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CONSTRUCTION OF CHINA'S INPUT-OUTPUT TABLE TIME SERIES FOR 1980-2010: A SUPPLY-USE TABLE APPROACH

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ABSTRACT

This paper documents the work under the China Industry Productivity Database (CIP) Project on the reconstruction of China's input-output table series for the period 1980-2010. After introducing and discussing our basic research problems concerning coverage and classification inconsistencies and flaws in the implicit official price deflators, we report our data work for national accounts, industry-level producer price indices, and input-output and supply-use tables, including the reconstruction of the 1981 SNA IOT and SUT-based on the 1981 and 1987 MPS IOTs, and the 1987 SNA IOT and SUT. Adopting the SUTRAS model of the WIOD Project, we then reconstruct China's IOT series for the period 1980-2010. Our reconstructed PPI-matrices for this entire period enable us to apply the double deflation approach to the nominal IOTs, i.e. deflating the intermediate input and gross output, respectively, in measuring China's real value added. In the discussion of the results, we compare both the single and double deflation results-based real GDP growth rates with that of the official GDP estimates, and then assess our results against the background of the macroeconomic performance and policy regime shifts in China.

Key works: Input-output table (IOT); supply-use table (SUT); national accounts (NA); gross value of output (GO); gross value added (VA); producer price index (PPI)

JEL classification: C82, E01, E31

1. INTRODUCTION

The reconstruction of Chinese national output and income accounts, sector-specific producer price indices, and the time series of supply-use and input-output tables is based on a series of studies by Wu and his associates, including the construction of industry-level capital stock and service (Wu and Xu 2002; Wu 2008 and 2013a), quantity of employment and labor service (Wu 2002a, 2013a and 2013b; Wu and Yue 2010 and 2012; Wu, Yue and Zhang 2013), and output and prices (Wu 2002a, 2011, 2013c and 2014; Ito and Wu 2013).

These studies attempt to construct a comprehensive industry-level database for the Chinese economy in the standard Jorgenson-Griliches framework (1967), especially following the way of data handling in Jorgenson, Gollop and Fraumeni (1987) which is now well known as the KLEMS approach (see details in O'Mahony and Timmer 2009).

Unlike Wu's other studies on China's aggregate and broad-sector (manufacturing and industrial) GDP that challenge official estimates in nominal terms (Wu, 2002, 2011 and 2013c; Maddison and Wu 2008), in the present input-output accounts-based study we in principle accept official national-level estimates in nominal terms, basically within national accounts, as "control totals". This means that discrepancies and contradictory estimates from different official sources at aggregate or industry levels are reconciled with or adjusted to the "control totals". This new effort, together with data work on labor and capital, is mainly to establish the coherence between inputs and output within individual industries and between industries and national aggregates in all measures.

Note that this background paper is preliminary and mainly serves the purpose of data evaluation that is to be conducted on March 20, 2014. For a quick and effective delivery of the paper with the data, we omit the motivation, the significance and the literature review, and in some cases we skip the details of official data problems. A full publishable paper will be completed on the basis of the materials presented in this paper and comments and suggestions received from the reviewers.

This paper is structured as follows. Section 2 focuses on the reconstruction of national production and income accounts as industry-level "control totals". Section 3 focuses on the reconstruction of industry-level producer price indices. Sections 4 to 7 concentrate on the data work for input-output accounts. Section 4 adjusts China's five full-scale input-output tables i.e. 1987, 1992, 1997, 2002 and 2007 IOTs for consistency and Section 5 estimates supply-use tables for these benchmarks. Section 6 explains how to convert the MPS-type of IOT to SNA-type IOT for 1981 and to match China's five full-scale input-output tables. Section 7 constructs industry-level external (export and import) transaction accounts for the benchmark IO accounts. We finally present some results for discussion in Section 8. The full time series results for supply-use tables and input-output tables are presented in the attached data files marked as CIP2.1_NA; CIP2.1_PPI; CIP2.1_SUT; CIP2.1_IOT.

It should be noted that given limited time for the present paper, we also do not intend to present the methodology formally. Our basic data work on national accounts and the input-output accounts follow the SNA principles. We specifically explain the method used for MPS-type to SNA-type IOT conversion for our earliest benchmark 1981 when SNA-type IOT is not available.

For the final time series construction of China's supply-use and input-output tables for the period 1981-2010, we use the SUTRAS approach adopted from the WIOD (world input-output database) Project.

