Luiss
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Global INTAN Invest

Intangible Assets in the Global Economy

Better Data for Better Policy

Estimating intangible assets for the Indian economy: methods and data description

Technical report

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1 Estimating intangibles in India

This section offers an overview of the sources and methods employed in generating estimates of CHS intangible assets for India, also illustrating the main challenges and methodological strategies followed so far. The goal is to generate estimates for both intangible assets already included in the assets boundary of national accounts – Software and databases, R&D and Other Intellectual Property Products - as well as for those assets not yet included in GDP, namely Brand, Design, Organizational Capital and Financial product development. The estimates for India refer to the total economy over the years 2011-2020. Notice that the Indian data sources refer to the fiscal year, July to June. Therefore, 2011 stands for July 2011 to June 2012, and so on.

The next subsection provides a description of the data sources that have been explored and adopted to generate measures of intangibles for India.

1.1 Data sources and methods: national account intangible assets

Data on Intellectual Property Products (IPP) are Indian National Accounts providing information on Gross Fixed Capital Formation (GFCF) by industry[1] and four assets at current prices (Table 1).

Table 1: Asset disaggregation. NAS 2023

Variable	Asset
I_Rstruc	Dwellings, Other Buildings Structures
I_Mach	Machinery and Equipment
I_Cult	Cultivated Biological Resources
I_IPP	Intellectual Property Products (IPP)

[1] Availability of data by industry is not homogeneous across the national account indicators. Table 7 in Appendix A summarizes the industries' grouping for the different indicators in the NAS. The column Capital indicates the industries available for all indicators related to GFCF from the NAS.

To get intangible asset disaggregation for India comparable with other countries covered by Global INTAN Invest it is thus necessary to identify proper indicators to split investment in Intellectual Property Products into Software and Databases, R&D and Other intellectual property products. To this purpose, we resort to the information gathered from the Indian Supply and Use Tables (SUTs) to estimate specific weights that are then applied to IPP investment to get the individual assets. More specifically, the weights refer to the following product categories from the SUT: Research and Development Services' (asset code 132), 'Computer-related services' (asset code 135), and 'Recreation, entertainment and radio & TV broadcasting and other services' (asset code 140) as summarized in Table 2.

Table 2: Asset from Use Table to build IPP category

Code	Product	Asset disaggregated	Asset broad category
132	Research & Development Services	Research & Development Services	Research & Development Services
135	Computer related services	Computer software and database	Software and database
140	Recreation, entertainment and radio and TV broadcasting and other services	Entertainment, literacy or artistic originals & Support and Operation Services to Mining[2]	Other intellectual property products

Figure 1 shows the share of individual assets over total IPP indicating a considerable decrease in the share of R&D (panel b), and a surge in the share of Software and database (panel c)[3].

[2] It is worth highlighting that the product we are interested in is CPC code 862 `Support and operation services to mining'. The Indian SUT Tables compute an aggregated list of products based on their National Classifications. These are the National Product Classification for Manufacturing Sector (NPCMS) / Annual Survey of Industries Commodity Classification (ASICC) used in the Annual Survey of Industries (ASI) and Common Product Nomenclature (CPN) for the manufacturing category. For the services category, the National product Classification for Services Sector (NPCSS) is used. From the documentation it is not completely clear where the product `Support and operation services to mining' is computed. In this regard, it would be desirable to request further information on the classifications with the National Statistical Offices.

[3] See appendix for more detailes about individual asset dynamics.

Considering these patterns, we have explore an alternative computation approach to better capture the trends for each asset. The procedure is in three steps as follows:

$$R\&D = \frac{R\&D_{SUT}}{GFCF_{SUT}} \times GFCF_{NAS}$$

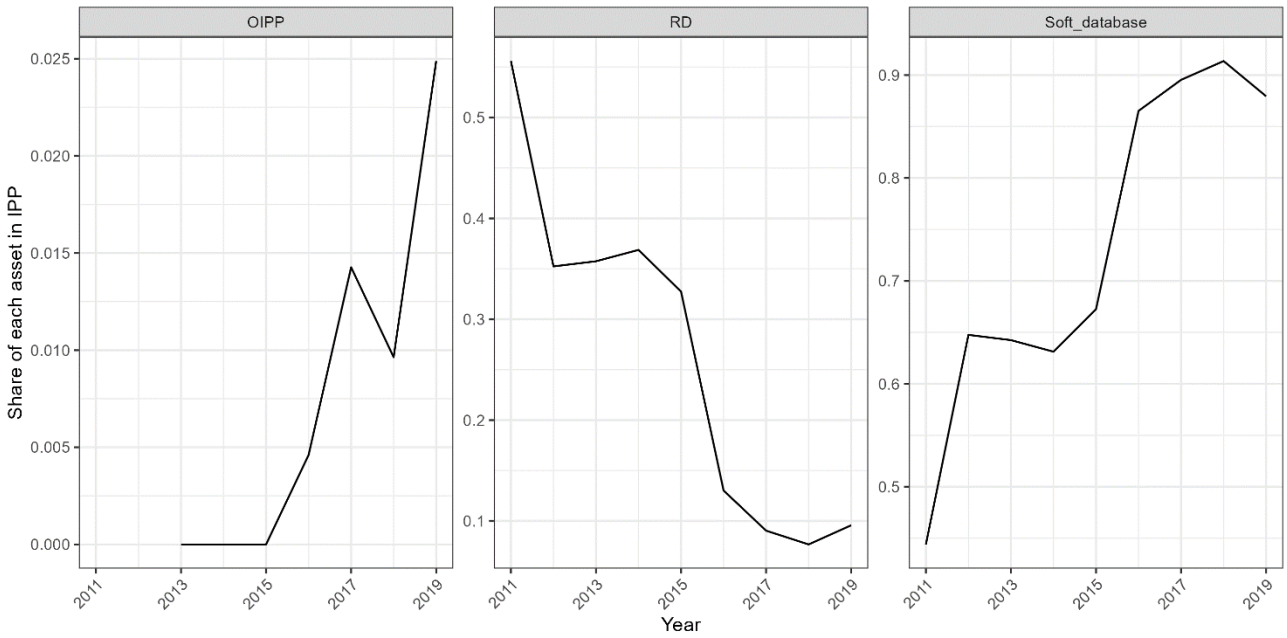
$$Soft\_DB = \frac{Soft\_DB_{SUT}}{GFCF_{SUT}} \times GFCF_{NAS}$$

$$OIPP = GFCF_{NAS} - R\&D - Soft\_DB$$

Where subindexes refer to Supply and Use Tables (SUTs) and National Accounts (NAS).

This approach allows to tackle two issues. First, we avoid overestimating the drop in R&D, and secondly, we can better capture investment in OIPP likely underestimated with the current approach.

Figure 1 Evolution of the share of OIPP, R&D and software and database in IPP



(a) OIPP (b) R&D (c) Software and database

Finally, estimates of GFCF by asset and industry at constant prices, are produced resorting to the implicit price indexes (IPIs) of output for the industries related to the production of these assets

from NAS 2023. Table 3 shows the industries of reference for each type of asset.

