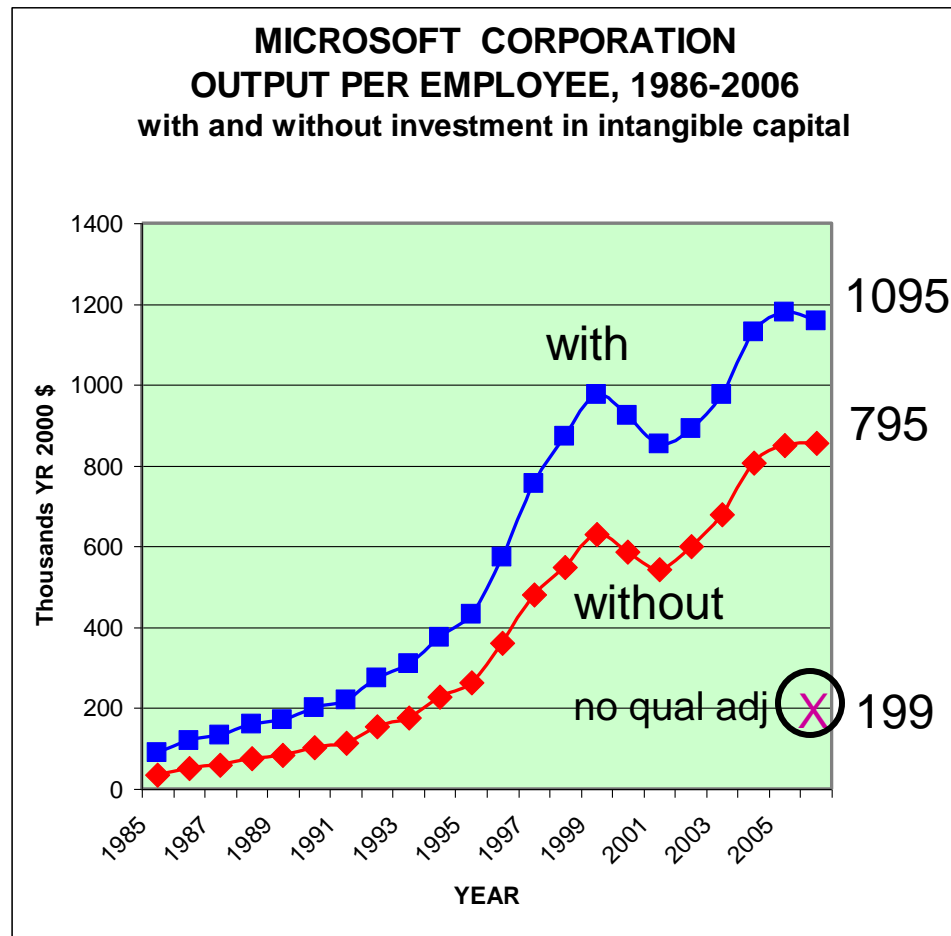
# Intangible and ITC capital drove the 2.76% growth in output per worker 1995-2007



