Including Marketing in Measures of Capital

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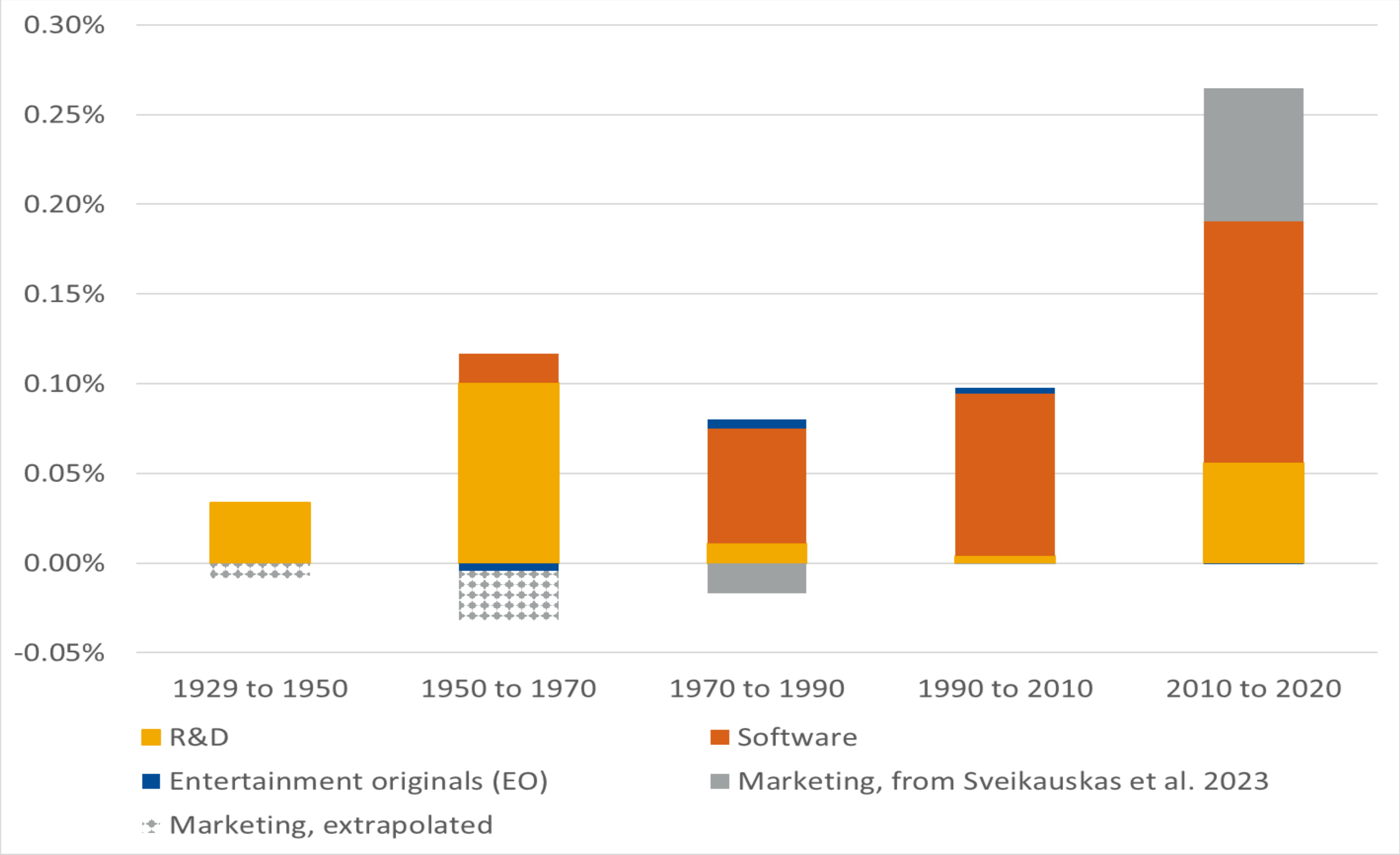
Based on Sveikauskas et al. 2023, a joint BEA/BLS project which will be published soon in the *Review of Income and Wealth*

Presentation to BEA Advisory Committee

October 13th 2023

Growth Impact of Intangible Capital Assets

Revision to Average Annual Growth Rates for Select Periods



- 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?