Table 3: Correspondence between Industries and Asset

Asset	Industry
Dwellings, Other Buildings Structures	Construction
Machinery and Equipment	Manufacture of machinery & equipment n.e.c
Cultivated Biological Resources	Crop Sector
Research and Development	Professional, scientific & technical services including R&D
Software and database	Information and computer related services

1.2 Estimating intangible assets beyond the boundaries of GDP

Estimates of investment in Design, New Financial Products, Brand, and Organizational Capital for Global INTAN Invest are generated adopting the same cost based approach as in EUKLEMS&INTANProd (see Corrado et al (2022) and Corrado et al (2024) for overview).

The main goal is to capture the spending sustained to produce these assets that can then be capitalized. There can be two different expenditures: either firms purchase the inputs related to intangible assets from external sources (purchased components) and/or they produce them internally for their own use (own-account components). In terms of data sources, the former relies on the Use Tables from the National SUTs Tables, whereas the latter are gathered from the Indian Employment and Unemployment Survey (EUS) and Periodic Labour Force Survey (PLFS). However, due to data limitationss, we make some methodological assumptions to construct a time series comparable to the those for the other countries. In the remainder of this section, we describe the data sources and methodology in further detail for each component for the total economy.

1.2.1 Methods and sources: purchased component.

The main variable and data source for estimating the purchased component of intangibles is intermediate consumption from the Use Tables. The National Accounts Division from the

Ministry of Statistics and Programme Implementation from India produces the SUT Tables for the period that goes from 2011-12 to 2019-20. The Indian Use Tables provides information on 66 industries following the SUT 66 Sector Industry Classification[4]. Only agriculture and manufacturing are further disaggregated into 2-digits, while the remaining sectors are more aggregated (Table 7 in Appendix A shows the industry availability in the Indian SUT). The SUT Tables are in Lakh Rupees up to 2015 and from 2016 in Crore Rupees. We turn everything into Crores before 2016, as the national accounts are also measured in Crores.

The first limitation that we face is that the assets of interest (attributed designs, market research and brand, and operating models) are all included in an aggregate category under the product 'Other Business Services' (OBS). More specifically, the definition of OBS from the Indian SUT Tables is as follows: "Professional, technical and other business services such as consultancy and management services, accounting, book keeping, architectural services, engineering services, specialty design services, advertising services etc".

Table 4 summarizes the correspondence between the reference CPA products in the use tables used by EUKLEMS&INTAN-Prod and their codification in the Indian Use Tables.

Table 4: Comparison between EU and India assets

Asset	EUKLEMS & INTAN-Prod	India Use Tables
Attributed designs	Architectural and engineering services, technical testing and analysis services (CPA M71)	Included in Other business services
Market research and brand	Advertising and market research services (CPA M73)	Included in Other business services
Operating models	Management consulting services (CPA M702)	Included in Other business services

Notes: This table presents the classification of assets in the EUKLEMS & INTANProd database

[4] The SUT 66 Sector Industry Classification is a classification of industries that is close to NACE Rev 3.1, though there are some differences.

(second column) and the Indian SUT Tables (third column).

To break the OBS category into the three assets, we assume that expenditure on these assets is proportional to the share of employment in this sector. Hence, we estimate a weight using the information from the PLFS[5]. More specifically, we estimate the share of employees in the industries that correspond to each of the three assets for each data source. The equation is as follows:

$$\lambda^a = \frac{N_i}{\sum_{i \in I} N_i} \quad (1)$$

Where $i \in I = \{69,...,75\} \nexists 72$ and λ^a is the share of employees in asset a, and N_i is the number of employees in industry i.[6]

From the PLFS, we compute the number of employees for 2017-18 to 2021-22 to estimate the yearly shares of employment by sector. We then compute the average of the shares by industry across years, which results in a time-invariant weight.[7] Figure 10 in Appendix B shows the results.

Once we split the OBS components into our three assets of interest, we need to identify which part of the expenditure corresponds to the production of the individual asset. Then, to generate investment by assets, we use the same capitalization factors that are applied to the European countries as in EUKLEMS&INTAN-Prod[8], taking the average across countries and industries by year.

[5] For the details of the PLFS data source refer to section 3.1.3.

[6] We exclude industry 72 'Scientific Research and Development' as in the Indian SUT Tables this asset is estimated separat (so it is not included in OBS).

[7] Figure 11 in appendix B shows the evolution of the shares over time by industry.

[8] See Bontadini et al (2023) available at https://euklems-intanprod-llee.luiss.it/documentation/

Table 5: Industries used for computing the weights - PLFS & Economic Census[9]

Other Business Services	Attributed design	Architectural and engineering services; technical testing and analysis (71)
	Market research and brand	Advertising and market research services (73)
	Operating models	Services of head offices; management consulting services (70)
	Rest	Other professional, scientific and technical services (74)
	Rest	Veterinary services (75)
	Rest	Legal and accounting services (69)

Overall, the estimation of the purchased component can be obtained as follows:

$$I_t^a = \lambda^a \times IC_t^{OBS} \times \gamma_{at} \quad (2)$$

Where I_t^a is investment in purchased component for asset *a* at time *t* for the total economy; λ^a is the share of asset *a* estimated the previous equation, IC_t^{OBS} is the intermediate consumption in OBS at time *t* for the total economy, and γ_{at} is the capitalization factor of asset *a* at time *t*.[10]

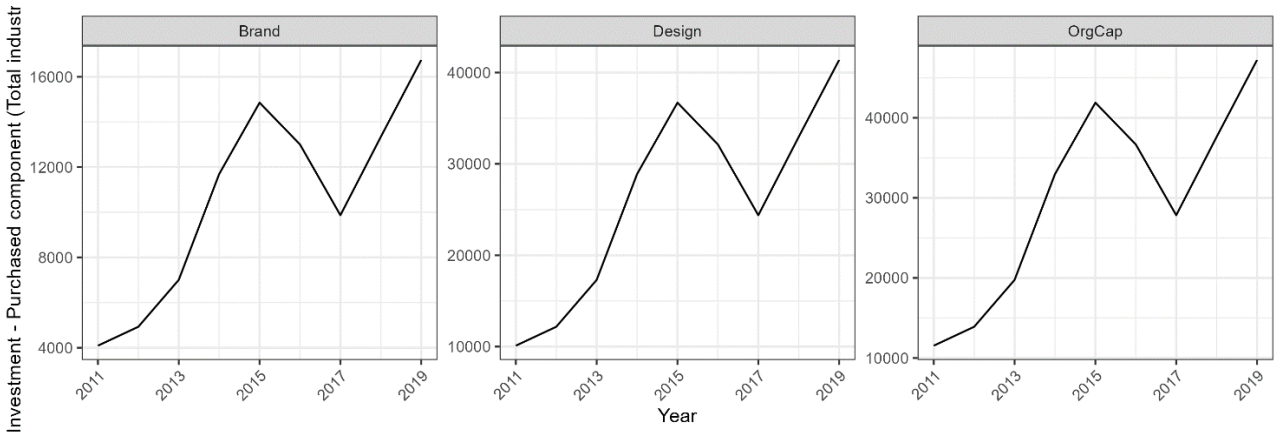
Figure 2 shows the estimation results for the total economy across three key assets: Brand, Design, and Organizational Capital. Notably, the weights used to identify these assets remain constant over time, implying that the dynamics is the same. However, Figure 2 indicates that

[9] The industries labelled as 'Rest' are not included in our assets of interest, but rather in OBS. So we take them into account to compute the employment shares.

[10] In order to compute the capitalization factor, we have taken the average of the coefficient across European countries by industry-year. To estimate total economy, the average was computed across countries and industries. Note that this last step is different to what is done in the EUKLEMS&INTANTProd, where the total is the aggregation of industries.