2. Reconstruction of National Output and Income Accounts

Coverage

The CIP Projects covers the entire Chinese economy at industry level for the period 1980-2010. It is well known that the inconsistent, incomplete or overlapped coverage of the Chinese official statistics, reported through different authorities by different statistical criteria, ranging from ownership type, administrative jurisdiction to the size of enterprises which often lack of transparency, has caused great confusions in empirical studies on the Chinese economy. Ignoring or mishandling the coverage problem may lead to misread China's productivity performance. In CIP, based on the Chinese System of National Accounts (CSNA) (Xu, 2009), especially its input-output table (CIOT) system, and national or sectoral level censuses, we aim to first conceptually and then empirically re-establish the full statistical coverage of the economy in all input and output indicators.

In the reconstruction of China's output and income accounts, since we accept the national accounts as the "control totals", we do not have to deal with inconsistencies between industries and aggregates caused by improper classifications by ownership type, administrative jurisdiction and various size criteria of firms. Rather, we force any inconsistencies to be consistent with the national "control totals". In doing so, the results consistently define the overall boundary for more difficult input measures in which CIP has to introduce a "formal sector" vis-à-vis "informal sector" at industry level (Wu 2013a).

Industrial classification

In industrial classification, we in principle adopt the 2002 version of the Chinese Standard Industrial Classification (CSIC/2002) to divide the whole economy into 37 industries (Table 1). For services, we also follow the minor revisions of CSIC/2012.

CIP re-classification is based on Wu's series of data work to adjust for classification consistency over time because official industrial and employment statistics were reported under different CSIC systems adopted in 1972, 1985 and 1994. This 37-industry/sector CIP classification system ensures the best use of industry-level information in time and space.

Despite strong central planning legacy in Chinese industrial classification that emphasized (vertical) administrative controls rather than the nature of production or business (satisfying the homogeneity requirement in the industrial classification), the CSIC since its 1994 version has in principle followed the International Standard Industrial Classification, ISIC, previously Rev. 3 and presently Rev. 4. This makes it easy for the CIP classification to conform to or reconciled with the EU-KLEMS system of industrial classification as explained in Timmer et al. (2007). To facilitate international comparisons or comparative studies using the KLEMS-type of data, in Table 1 we also provide industrial classification codes in CIP (China KLEMS) and in the EU-KLEMS.

TABLE 1

CIP (CHINA KLEMS) INDUSTRIAL CLASSIFICATION AND CODE

CIP (China KLEMS)	EU-KLEMS	Sector
1	AtB	Agriculture, forestry, animal husbandry & fishery
2	10	Coal mining
3	11	Oil & gas excavation
4	13	Metal mining
5	14	Non-metallic minerals mining
6	15	Food and kindred products
7	16	Tobacco products
8	17	Textile mill products
9	18	Apparel and other textile products
10	19	Leather and leather products
11	20	Saw mill products, furniture, fixtures
12	21t22	Paper products, printing & publishing
13	23	Petroleum and coal products
14	24	Chemicals and allied products
15	25	Rubber and plastics products
16	26	Stone, clay, and glass products
17	27t28	Primary & fabricated metal industries
18	27t28	Metal products (excluding rolling products)
19	29	Industrial machinery and equipment
20	31	Electric equipment
21	32	Electronic and telecommunication equipment
22	30t33	Instruments and office equipment
23	34t35	Motor vehicles & other transportation equipment
24	36t37	Miscellaneous manufacturing industries
25	E	Power, steam, gas and tap water supply
26	F	Construction
27	G	Wholesale and retail trades
28	H	Hotels and restaurants
29	I	Transport, storage & post services
30	71t74	Information & computer services
31	J	Financial Intermediations
32	K	Real estate activities
33	71t74	Leasing, technical, science & business services
34	L	Public administration and defense
35	M	Education
36	N	Health and social security services
37	O&P	Other services

Sources and Notes: See the text.

Gross value of output and gross value added at current prices

Following Wu (2013a), to construct the nominal gross output and value added by industry, hence deriving intermediate inputs at industry level, we rely on the following data sources:

1) China's annual national accounts that give the "control totals" in value added for the aggregate economy and its broad sectors, available in *China Statistical Yearbook* and several editions of *Historical GDP Accounts* published by NBS.

2) China's Input-Output Tables (CIOT), published every five years since 1987 by DNEA of NBS, which give the "control totals" in both gross output, value added and intermediate inputs.

