Including Marketing in Measures of Capital

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Based on Sveikauskas et al. 2023, a joint BEA/BLS project which will be published soon in the *Review of Income and Wealth*

Presentation to BEA Advisory Committee

October 13th 2023
• Guidance note on marketing (IMF 2022)
  – Marketing assets are an important part of the modern global economy
  – Reason for not treating marketing assets as fixed assets is due to the difficulty of measuring their value
Questions for Committee

• What proportion of marketing expenditures are investment?
  – What existing datasets can shed light on this question?
  – Could new datasets like on-the-job time diaries help?

• How can we estimate marketing prices back to 1929?

• How do digital ads improve marketing asset quality?
  – Did previous technology improvements like television or direct mail change quality?

• Can we split marketing investment between capital and labor?

• How should we measure the lifespan for marketing assets?
• Show that marketing can be useful for >1 year
  – Explain relationship between entertainment originals (EO), “free” content, and marketing

• Marketing categories studied
  – Advertising; website hosting/design; marketing consulting; and marketing research (surveys)
  – Our paper tracks both purchased and own-account marketing (in-house marketing by media companies and marketing as a secondary product by non-media companies)
  – Our calculations assume a fixed share of marketing output is capitalized

• Research left for future
  – Impact of digital targeting and other technology on capital quality
  – Other topics: lifespan for marketing assets; intangible capital interactions, marketing owned by workers (Koh et al. 2020), spillovers
Marketing Can Be Useful for >1 Year

• Randomized control trials
  – Households who saw extra cable ads for specific products bought more of those products for at least two years (Lodish et al. 1995).
  – Cities which saw extra ads for the 2010 Census (Bates et al. 2012) had higher self-response in 2020

• Natural experiments
  – Areas of East Germany that saw advertising-supported West German TV acted differently even after reunification (Bursztyn and Cantoni 2016)
  – Migrants buy specific brands that were advertised in their birth city for decades after a move (Bronnenberg et al. 2012)
  – Car makers advertised during WW2 even though they didn’t produce civilian cars (Martin 2012)
  – Companies which stopped advertising during WW1 lost market share after the war (Stole 2012)
Brief Review of Literature

• Names in the literature for marketing assets:
  – “Goodwill” and “trademarks” are used by business accountants
  – “Customer capital” and “brand” are used by economists (IMF 2022) (Gourio and Rudanko 2014) (Bronnenberg et al. 2012)
  – “Carry-over” and “long-term effect” are used by marketers

• National accountants have started studying marketing assets
  – Sveikauskas et al. 2023, Heys and Fotopoulou 2022, Corrado et al. 2022, Silk and Berndt 2020, Corrado and Hao 2014, so on

• Marketing assets are separate from other intangible assets
  – Marketing = public awareness about a product/brand/category
  – R&D = scientific knowledge, software = computer instructions & EO = movies/tv show/etc.
Entertainment Originals ≠ Free Content ≠ Marketing

• **EO** = copyrighted assets that are owned by media companies
  – Short-lived EO is an intermediate input and long-lived EO is an intangible asset
  – GDP ↑ when long-lived EO creation is investment (Soloveichik 2013a-e)

• “**Free**” content is created by combining an EO with other inputs
  – Example: broadcasters combine TV shows with broadcast equipment
  – Free content is a barter transaction: users voluntarily trade attention in return for content
  – GDP ↑ when free consumer content is included in personal consumption (Nakamura et al. 2018)

• **Marketing** is created by combining attention and a message
  – Attention can be either given in return for content or taken without permission (i.e. telemarketing)
  – Short-lived marketing is an intermediate input and long-lived marketing is an intangible asset
  – GDP ↑ when long-lived marketing asset creation is investment (Sveikauskas et al. 2023)
Four Marketing Categories

- Advertising is a commodity that includes many NAICS industries
  - Printing and sign manufacturers (NAICS 3231 and 3399) produce paper materials, signs, and so on
  - Publishers/broadcasters (NAICS 51) provide print page space, time slots, and web space
  - Advertising agencies (NAICS 5418) design and run marketing and public relations campaigns

- Three smaller categories each include only part of a commodity
  - Website design and hosting (NAICS 5182 and 5415) covers non-software digital
  - Marketing consulting (NAICS 5416) covers planning of marketing campaigns
  - Marketing research (NAICS 5419) covers survey collection and analysis

- Data taken from BEA’s input-output (IO) tables, the Economic Census, the Service Annual Survey, and other sources
Capitalized Share of Marketing Output