Design and Organizational Capital are the most significant assets for the purchase components.

Figure 2 Estimates of purchased component. (in rupees, crore)



1.2.2 Own-account components

We estimate the own-account component for organizational capital, brand, design, and new financial products drawing upon a cost-based approach, following the same EUKLEMS&INTANProd (2023) procedure adopted for the rest of the countries. This method is consistent with national statistical offices' procedures to compute own-account software and databases. To conduct this estimation, it is necessary to collect information on number of employees, and wages by occupation and by industry. Further, it also requires data on the compensation of employees to harmonize the estimations with national accounts. Finally, it needs a blow-up factor to account for other cost components besides the compensation of employees (intermediate consumptions, capital services and net taxes on production) and obtain a measure of output consistent with national accounts definitions. The steps to compute own account investment are described in detail in Box 2. It is worth noting that while Box 2 explains the computation at the industry level, the only asset that is computed at the industry level is New Financial Products (NFP), the remaining assets are estimated for the total economy.

The main information is gathered from the Periodic Labour Force Survey (PLFS) which is available on a quarterly basis from 2017-18 onward from the National Statistical Organization (NSO). To extend the series backwards, we use the Employment and Unemployment Survey (EUS). This survey is the previous version of the PLFS and was conducted every four/five years between 1972-73 and 2011-12 by India’s National Sample Survey Office (NSSO). Both data sources provide information on the number of employees by occupation at the three-digit level of

the National Classification of Occupations (NCO) 2004, which is compatible with the International Standard Classification of Occupations (ISCO) 88. The economic activity is available at 2- and 5-digit levels (depending on the variable) from the National Industry Classification (NIC) 2008, which is compatible with the International Standard Industry Classification Rev. 4. Although the main advantage lies in the consistency of the main classifications between the two data sources, there have been several changes in the latter that are likely to impact the estimations. We will provide a brief description of these changes later in this section.

In what follows we will describe the major characteristics of the databases used to compute the own-account component, then we describe in detail the methodology. The main variables and sources are the following:

Compensation of Employees (NAS 2023) The data on compensation of employees (hereafter, CE) is available from 2011-12 onward for 24 NAS industries (column 'NAS curr prices' in

Table 6 shows the details of industry availability for this indicator). It is at a higher level of aggregation in comparison to the data from the SUT Tables and the PLFS/EUS.

Periodic Labour Force Survey (PLFS) The PLFS is conducted on a quarterly basis since 2017-18. It is the main source to estimate the level and change of the main labour force indicators such as worker population ratio, labour force participation rate, and unemployment rate, among others. It covers almost all the Indian Union, with the exception of the villages in Andaman and Nicobar Islands due to accessibility constraints. For the urban areas, it relies on a rotational panel sampling of two years duration. Therefore, each household in urban areas is visited four times. This means that 75% of the urban sample coincides between consecutive quarters. For rural areas, samples for all eight quarters are determined before the beginning of the survey and they remain the same throughout. A multi-stage design with stratification is used. The first stage units (FSU) comprise the Urban Frame Survey (UFS) blocks in urban areas and for rural areas the 2011 Population Census villages (Panchayat wards for Kerala). Households constitute the ultimate stage units (USU). For large FSUs, an intermediate stage unit, named hamlet group/sub-block, is also used.

Employment and Unemployment Survey (EUS) 2011-12 Round. The coverage of the survey embraced the entire Indian Union, except for the interior villages of Nagaland situated beyond

five kilometres of the bus route and the villages in Andaman and Nicobar Islands. The period of the survey is extended throughout the year, from 1st July 2011 to 30th June 2012. There are four sub-rounds of three months' duration along each FSU that should be surveyed.[11] It has a multi-stage stratified design. The first stage units (FSU) in the rural sector are the 2001 census villages (Panchayat wards in the case of Kerala) and in the urban sector the Urban Frame Survey (UFS) blocks in the urban sector. The ultimate stage units (USU) are the households.

Main changes between PLFS and EUS. One of the main changes between these two data sources is the sampling framework. In particular, the PLFS attributes greater weight to the skilled population in comparison to the unskilled population. In practice, this implies that when comparing the EUS 2011-12 and the PLFS 2017-18, there is a remarkable drop in low-educated workers (Goldar, 2023). Nevertheless, the India KLEMS still uses the information from the previous rounds of the EUS and the PLFS to compute the labour indicators (Chattopadhyay et al., 2023). Further, they estimate the years not available between the EUS and the PLFS by simple interpolation, following the procedure used in India KLEMS (Chattopadhyay et al., 2023).

1.3 Methodology to compute own-account.

To estimate own-account intangible investment we need to compute the wage bill share by occupation-industry-year from our micro-data sources. The first step is then to identify the relevant occupations associated with the production of our assets of interest consistently with EUKLEMS&INTANProd (2023), where the relevant occupations are classified at 3-digit level of the ISCO-08 classification. But as the Indian micro-data provide information at NIC-2004, which corresponds to ISCO-88, some adjustments to map the two classifications are necessary. Therefore, in order to identify the occupations that are relevant for our assets of interest we adjust the time allocations that were originally built under the ISCO-08 for the European countries to the occupations of interest in ISCO-88. The rationality behind this is that most of the relevant ISCO-08 occupations at 3-digit levels are found within the 4-digit ISCO-88. Thus, the time allocation can be adjusted by assuming a certain proportionality of the 4-digit occupations within the 3-digit categories. **Errore. L'origine riferimento non è stata trovata.** in Appendix I shows

[11] However, due to weather conditions there are some villages that are not interviewed in all sub-rounds.

the steps for adjusting the coefficients.

BOX 2. STEPS TO COMPUTE INVESTMENT IN OWN-ACCOUNT FOR EACH YEAR OF THE PLFS

1. We compute the wage bill in occupation o and industry i (W_{oi}) by multiplying the average wage ($\bar{w}_{oi}$) and the total number of employees (N_{oi}) in each occupation-industry cell.

$$\mathrm{W}_{oi} = \bar{w}_{oi} \times N_{oi},$$

2. We assume that workers employed in a certain occupation o that produces asset a spend $x\%$ of their time in the production of the asset of interest. We then multiply the wage bill in each occupation-industry cell by the time allocation coefficients that correspond to each asset of interest.[a]

$$\mathrm{W}^a_{oi} = \mathrm{W}_{oi} \times \tau^a_o, \qquad \tau^a_o \in \{0, 1\}$$

Where τ^a_o is the time allocation coefficient for occupation o and asset a

3. We aggregate the wage bill across all occupations involved in the production of each of the assets by industry.

$$\mathrm{W}^a_i = \sum_o \mathrm{W}^a_{oi},$$

4. We compute the total wage bill in each industry by multiplying the average wage and the total number of employees in each industry.

$$\mathrm{W}_i = \bar{w}_i \times N_i,$$

5. We compute the ratio between Step 3 and Step 4 for each of the four assets.

$$\omega^a_i = \frac{\mathrm{W}^a_i}{\mathrm{W}_i},$$

[a] In principle, we are using the same time allocations that are used for the European countries. Nevertheless, this might be revised in a later stage.