3) China's industrial statistics for 2-digit level enterprises at or above the "designated size" (see the discussion of "coverage"), available in *China Industrial Economy Statistical Yearbook* published by DITS of NBS.

4) National censuses based on which the national accounts are adjusted, specifically, the 1992 Tertiary Sector Census, the 1985 and 1995 Industrial Censuses, and the 2004 and 2008 National Economic Censuses.

Basically, the annual gross value added of the national accounts is used as the "control total" and the gross output and value added in CIOT, available in the full table every five years since 1987 and in the reduced format between two full tables, are used as benchmark structures. The national accounts and CIOTs cover all economic activities in both the formal and the informal sectors.

The national accounts are only available at broad sector level. To satisfy our classification requirement (Table 1), they are made concordant with the benchmark CIOTs, supplemented by annual industry-level statistics for the formal sector. To construct a time series for the entire period 1980-2010, as explained below, in addition to the interpolations of the input-output structures between the benchmarks, we need to convert the official 1981 input-output table constructed under MPS (material product system) to that conforming to SNA. The 1981 and 1987 CIOTs jointly determine the output structure for the period 1980-86 and the period of 2008-10 is assumed to follow the structure of the 2007 CIOT.

(Here, we need a table to explain reclassification for benchmarks and between benchmarks supported by sources of data and indication of the approach used.)

Factor income accounts

Factor income accounts in normal terms are important for weighting factors and other inputs used in production. To construct annual factor income accounts, the only source of information is input-output tables. Our data work thus relies on the above input-output table structure-based, reconstructed national output accounts. For simplicity, we focus on labor income and treat the rest of gross value added as capital income. Therefore, labor income shares of available benchmark input-output tables are used to interpolate the shares between IO benchmarks. The results are used to decompose gross value added at current prices into labor and capital incomes. Accordingly, the cost of intermediate inputs can be derived from gross value of output and gross value added.

3. RECONSTRUCTION OF INDUSTRY-LEVEL PPIS

Although the official measure of the real GDP has been questioned for underestimating price changes (Ren 1997, Maddison 1998, Woo 1998, and Wu 2000), most studies on China's growth have taken the implicit GDP deflator of the national accounts for granted. In this study, to be conceptually consistent with our input-output framework, we opt for the double deflation approach, i.e. obtaining the real value added by subtracting PPI-deflated intermediate inputs from PPI-deflated gross output for each industry. The industry-specific PPIs are constructed using data from different price surveys of official sources. Basically, for non-service sectors, the official industrial PPIs are converted to meet our standard of classification, the farm-gate price index is adopted as the agricultural PPI, and the national accounts implicit deflator for construction is adopted as a proxy for the construction PPI.

Prices of services, especially the so-called "non-material" services (a MPS concept that includes non-market services), are most problematic because official GDP estimates suggest excessively high labor productivity that puts China as a big outlier in history (Maddison 2007, and Maddison and Wu 2008). With very limited information available, we use the relevant components of CPI for transportation, telecommunication, education and health care as proxies for the price changes facing the producers of these services. For the real estate PPI, we use the service margin of per square meter property sold (including both residential and commercial housing) as a proxy. A geometric mean of the above services is used as a proxy for the price change of financial service. Finally, we assume the price change of government service follows the urban CPI. We believe that our industry-specific price index or proxy is better reflecting price movement than the non-transparent national accounts implicit deflators for broad sectors.

(We need a table to summarize the approach and sources of data used for the construction of PPI by industry. We may also need to explore the possibility of constructing purchaser price index for the deflation of intermediate inputs. We should consider deriving value added deflators using our PPIs to compare official national accounts implicit value added deflators.)

4. ESTIMATION OF THE BENCHMARK SUPPLY-USE TABLES

For the first step towards the estimation of the annual supply-use tables, we reconstruct the benchmark supply-use tables using the officially published supply-used tables and input-output tables. The official supply-use tables for China are available from the National Bureau of Statistics for 1987, 1992, 1997, 2002, and 2007. The most detailed supply-use tables are those for 2007, and they are available at the 42 industry by 42 commodity level. However, for earlier years, the supply-use tables are available at more broad industry by commodity level: For example, the 1987 supply-use tables are available at the 33 industry by 33 commodity level. On the other hand, the WIOD industry and commodity classification is at the 35 industry and 59 commodity level and the CIP industry classification system (37 industries) is largely consistent with the WIOD industry classification system. As we apply the WIOD method (SUTRAS program), we first construct the benchmark supply-use tables at the 37 industry and 59 commodity level.