Source: Corrado and Hulten, AER, May 2010

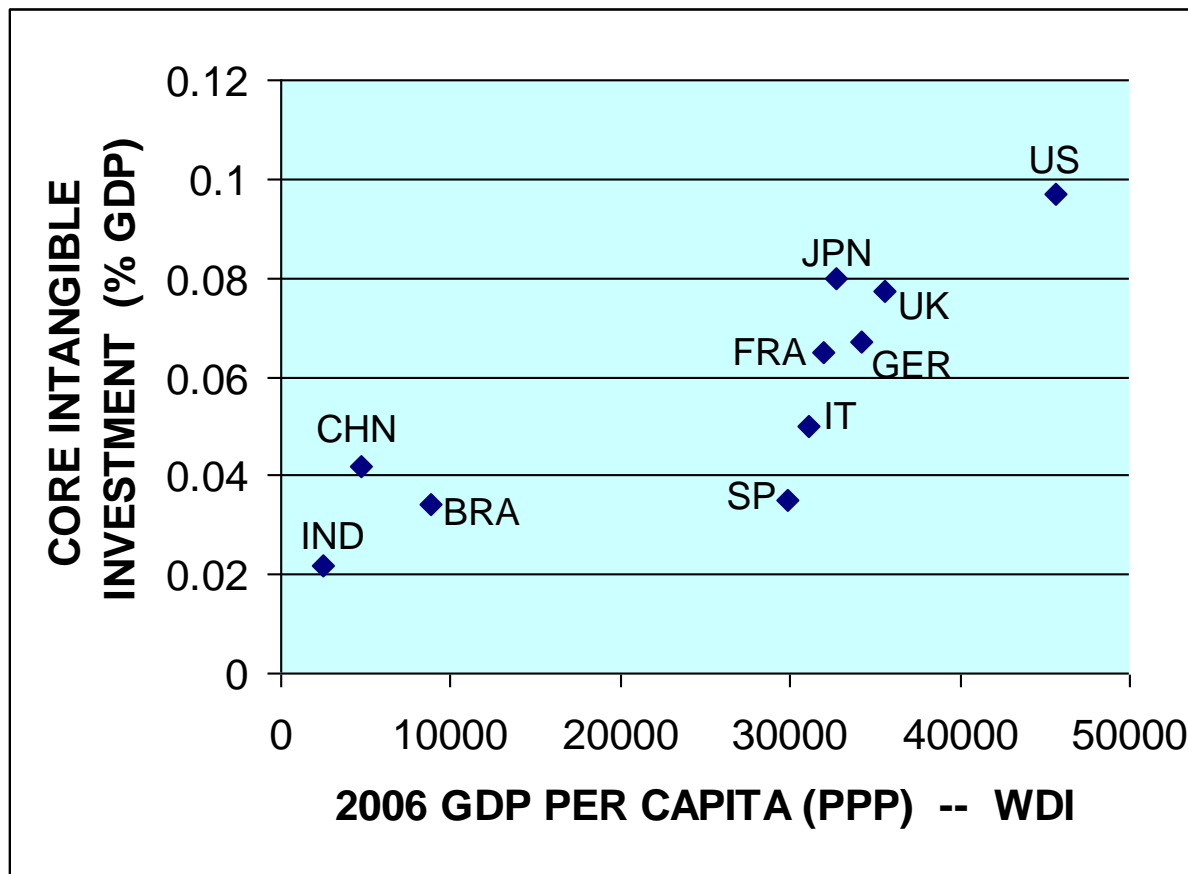
# MICROSOFT CORPORATION

*54% of real value added growth* 1988-2006 due to intangible capital  
*87% of 2006 employees* in product research, design, and marketing



Source: Charles Hulten, "Decoding Microsoft", NBER Working Paper 15799 (2010).

# GDP per capita positively associated with “core” business investment in innovation

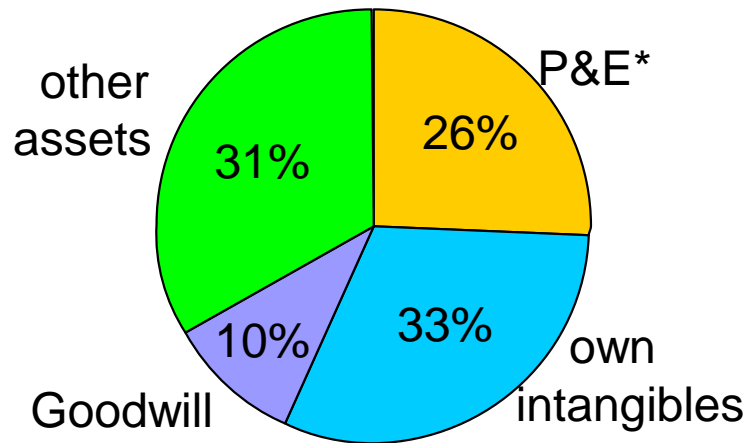


Sources: The sources for the seven countries on the right-hand side of the figure are described in Van Ark et. al. (2009). The estimate for China is from Hulten and Hao, 2012; the India estimate is from Hulten, Hao, and Jaeger (2012); and the Brazil estimate is from Mark Dutz of the World Bank. Results are preliminary and should not be quoted or reproduced without permission of the authors.

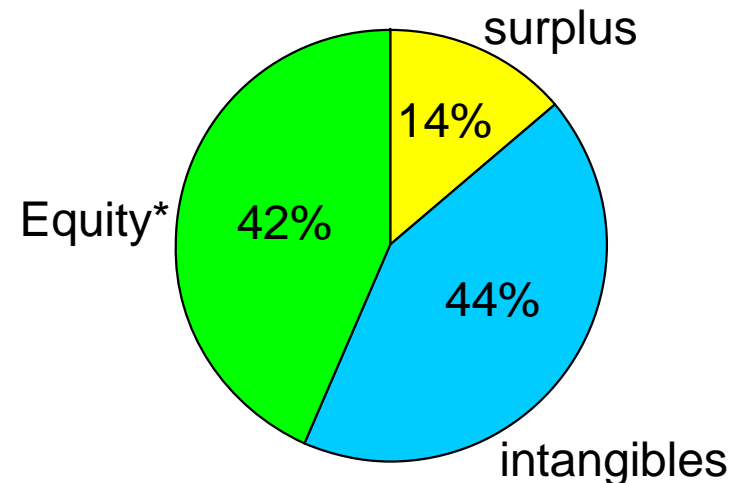


# Intangibles: most valuable productive assets in study of 613 U.S. firms reporting R&D in 2006

**OWN ACCOUNT INTANGIBLES  
33% OF TOTAL ASSETS**



**INTANGIBLES EXPLAIN 44% OF  
MARKET CAPITALIZATION**



\*P&E and equity revalued to current prices; goodwill includes accounting intang.  
Source: Data from Hulten and Hao, "What's a Company Really Worth?"  
NBER Working Paper 14548, 2008.

# Partial Citations

- Corrado, Hulten, and Sichel, “*Measuring Capital and Technology: An Expanded Framework*,” in *Measuring Capital in the New Economy*, Studies in Income and Wealth, vol. 65, The University of Chicago Press for the National Bureau of Economic Research, Chicago, 2005
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- Hulten and Hao, “*The Role of Intangible Capital in the Transformation and Growth of the Chinese Economy*”, 2012, unpublished
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