BOX 2. STEPS TO COMPUTE INVESTMENT IN OWN-ACCOUNT FOR EACH YEAR OF THE PLFS

6. We multiply the shares obtained for each asset-industry in Step 5 (ω_i^a) by CE in each industry, ensuring compatibility with national accounts. In this sense the labor cost of asset a for industry i is given by:

$$\mathrm{CE}_i^a = \mathrm{CE}_i \times \omega_i^a,$$

7. Finally, we apply the blow-up factors. The main assumption of the cost-based approach is that the value of an asset can be obtained as the sum of the costs sustained for producing it. The benchmark equation to be estimated is as follows:

$$Y_i^a = CE_i^a + IC_i^a + CK_i^a + T_i^a,$$

where a is the asset type, Y is the value of the produced asset a at basic prices in industry i, CE_i^a is the labor cost of the relevant personnel measured as compensation of employees, IC_i^a are intermediate costs related to the activity, CK_i^a refers to the costs of capital services and T_i^a to net taxes on production related to these activities. The labor cost component can be estimated based on data on employment of relevant occupation, but other costs component can hardly be observed and needs to be estimated. The standard approach, adopted in EUKLEMS&INTANProd too, is to account for the sum of these components by multypling the estimated labor cost component by a blow-up factor, bp_i^a. Thus, the value of the produced asset is determined as:

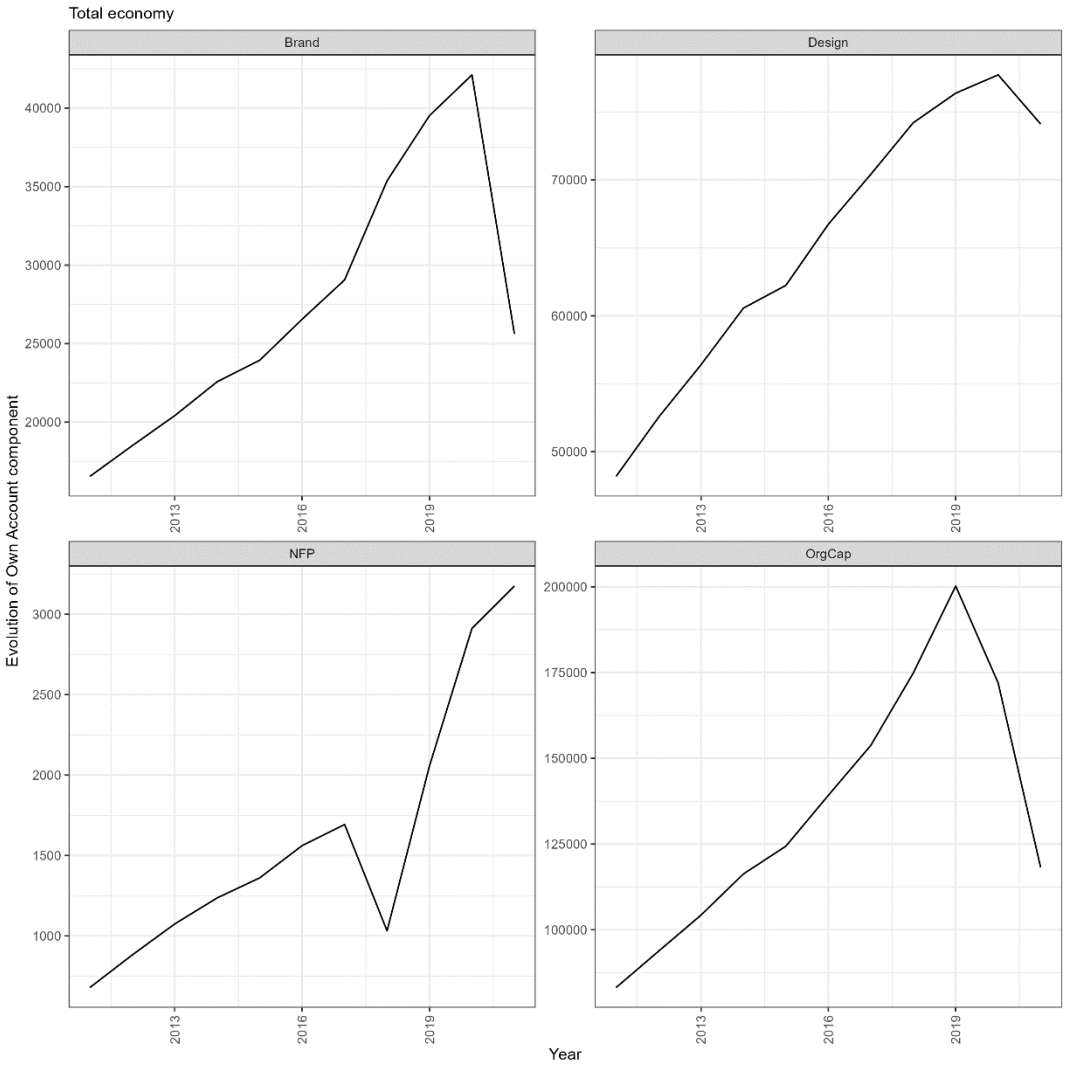
$$I_i^a = CE_i^a \times bp_i^a$$

where bp_i^a is a blow-up factor that accounts for other cost components besides the compensation of employees and essential to develop a measure of output consistent with national accounts.

1.4 Results own-account component

In this section, we present the results of the estimation of the own-account component. Figure 3 shows the dynamics of the own-account component of investment in Brand, Design, and Organizational Capital, where the first two assets decrease in 2018 and 2019 whle by contrast Organization capital increases along the years.

Figure 3: Investment in non-NA intangibles own-account component. PLFS



2 Measuring Real Intangible Investment

To convert nominal intangible investments into constant prices **w**e deflate each asset with the IPIs of gross output for industries that are similar to the assets of interest. In this respect, for Brand, Organization Capital, and Design, we use the implicit price index of the sector "Professional, scientific & technical services including R&D, while for new financial products, we use the IPI from the "Financial Services" sector.

3 Empirical evidence on intangible investment in India

In this section, we will present the main results related to the share of tangibles and intangible assets for the total economy in India. It is worth reminding two important points. First, the fiscal year in India goes from July to June. For simplicity, we keep the year of the first half to refer to the whole fiscal year. Therefore, 2011 refers to the period that goes from July 2011 to June 2012. Secondly, the intangible assets not measured in national accounts are only available until 2019 because that is the last year for which we have information on the purchase component. Figure 4 shows the share of Tangibles (Non-Residential) and Intangibles in value added at current prices. We observe an increase in the share of total intangibles over time. In 2011, intangible assets accounted for 4.83% 2011, reaching almost 6% in 2019. Figure 9 in the appendix shows that the pattern observed for the case of constant prices is very similar. Figure 4 also depicts a slight decrease in the share of tangible assets (non-residential) of around 2 percentage points. Nevertheless, Figure 9 in the appendix shows that the shares have remained constant in between periods. Figure 5 shows the evolution of tangibles and intangibles assets at constant prices. It derives from this that intangible assets have been growing at a faster speed than tangible assets, driven by national accounts intangibles.