Presentation Outline

- 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

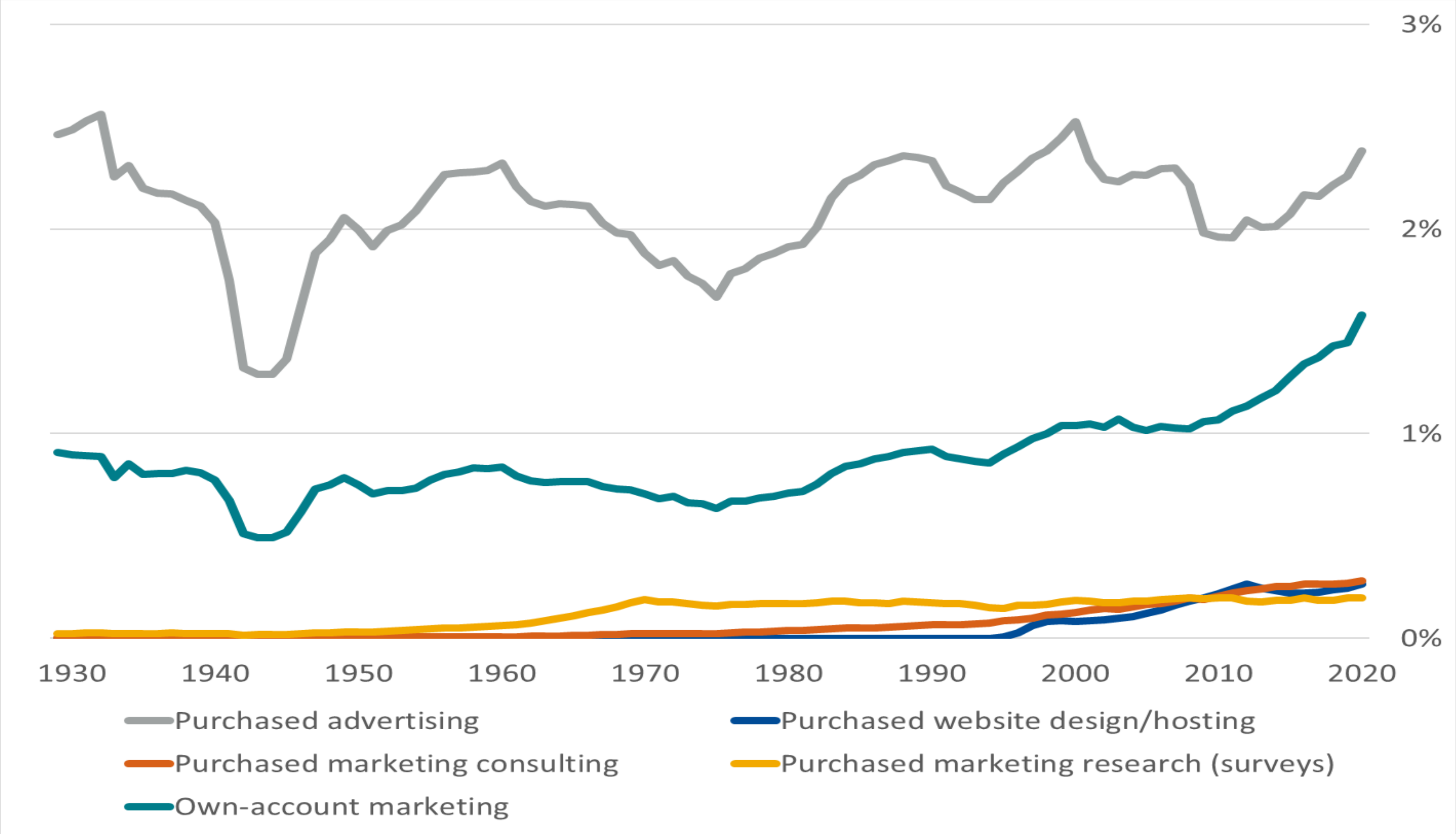
- EO = copyrighted assets that are owned by media companies
  – Short-lived EO is an intermediate input and long-lived EO is an intangible asset
  – GDP ↑ when long-lived EO creation is investment (Soloveichik 2013a-e)
- "Free" content is created by combining an EO with other inputs
  – Example: broadcasters 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