The limited detail in the supply and use tables makes a good concordance with the 37 industry difficult. The input-output tables are, on the contrary, much more detailed (approximately 120 industries) and allow a better match. Although the official supply and use tables are industry by product, if we aggregate products belonging to industries in the IOTs, they are equal to that in the official supply and use tables. This suggests that the industry classification in the official supply and use tables is based on the product classification in the IOTs.

From the published supply tables, we use the secondary production information (only available for industry: mining, manufacturing, and public utilities) in constructing the supply block. Row and column totals in the supply block are from the IOTs, but the distribution is obtained from the official supply tables. Thus, we construct the new benchmark supply-use tables at the 37 industry by 59 commodity level, by reclassifying industries and commodities and supplementary using information taken from the detailed benchmark IO tables. We use the information on industry distribution at the detailed industry level taken from the IO tables when we reclassify the official supply-use tables.

The reclassified benchmark supply tables at the 37 industry by 59 commodity level are not balanced, and for the next step, we have to estimate balanced benchmark supply tables. The procedure to obtain consistency with the row and column totals is the so-called RAS-procedure, and we use the RAS program provided by the WIOD team for the estimation of the balanced supply tables.

Once we prepared the benchmark supply-use tables, annual gross output and value added by industry, annual output price deflators by industry, annual exports and imports by industry, and so on, we can then goes to the next step where we estimate annual supply-use tables.

We should note that, the official supply-use tables are not available for 1981 and moreover, the 1981 IOTs are based on the MPS (Material Product System), not on the SNA. In order to construct the 1981 benchmark supply-use tables, we have to convert the MPS-based IOTs to the SNA-based IOTs. Then, using the SNA-based IOTs and structure of the 1987 supply-use tables, we construct the 1981 benchmark supply-use tables. The conversion of the MPS-based IOTs to the SNA-based IOTs is explained in more detail in the next section.

5. Conversion of MPS-type IOT to SNA-type IOT for 1981

In this section, we explain our basic strategy to construct a benchmark IO tables for 1981. For 1981, only the MPS (Material Product System)-based IO tables are available, while both the MPS-based and the SNA-based IO tables are available for 1987. First, we briefly explain the MPS mainly relying on description in the web site of the Asian Historical Project at Hitotsubashi University[1] and in the publication for the 1987 IO Tables for China.

MPS is primarily a system of balance tables the major components of which are "The balance of production, consumption and accumulation of the gross social product," "The balance of production, distribution, redistribution and final use of the gross social product," "The balance of labor resources," and "The balance of fixed assets." The functions of MPS seem to be the same as those of SNA while there are essential differences between the two systems. MPS classifies the economic activities into spheres: the sphere of material production (mining, manufacturing, agriculture, and construction are included in this sphere while transportation, communications

[1] URL: http://www.ier.hit-u.ac.jp/COE/English/online_data/index.html.

and distribution are only partially included in this sphere[2].) and the sphere of non-material services (Other services are regarded as non-material services). Only the sphere of material production creates national income while the sphere of non-material services consumes that income. The main indicators of MPS entirely rely on this assumption. The sphere of non-material services is often referred to as the non-productive sphere or the sphere of non-material production. The totality of spheres of material production and non-material services essentially conforms to the coverage of economic activities in SNA. The major difference between the two systems is that the separation of non-material services from material production constitutes the basis of economic analyses in MPS methodology.

We converted the MPS-based IO tables to the SNA-based IO tables for 1981, basically using the IO structure for the 1987 SNA-based IO tables. As explained above, both the MPS-based and the SNA-based IO tables are available for 1987, and we estimated values for the sphere of non-material services for 1981 using the two types of the 1987 IO tables. The differences between the MPS-based and the SNA-based IO tables are shown in Figure 1.

In Figure 1, the blue-shaded areas indicate the parts which are shown in the SNA-based IO tables but are not included at all in the MPS-based IO tables. The pink area (2) indicates intermediate supply of non-material services to material production sectors, which is not shown in the MPS-based IO tables but of which values are included in the value added, the area (6). The pink area (3) indicates intermediate demand for non-material services to material production sectors, which is not shown in the MPS-based IO tables but of which values are included in the households and social consumption, the areas (9) and (10).