Figure 4: Share of Tangibles (Non-Residential) and Intangibles

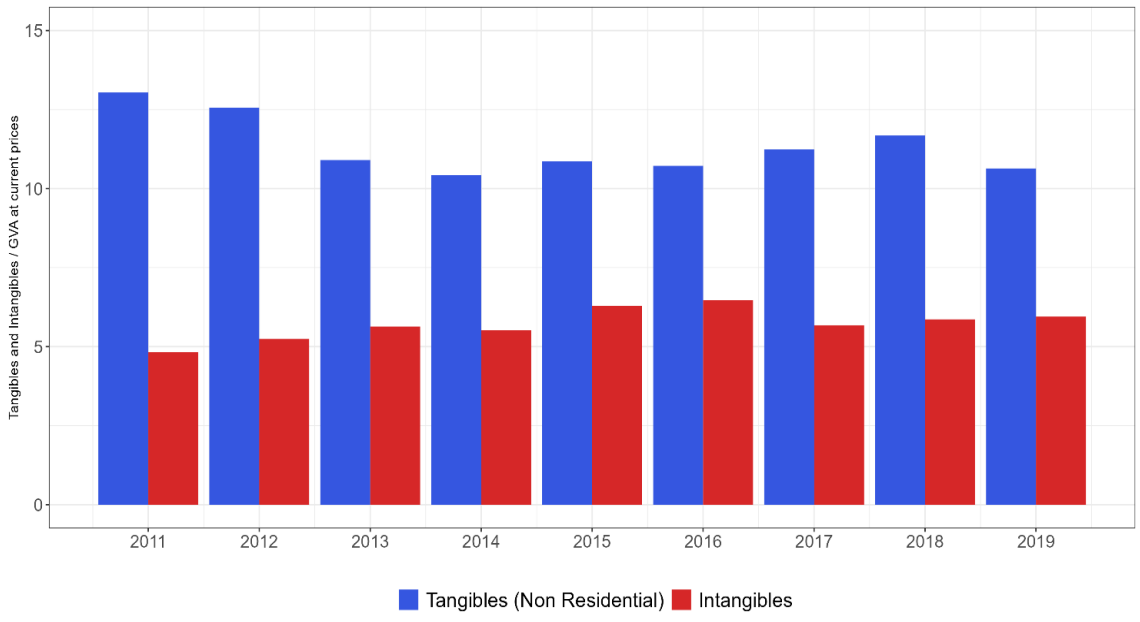
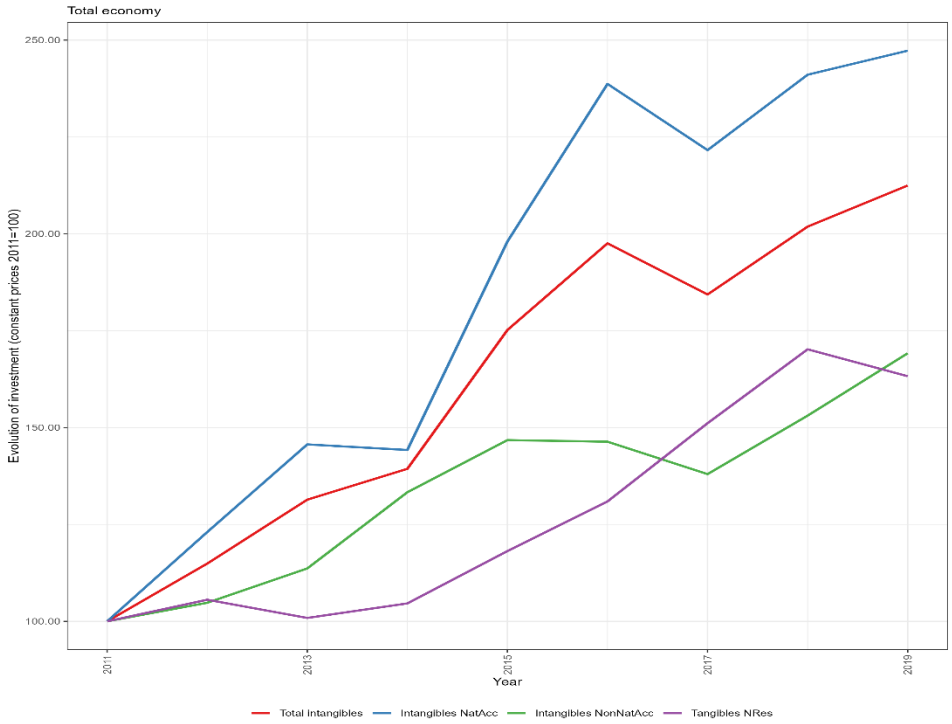


Figure 5: Evolution of investment in Tangibles (Non-Residential) and Intangibles at constant price 2011=100



In the remainder of the section, we will focus on the composition of intangible assets. The figures are at current prices, though they are extremely similar at constant prices. From Figure 6, it is possible to observe that national accounts intangibles account for more than 50% of the share in total intangibles, mainly driven by Software and databases, as can be derived in Figure 7. Moreover, Figure 7, also highlights a dramatic increase in the share of this asset, at the expense of the R&D share, which has been decreasing over the sample years. Figure 8 shows the composition of the non-national accounts assets. Organizational capital accounts for the largest share. In 2011 the share was 54.33%, while it increased to 58.43% in 2019. This has been counterbalanced by a reduction of Brand, which accounted for 33.44% in 2011 and then drop to 27.80% in 2019.

Figure 6: Share of National Account and Non-National Accounts in total intangibles (at current prices)

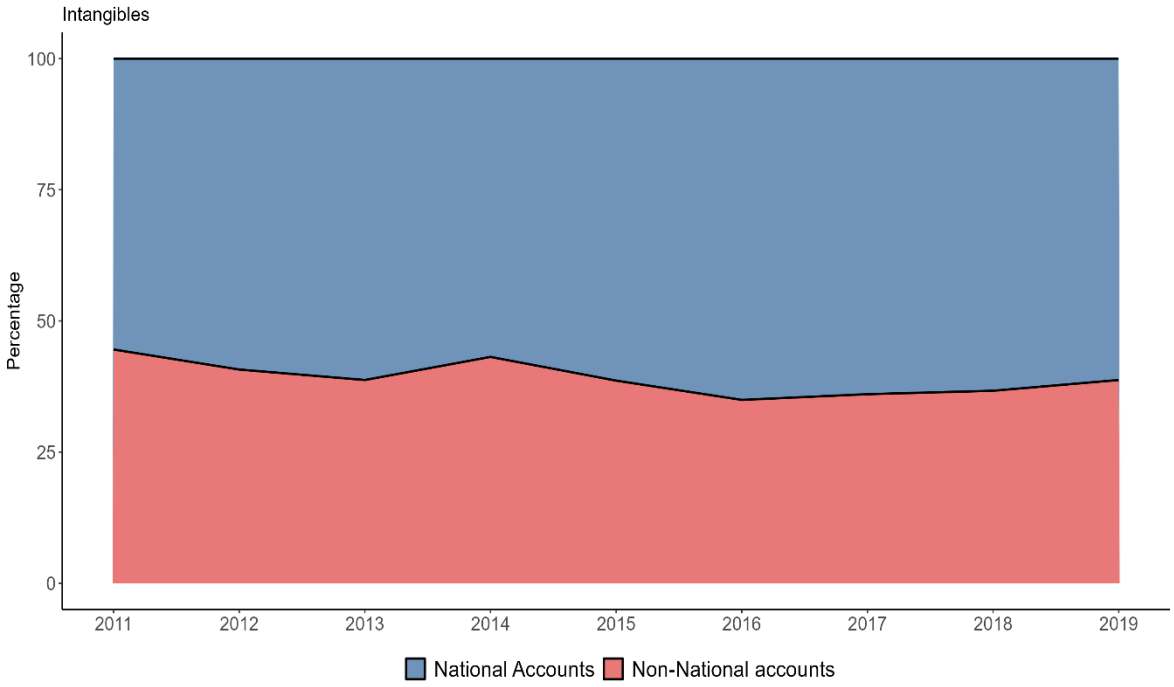


Figure 7 Composition of the assets measured in National Accounts (at current prices)