Marketing Output Over Time

Nominal Spending Relative to Nominal GDP

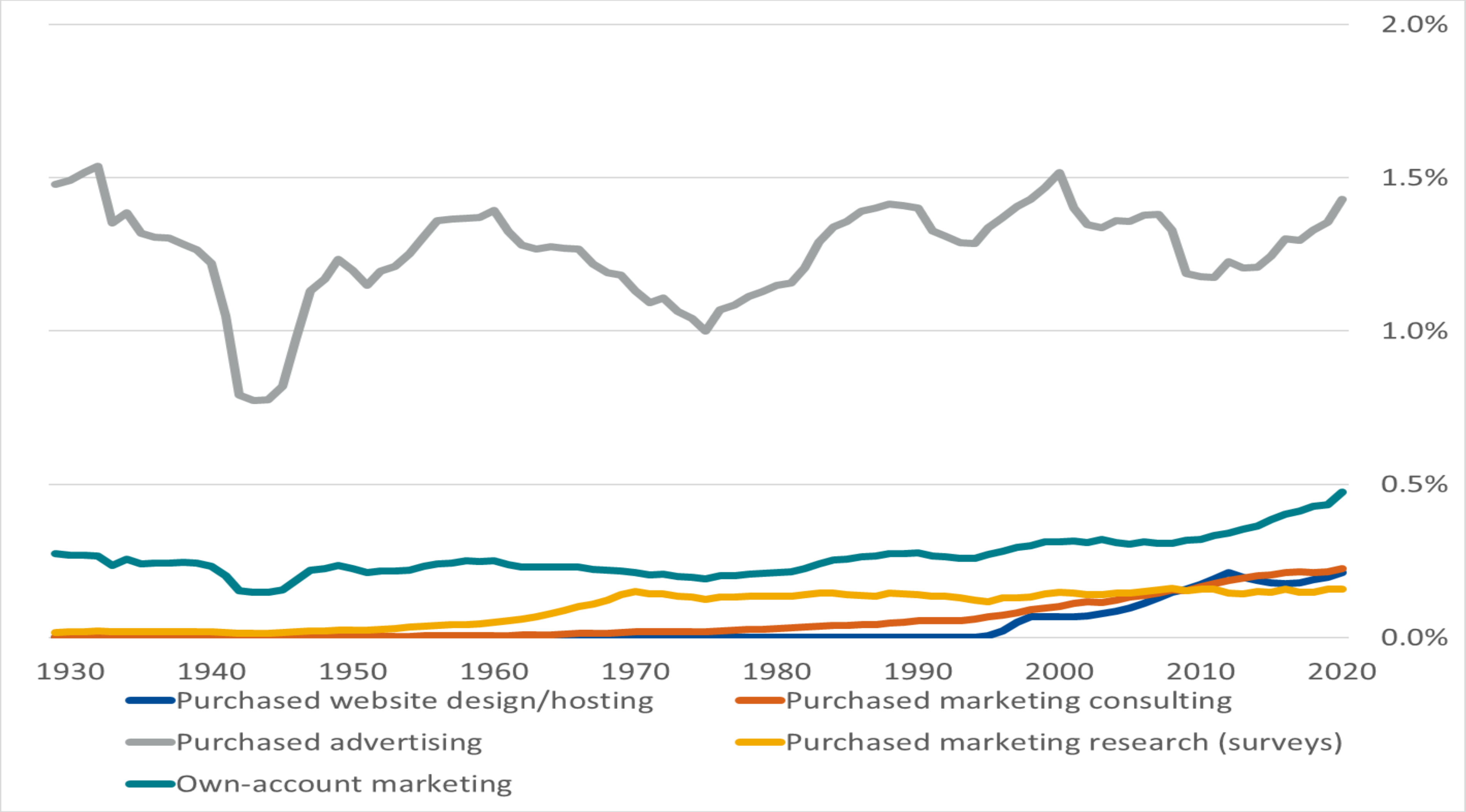


Capitalized Share of Marketing Output

- 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 Investment Over Time

Nominal Spending as a Share of Nominal GDP

