

2020

36th IARIW General Conference

Paper Prepared for the 36th IARIW General Conference, Oslo, Norway, August 24-28, 2020

Household Innovation and R&D: Bigger Than You Think

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The rise of free goods and the digital revolution have generated new interest in household activities and how they should be measured. Earlier research considered other household activities, including household production and human capital accumulation. Yet, one important household activity, namely investment in household R&D (or household innovation), has to date not been considered in any of the literatures on national-accounts-style measurement of household activities. What is household R&D or innovation? It is the dedication of household resources to creating a product or process that will generate a service flow to the household (and often to other households) in the future; that is a household intangible capital asset. For example, a medical patient with a chronic disease like sleep apnea, may develop a significantly improved medical device to manage his or her disease, and then tell others about it. This paper takes a step toward valuing household innovation by developing time series estimates of nominal and real investment and capital stocks for household R&D for product innovations in the United States. In the U.S., we find that household product R&D is significant. Our estimate of nominal investment in household R&D in 2017 is \$44 billion and the nominal capital stock amounted to \$252 billion. Household investment in R&D is more than 11 percent of R&D funded by the private business sector in 2017, and about half of what businesses spend on R&D to develop new products for consumers. Moreover, if household R&D were judged to be in scope for GDP, GDP would have been 0.2 percent higher in 2017. We conclude that household R&D is an important feature of household activity and, more generally, of the overall landscape of innovation. We believe it warrants more attention.