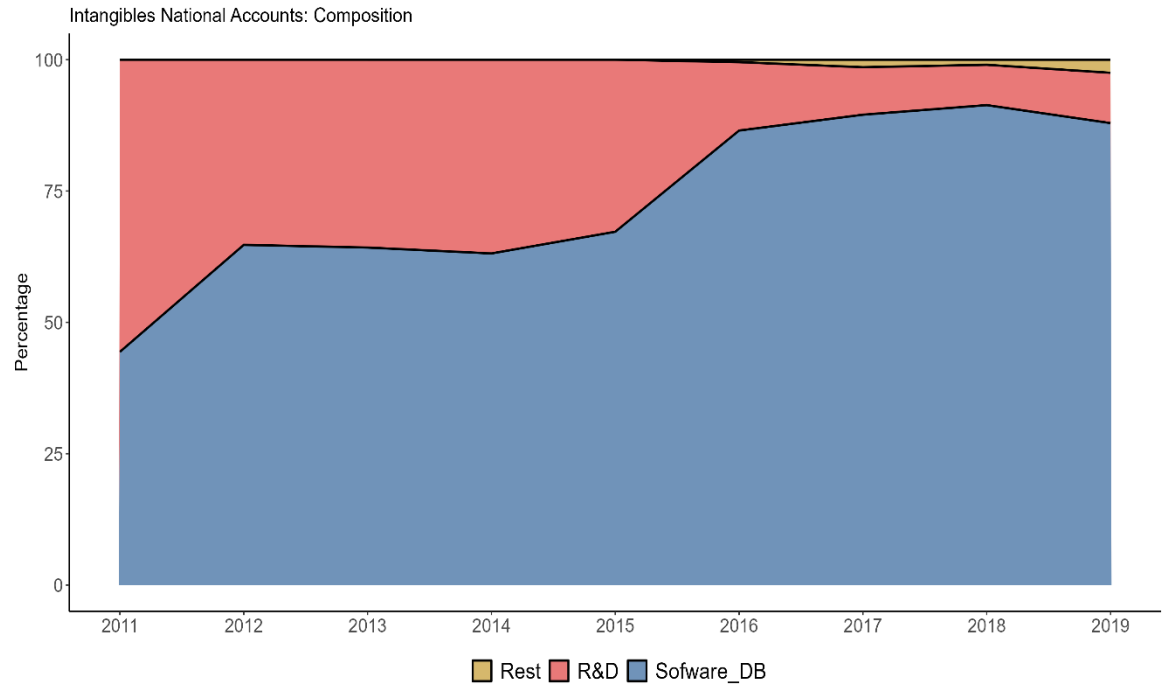
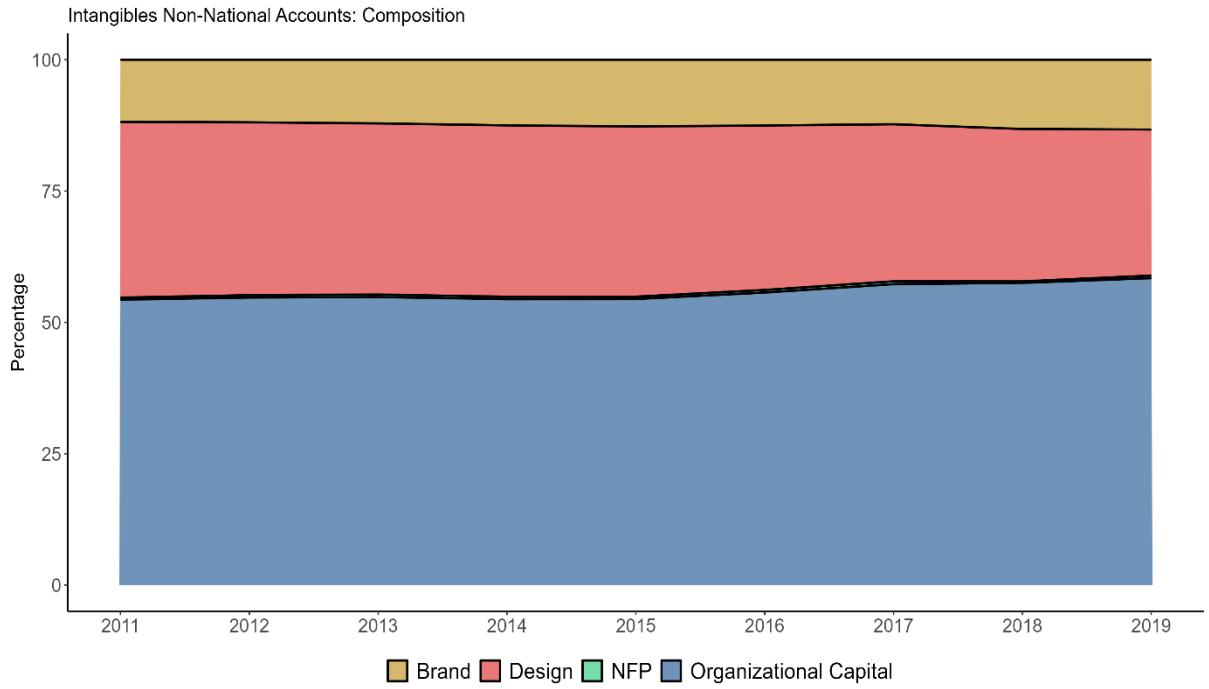


Figure 8 Composition of the assets not included in National Accounts (at current prices)



4 Future improvements

In this section, we provide an overview of the points to be implemented for future improvements of the estimates.

In the first place, it would be desirable to delve deeper into product and sectoral definitions employed in the Indian SUT Tables, ideally through direct requests to the statistical offices.

Secondly, it would be relevant to identify a time-variant weight to break down the OBS asset for the purchase component by exploring firm-level data sources such as the Annual Survey of Industries (ASI), MCA21 from the Ministry of Corporate Affairs, and/ or Prowess. Further, explore whether these alternative firm-level and administrative sources, especially the MCA21 and Prowess, can provide data on training and indicators to improve the timeliness of the estimates of the purchased component.

Thirdly, expand the estimates by computing intangible investment by industry. In principle, estimating the intangible assets for the industries available in the NAS is feasible. Further, CE can potentially be broken down into 2-digit industries from the Indian NAS, adopting the India KLEMS methodology for guidance. Nevertheless, we will follow the methodology used in Chattopadhyay et al. (2022), where the CE at 1-digit industry is distributed into 2-digits in

proportion to the information on emoluments for several industries available in the ASI. This procedure is applied to break down manufacturing into 2-digits.

Finally, concerning the own-account estimates, explore improving the distinction between formal and informal sectors, aiming for an enhanced and refined approach following the procedure in India Productivity Report (2022). Moreover, we acknowledge that population estimates derived from PLFS using sample weights may not represent the entire population accurately. To address this, we can explore adjusting the sample weights for both EUS and PLFS to align with population projections, as suggested by Goldar et al. (2023).

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Appendix I.