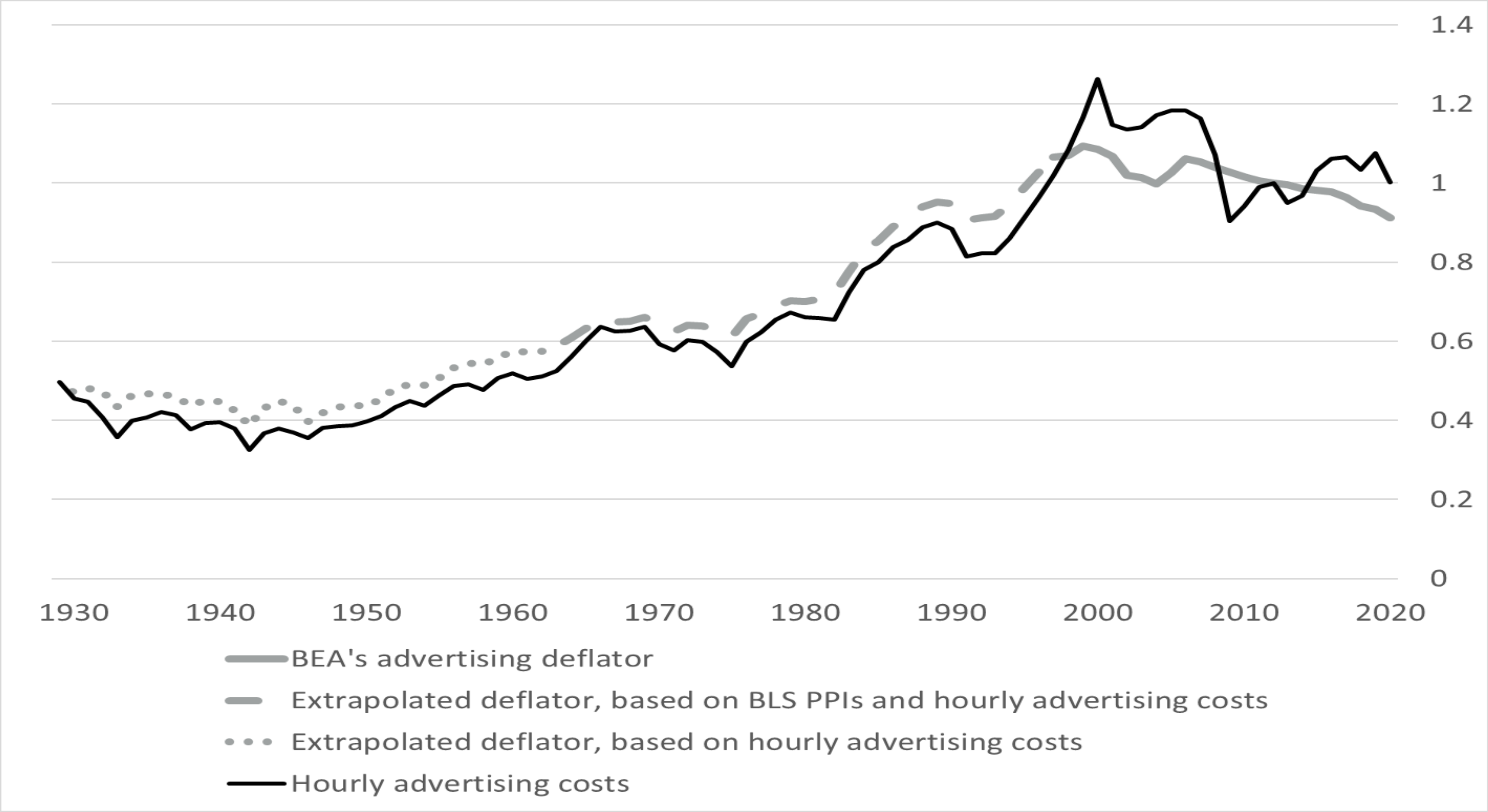


Marketing Asset Price Discussion

- 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



Future Research: Marketing Asset Quality

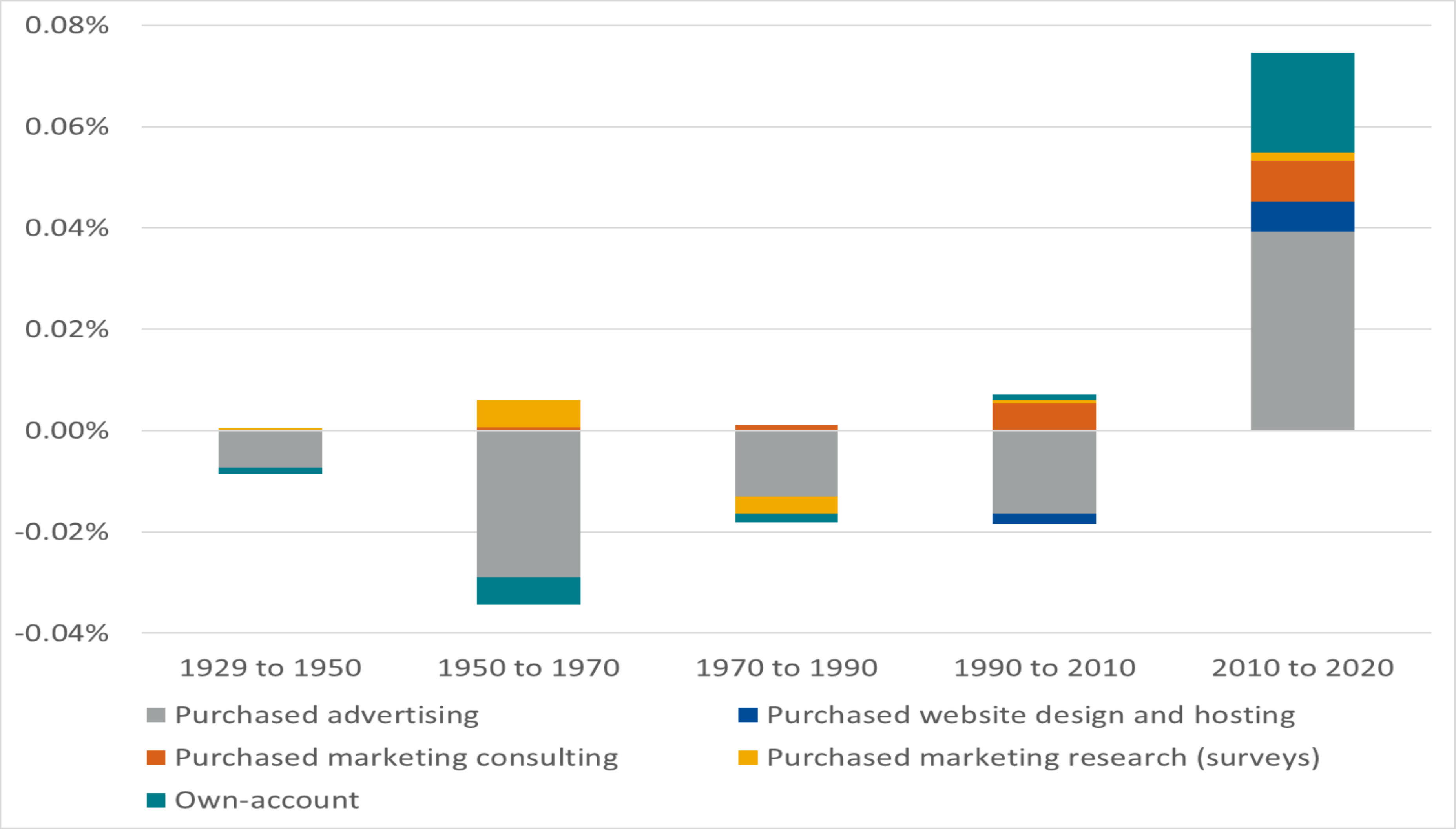
- Techniques that increase short-term effect:
  - Targeting marketing towards customers likely to respond (Wernerfelt et al. 2022)
  - A/B tests to fine-tune marketing messages for each customer (Koning et al. 2019) (Tadelis et al. 2023)
  - Quick and accurate data collection about marketing effectiveness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