FIGURE 1

DIFFERENCES BETWEEN THE MPS-BASED AND THE SNA-BASED IO TABLES FOR CHINA

		Intermediate demand		Final consumption					Industry output
		Material production	Non-material	Households consumption	Social comsuption	Gross fixed capital	Changes in inventories	Net exports	
Intemediate supply									
	Material production sectors	(1)	(3)	(9)	(11)	(13)		(15)	(A)
	Non-material production sectors	(2)	(4)	(10)	(12)	(14)		(16)	(B)
Value added		(5)	(7)						
		(6)	(8)						
Industry output		(C)	(D)						

Source: 1987 China Input-Output Tables

[2] The parts included in this sphere are freight transportation, communication services supplied to producers, social catering services and distribution activities continuing the production process such as state procurement of agricultural products and centralized deliveries of machinery and intermediate materials. On the other hand, the following three sectors occupy the major part of the sphere of non-material services: (1) education, sciences, culture, health and social welfare; (2) housing and public utilities; (3) banking, insurance and administration.

The way we constructed the SNA-based IO tables for 1981 is as follows. Comparing the value added for the material production sectors in the SNA-based IO tables with that in the MPS-based IO tables for 1987, we calculated the ratio of the SNA value added to the MPS value added, and estimated the SNA value added for each sector for 1981 by multiplying the ratio with the MPS value added. Then, using the difference between the MPS value added and the SNA value added for 1981, we derived the total inputs of non-material services for each material production sector. Using the input-output coefficients for the material production sectors in the 1987 IO tables and the estimated figures for the total non-material service inputs, we derived the figure for each cell in the area (2). Similarly, taking the ratio of the SNA household and social consumption to the MPS household and social consumption for 1987, we estimated the area (3) using the input-output coefficients for the non-material production sectors in the 1987 IO tables. Again, using the input-output coefficients for the non-material production sectors in the 1987 IO tables and the estimated figures in the area (3), we derived figures in the areas (4), (7), (8), and (D). Finally, using the estimated figures in the area (4) and the share of each final consumption component in the 1987 IO tables, we derived the figures in the areas (10), (12), (14), (16), and (B). In such a way, we estimated figures for the non-material production sphere for 1981.

In addition, we should mention that the Chinese industry classification before 1985 is very different from the international standard industry classification. The classification before 1985 is developed basically according to the vertical integration concept, which means that primary inputs used for production of a particular final product are classified in the same industry.[3] On the other hand, the classification after 1985 conforms to the international standard classification. The Chinese 1981 IO tables are based on the 1972 industry classification while the 1987 IO tables are based on the 1985 industry classification. Therefore, we reclassified the 1981 IO tables to conform to the industry classification in the 1987 IO tables. More specifically, we first reclassified both the 1981 and the 1987 IO tables in order to make their industries comparable, and then, we estimated the values in the non-material production sphere in the way as explained above.

As we explained above in Section 4, our approach for estimating the annual IO tables follows the Supply-Use table approach employed by the WIOD (World Input-Output Database) project. Therefore, in order to apply this approach, we need to construct benchmark supply and use tables (SUTs).Although the officially published SUTs are available for 1987, 1992, 1997, 2002, and 2007, they are not available for 1981. For 1981, we constructed the benchmark SUTs using the estimated SNA-based IO tables for 1981 and assuming that the structures of SUTs for 1981 are same as those for 1987. Although it would be a strong assumption, we believe that there is no better way to estimate the 1981 SUTs.

6. CONSTRUCTION OF EXTERNAL TRANSACTION ACCOUNTS

Another important data issue for the estimation of the benchmark SUTs and annual SUTs is to construct product-based exports and imports data. Although the detailed benchmark IO tables

[3] For example, there is an industry called "Metallurgical industry" in the 1981 IO tables. This industry corresponds to ferrous and non-ferrous ore mining, iron and steel manufacturing, and non-ferrous metal manufacturing for the 1987 IO tables. Similarly, the industry called "Coal and coke" in the 1981 IO tables corresponds to coal mining, coal cleaning and screening, coking, and gas and coal products manufacturing.

for 2002 and 2007 provide exports and imports values at producer prices at commodity level, there is no detailed information available especially for services exports and imports for other years. The IO tables for 1981 and 1987 only provide net exports by sector and values for exports and imports are not available. Therefore, we constructed export and import data based on the WIOD product classification using the UN Comtrade data and the information on the exports and imports in the benchmark IO tables. We also utilized the trade statistics compiled by the WIOD project. Although the exports and imports data are available at the detailed product level for goods, detailed service exports and imports are not available for most of years except 2002 and 2007. Therefore, basically using the available information in the IO tables and the total exports and imports for services provided by the balance of payment statistics, we estimated the service exports and imports at the WIOD product level.