Table 6 Classification of industries in the different indicators from national accounts

Code	GVA (cons and curr prices)	NAS (cons and curr prices)	NAS curr prices	Capital
1.0	Agriculture, forestry and fishing	Agriculture, forestry and fishing	Agriculture, forestry & fishing	agriculture, forestry and fishing
1.1	crops	NA	crops	crops
1.2	livestock	NA	livestock	livestock
1.3	forestry and logging	NA	forestry & logging	forestry & logging
1.4	fishing and aquaculture	NA	fishing and aquaculture	fishing
2.0	Mining and quarrying	Mining and quarrying	Mining & quarrying	mining & quarrying
3.0	Manufacturing	Manufacturing	Manufacturing	manufacturing
3.1	Food Products, Beverages and Tobacco	NA	NA	NA
3.2	Textiles, Apparel and Leather Products	NA	NA	NA
3.3	Metal Products	NA	NA	NA
3.4	Machinery and Equipment	NA	NA	NA
3.5	Other Manufactured Goods	NA	NA	NA
4.0	Electricity, gas, water supply & other utility services	Electricity, gas, water supply and other utility services	Electricity, gas, water supply and other utility services	electricity Gas, water supply and other utility services
5.0	Construction	Construction	Construction	construction
6.0	Trade, repair, hotels and restaurants	Trade, repair, hotels and restaurants	Trade, repair, hotels and restaurants	trade, repair, hotels & restaurant
6.1	Trade & repair services	NA	Trade & Repair Services	trade & repair services

6.2	Hotels & restaurants	NA	Hotels & restaurants	hotels & restaurants
7.0	Transport, storage, communication & services related to broadcasting	Transport, storage, communication & services related to broadcasting	Transport, storage, communication & services related to broadcasting	transport,storage & communication & services related to broadcasting
7.1	Railways	NA	Railways	railways
7.2	Road transport	NA	Road transport	Road transport
7.3	Water transport	NA	Water transport	water transport
7.4	Air transport	NA	Air transport	Air transport
7.5	Services incidental to transport	NA	Services incidental to transport	Services incidental to transport
7.6	Storage	NA	Storage	Storage
7.7	Communication & services related to broadcasting	NA	Communication & services related to broadcasting	Communication & services related to broadcasting
8.0	Financial services	Financial services	Financial services	financial services
9.0	Real estate, ownership of dwelling & professional services	Real estate, ownership of dwelling and professional services	Real estate, ownership of dwelling and professional services	Real estate, ownership of dwelling and professional services
10.0	Public administration and defence	Public administration and defence	Public administration and defence	public administration & defence
11.0	Other services	Other Services	Other services	other services
12.0	TOTAL GVA at basic prices	Total	Total	Total

Notes: This table presents the industries available in the different indicators of national accounts statistics.

Table 7 Classification of industries in Indian SUT Tables

Industry Classification	Industry Code in SUT	Sector
A01	1	Agriculture and Livestock
A01	2	Livestock
A02	3	Forestry and Logging
A03	4	Fishing & Aquaculture
B	5	Coal & Lignite
B	6	Crude Petroleum
B	7	Natural Gas
B	8	Iron Ores
B	9	Non ferrous metal ores
B	10	Other Mining
C10-12	11	Production, processing and preservation of meat, fish, fruit, vegetables, oils and fats
C10-12	12	Manufacture of dairy products
C10-12	13	Manufacture of grain mill products, etc. and animal feeds
C10-12	14	Manufacture of other food products
C10-12	15	Manufacture of beverages
C10-12	16	Manufacture of tobacco products
C13-15	17	Manufacture of textiles + cotton ginning
C13-15	18	Manufacture of wearing apparel, except custom tailoring
C13-15	19	Manufacture of leather and related products
C24	20	Manufacture of Basic Iron and Steel + Casting of iron and steel
C24	21	Manufacture of basic precious and non-ferrous metals + Casting of non-ferrous metals
C25	22	Manufacture of fabricated metal products, except machinery and equipments
C26	23	Manufacture of electronic component, consumer electronics, magnetic and optical media
C26	24	Manufacture of computer and peripheral equipment
C26	25	Manufacture of communication equipments
C26	26	Manufacture of optical and electronics products n.e.c
C27	27	Manufacture of Electrical equipments

C28	28	Manufacture of machinery and equipments n.e.c
C29-30	29	Manufacture of Transport
C19	30	Manufacture of coke and refined petroleum products
C20	31	Mfg of chemical & chemical products except pharmaceuticals, medicinal and botanical products
C21	32	Manufacture of pharmaceutical; medicinal chemicals and botanical products
C22	33	Manufacture of rubber & plastic products
C23	34	Manufacture of other non-metallic mineral products
C16	35	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting material
C17	36	Manufacture of paper and paper products
C18	37	Printing and reproduction of recorded media except publishing
C31-32	38	Manufacture of furniture
C31-32	39	Other Manufacturing
C33	40	Repair and installation of machinery and equipments
F	41	Construction
D	42	Electricity
D	43	Gas
E	44	Water supply
G	52	Trade
H-U	45	Railway Transport
H-U	46	Land Transport
H-U	47	Water Transport
H-U	48	Air Transport
H-U	49	Supportive & Auxilliary transport activities
H-U	50	Storage & warehousing
H-U	51	Communication
H-U	53	Hotels & Restaurant
H-U	54	Financial Services
H-U	55	Insurance Services
H-U	56	Ownership of dwellings

H-U	57	Education & Research
H-U	58	Medical and Health
H-U	59	Legal Services
H-U	60	Computer related services
H-U	61	Other Business services
H-U	62	Real estate activities
H-U	63	Renting of machinery and equipment
H-U	64	Community, Social & personal services
H-U	65	Other services
H-U	66	Public admn. & defence

Notes: This table presents the industry availability in the Indian SUT Tables.

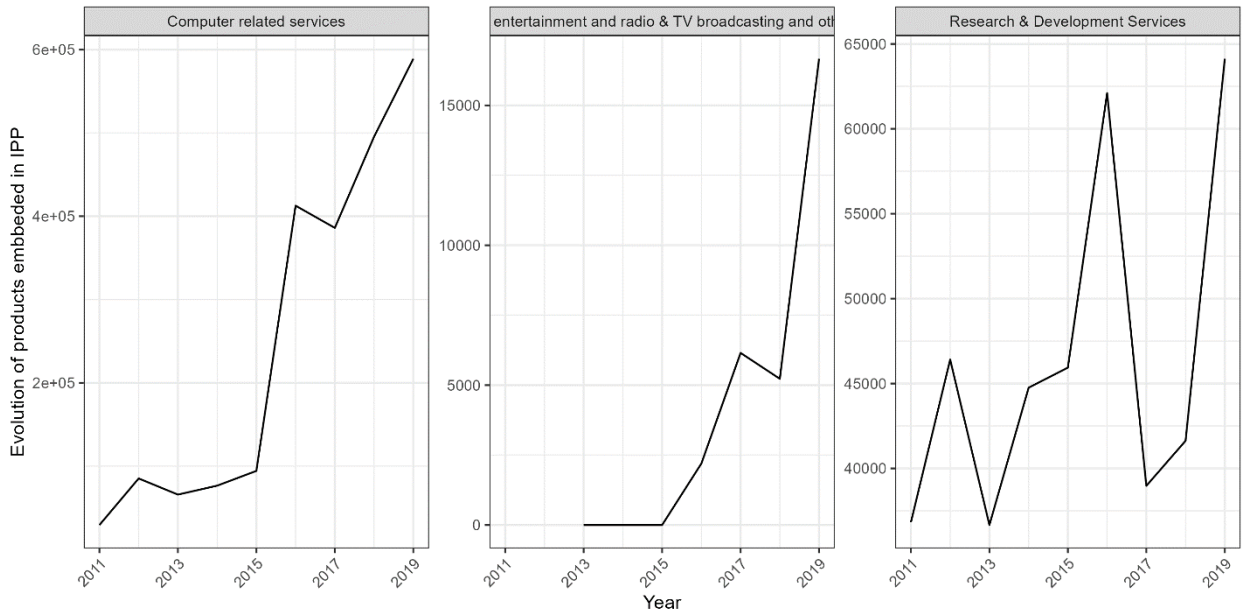
Compatibilization between ISCO-08 and ISCO-88