• Product-focused marketing is embedded in product price
  – Like other embedded assets, it is not tracked separately as its own capital asset

• Examples of marketing asset investment:
  – Brand-focused marketing which builds general customer loyalty
  – Category-focused marketing which builds general customer awareness
  – Signs and promotional products like t-shirts are themselves long-lived

• We take our capital shares from Heys and Fotopoulou (2022):
  – Purchased advertising is 60 percent investment
  – Purchased non-advertising marketing is 80 percent investment
  – Own-account marketing is often product-focused and is 30 percent investment
Marketing Asset Price Discussion

• Marketing uses content to attract attention
  – Lower content creation costs mean that viewers expect better content (Nakamura et al. 2018)

• Price = BEA’s advertising commodity deflator for 1997-2020
  – Assumption: this price measures the nominal cost per unit of attention
  – Assumptions: the nominal cost per unit of attention is the same for purchased marketing and own-account marketing & the same for advertising and non-advertising marketing

• Historical price = weighted average of subcomponent prices
  – BLS’s PPI’s and BEA industry deflators are the main sources of subcomponent prices
  – Supplemented hourly advertising costs, proxy price series, and expert judgment
  – Pre-1982 price is more speculative than recent price indexes
Marketing Asset Prices Over Time
Investment Costs Relative to Overall GDP Prices, 2012 Base Year = 1

- BEA's advertising deflator
- Extrapolated deflator, based on BLS PPIs and hourly advertising costs
- Extrapolated deflator, based on hourly advertising costs
- Hourly advertising costs
Future Research: Marketing Asset Quality

• Techniques that increase short-term effect:
  – Targeting marketing towards customers likely to respond (Wernerfelt et al. 2022)
  – A/B tests to fine-tune marketing messages for each customer (Koning et al. 2019) (Tadelis et al. 2023)
  – Quick and accurate data collection about marketing effectiveness (Macdonald et al. 2012)

• Short-term marketing quality is likely rising:
  – Digital marketing is more effective than print because it uses all those techniques (Mandel 2019)
  – Even nondigital marketing uses the techniques above more nowadays

• Question: Is marketing asset quality rising?
  – We don’t know the techniques that which increase long-term effects
  – Distractions and polarization may offset technology improvement
Accounting Treatment of Marketing Assets

• Revisions to measured GDP:
  – Private for-profit output ↑ by the newly tracked investment
  – Government and non-profit output ↑ by the newly tracked CFC

• Statistical discrepancy is unaffected

• BEA’s fixed asset stock ↑ when marketing assets are included

• Revisions to measured productivity:
  – Measured intermediate inputs ↓ by marketing purchases which are shifted to capital
  – Measured output ↑ by newly tracked own-account marketing output
  – Marketing capital services are tracked as an additional production input
GDP Quantity Revision from Marketing
Revision to Average Annual Growth Rates for Select Periods

- 1929 to 1950
- 1950 to 1970
- 1970 to 1990
- 1990 to 2010
- 2010 to 2020

- Purchased advertising
- Purchased website design and hosting
- Purchased marketing consulting
- Purchased marketing research (surveys)
- Own-account
TFP Revisions from Output and Services
Revision to Average Annual Growth Rates for Select Periods

- Extra marketing services from 2.5% depreciation rather than 10%
- Extra marketing services from 10% depreciation rather than 45%
- Extra marketing services from 45% depreciation rather than 65%
- Marketing services, 65% depreciation (alternative model in paper)
- Marketing output
Future Research: Other Topics

• Intangible capital interactions for trademarks:
  – R&D to develop a new product
  – Marketing to develop a brand and teach customers about the brand
  – Software to manufacture the product consistently
  – Organizational capital to make the customer experience consistent

• Marketing as a consumer durable
  – Some intangible assets may be owned by workers rather than businesses (Koh et al. 2020)
  – Shifting marketing from a business asset to human capital doesn’t change GDP

• Marketing spillovers (negative or positive)
  – Like other externalities, marketing spillovers are not tracked in GDP (SNA 2008, section 3.92)
Conclusion

• Capitalizing marketing assets is feasible
  – We already have similar data on marketing as BEA has for other IPP’s
  – Other developed countries also have the necessary data to include marketing assets in their national accounts

• Measured growth changes when marketing is included in GDP
  – Real GDP growth before 2010 falls slightly
  – Real GDP growth after 2010 rises noticeably

• BEA needs to coordinate with BLS and other agencies
  – Marketing assets may require their own specialized price indexes