7. Results: Time Series of Supply-Use Accounts and Input-Output Accounts

Annual estimates using the SUTRAS model

We estimate annual SUTs using the benchmark SUTs and various annual data which are used as the control totals for the matrix of SUTs. More specifically, required annual data are as follows:

- Gross output by industry
- Exports and imports by product
- Inventory changes by product (linearly interpolated for non-benchmark years)
- Gross output deflators by industry (PPIs)
- GDP deflator (total economy)

Using these annual data and the structures of the benchmark SUTs, we estimate annual SUTs. The estimation is conducted using the SUTRAS program. The SUTRAS method is designed for joint projection of SUTs, and does not require the availability of the use and supply totals by products but endogenously derives them (Temurshoev and Timmer 2010). This is a useful feature of the SUTRAS program, because outputs by product are not available for projection years though outputs by industry are available from various data sources. The supply table gives us the value of commodity *i* made by industry *j* by all the industries while the use table gives us the intermediate use of commodity *i* by all the industries and the purchase by final demanders. In the SUTRAS program, unlike the one-sided RAS method employed by the EU KLEMS database, the use and the supply tables are jointly estimated with the two constraints:

Total inputs by industry = total outputs by industry

Total supply by product = total use by product

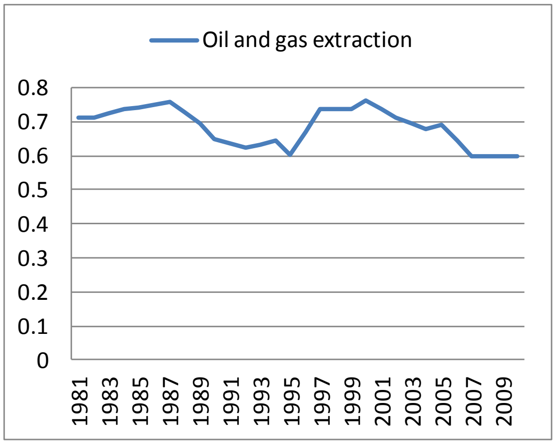
The SUTRAS program produces annual supply tables and use tables (59 products by 38 industries) at producer prices and at previous year producer prices.

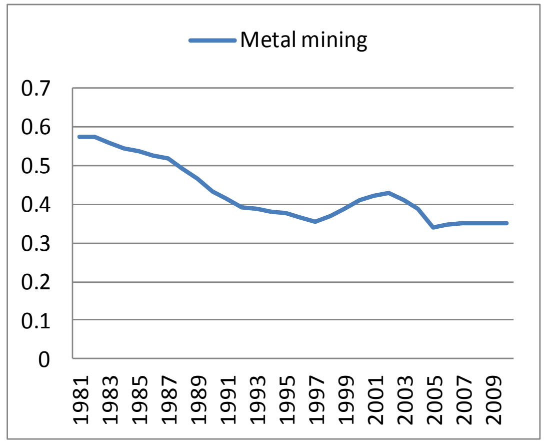
After obtaining the annual SUTs, we transform the Supply and Use matrices and derive annual industry-by-industry IO tables, employing the transformation methodology assuming that product sales structure is fixed (Model D in the Eurostat Manual of Supply, Use, and Input-Output Tables, 2008 edition, Chapter 11)

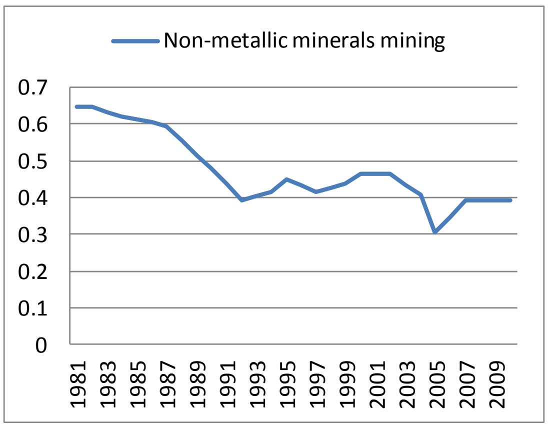
Dynamics of value added ratio and income share of labor

Based on the estimated annual SUTs, we show the evolution of value added to gross output ratios by industry. We should note that the SUTRAS program does not estimate the value added to gross output ratios. We give the ratios and the SUTRAS program ***uses*** these ratios in order to estimate the product-by-industry matrices. Therefore, the value added to gross output ratios we show here are not the SUTRAS estimation results, but the results of the reconstructed national output and income accounts explained in Section 2. Figure 2 shows the value added to gross output ratio by industry. In addition, we show the income share of labor (labor compensation to value added ratio) by industry in Figure 3.