Table 8 Conversion between ISCO-08 and ISCO-88 for occupations relevant for intangible assets

			SHARE OF RELEVANT OCCUPATION (for ISCO-88)				TIME USE FOR EU COUNTRIES				ADJUSTED TIME ASSUMPTION INDIA			
ISCO 08	ISCO-88	ISCO-88 4d	Org Cap	Brand	Design	NFP	Org Cap	Brand	Design	NFP	Org Cap	Brand	Design	NFP
111	111		1	0	0	0	0.2	0	0	0	0.2	0	0	0
111	112		1	0	0	0	0.2	0	0	0	0.2	0	0	0
111	113		1	0	0	0	0.2	0	0	0	0.2	0	0	0
111	114		1	0	0	0	0.2	0	0	0	0.2	0	0	0
112	121		1	0	0	0	0.2	0	0	0	0.2	0	0	0
121	123	1231					0.2	0	0	0				
122	123	1233	1	0.38	0	0	0.2	0.15	0	0	0.2	0.06	0	0
122	123	1234					0.2	0	0	0				
131	122	1221					0.2	0	0	0				
132	122	1223					0.2	0	0	0				
133	122	1226	1	0	0	0	0.2	0	0	0	0.2	0	0	0
134	122	1227					0.2	0	0	0				
141	122	1225					0.2	0	0	0				
142	122	1224					0.2	0	0	0				
211	211		0	0	0	1	0	0	0	0.5	0	0	0	0.5
212	212		0	0	0	1	0	0	0	0.5	0	0	0	0.5
214	214		0	0	0.89	0	0	0	0.25	0	0	0	0.22	0
216	214						0	0	0.25	0				
241	241		0	0.17	0	0.17	0	0	0	0.25	0	0.08	0	0.04
243	241						0	0.5	0	0				
331	343		0	0	0	0.2	0	0	0	0.25	0	0	0	0.05

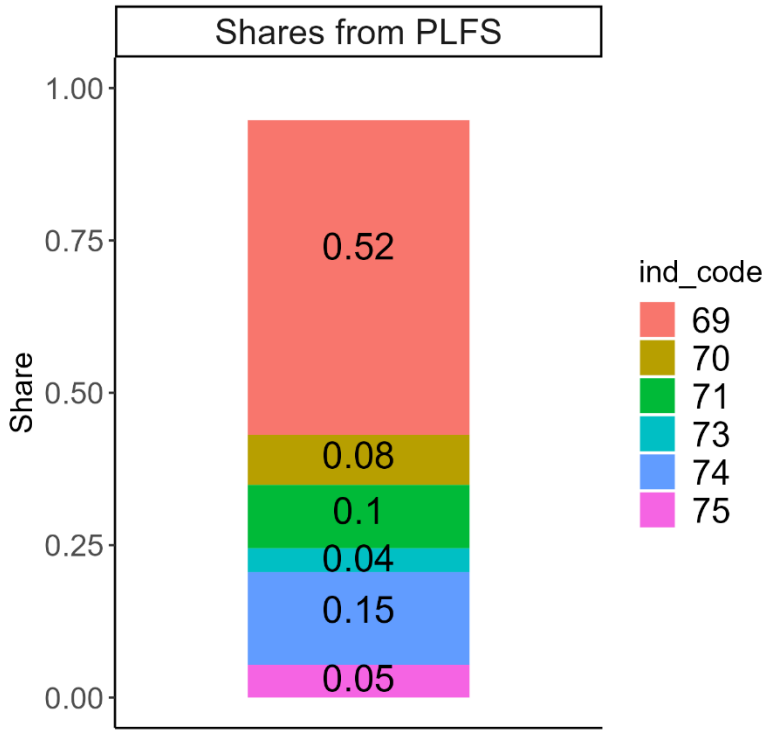
Appendix II. Additional Figures

Figure 9 Evolution of the assets included in the weights from SUT Tables (in Crore, current prices)



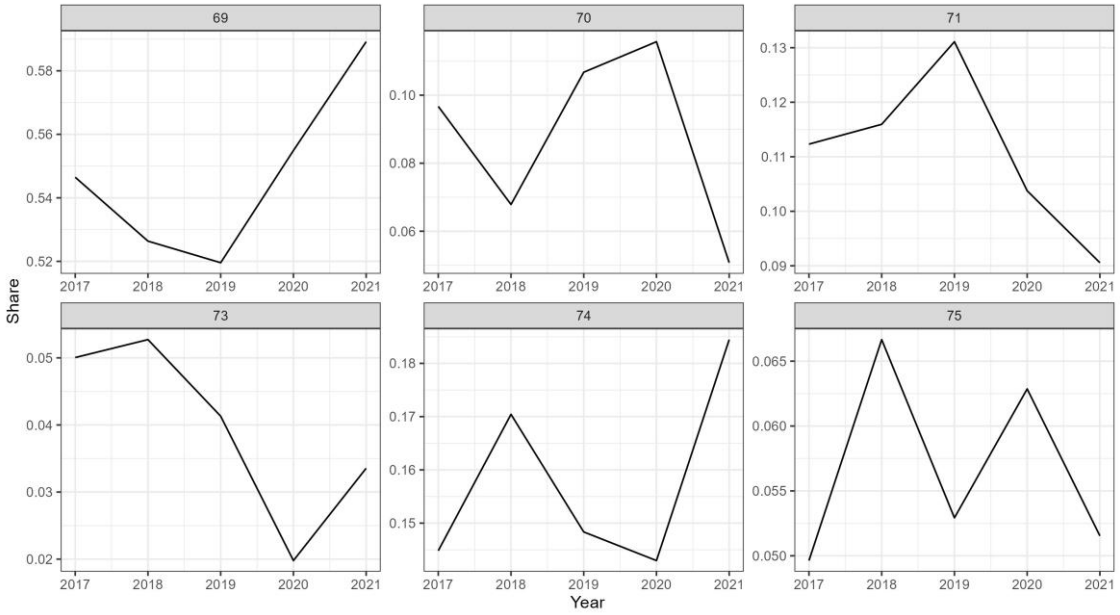
Notes: This figure shows the evolution of each of the assets that are used for the computation of the proportions to split IPP from the Indian Use Tables. Source: Indian Use Tables.

Figure 10 Weights to breakdown OBS from Census and PLFS



Notes: This figure shows the share of employment by sector in the Periodic Labour Force Survey (PLFS).

Figure 11 Evolution of weights from PLFS



Notes: This figure shows the evolution of the shares of employment by sector for the periods that go from 2017-18 to 2021-22. Source: Own elaboration based on Periodic Labour Force Survey (PLFS).