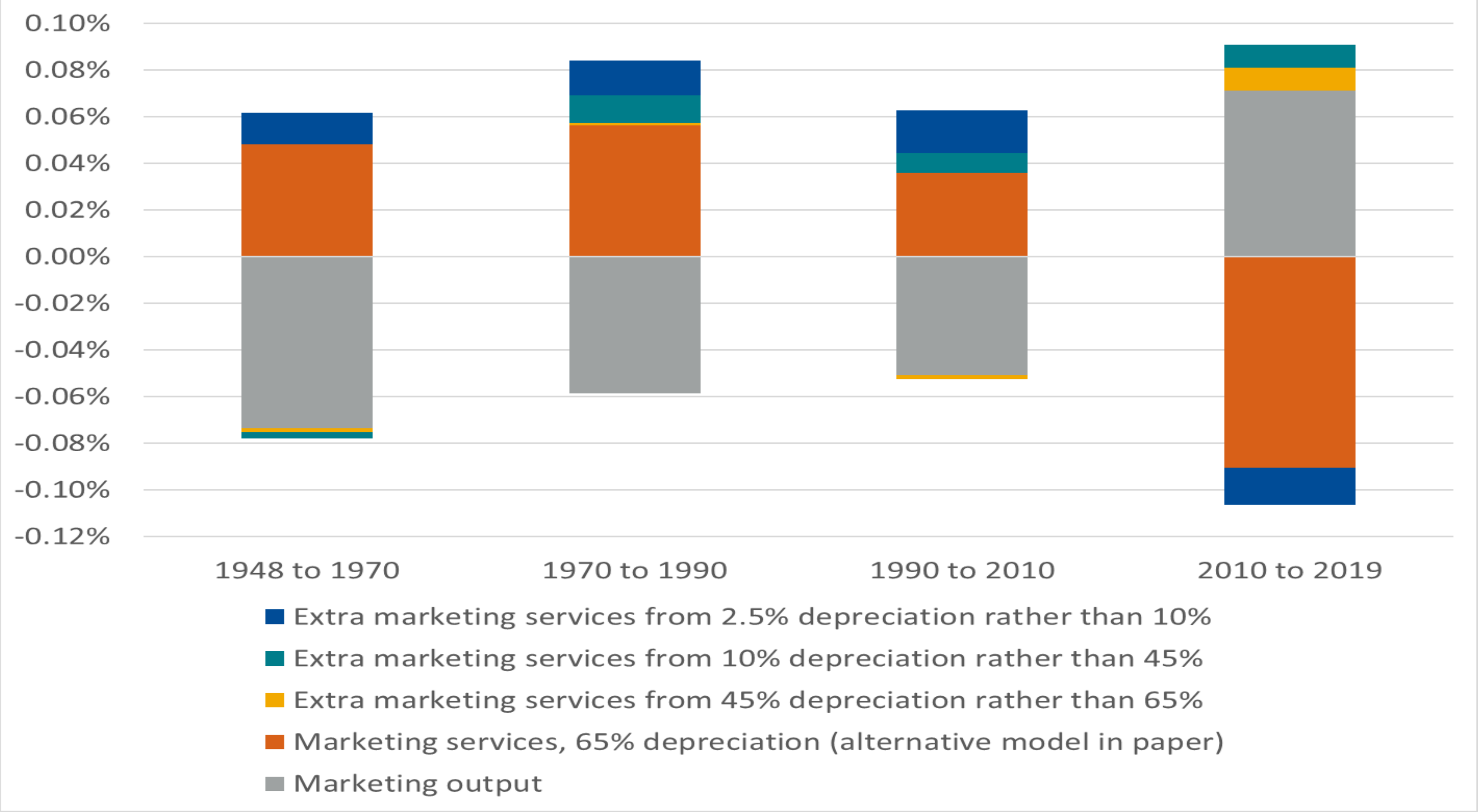
GDP Quantity Revision from Marketing

Revision to Average Annual Growth Rates for Select Periods



TFP Revisions from Output and Services

Revision to Average Annual Growth Rates for Select Periods



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