FIGURE 2
THE EVOLUTION OF VALUE ADDED TO GROSS OUTPUT RATIOS


Oil and gas extraction
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009


Metal mining
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009


Non-metallic minerals mining
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1981
1983
1985
1987
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1997
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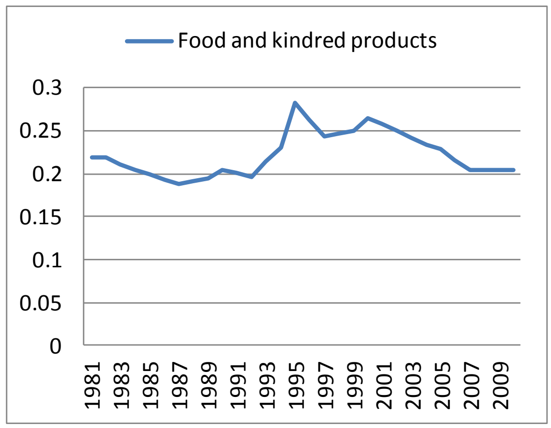
2001
2003
2005
2007
2009


Food and kindred products
0.3
0.25
0.2
0.15
0.1
0.05
0
1981
1983
1985
1987
1989
1991
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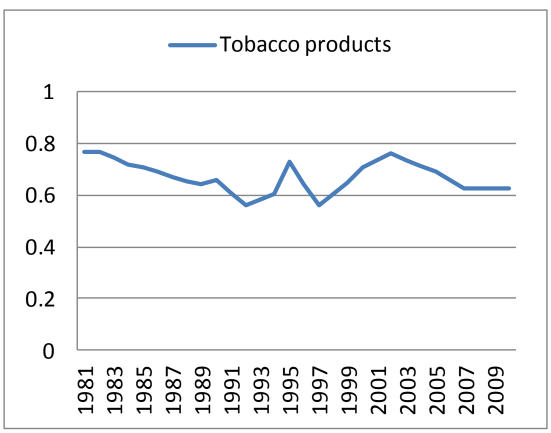
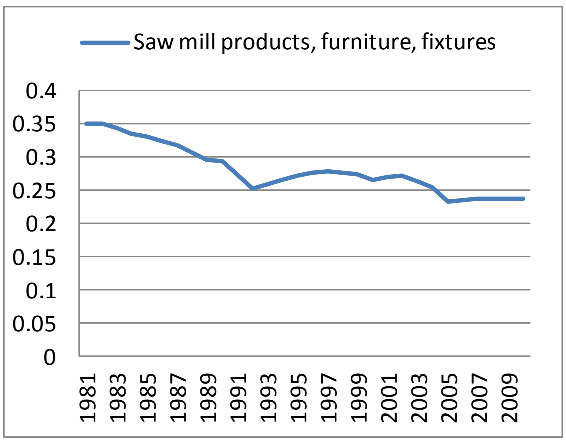
1997
1999
2001
2003
2005
2007
2009

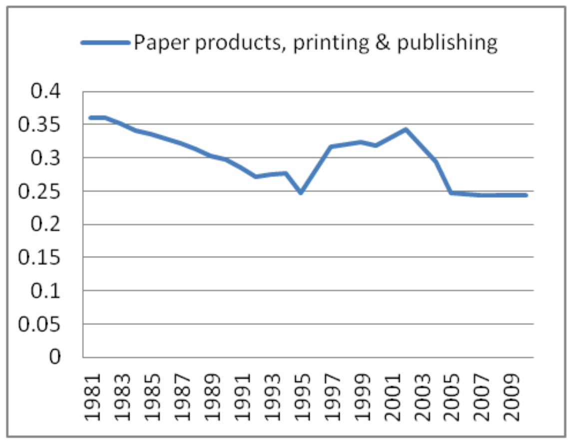

Tobacco products
1
0.8
0.6
0.4
0.2
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009

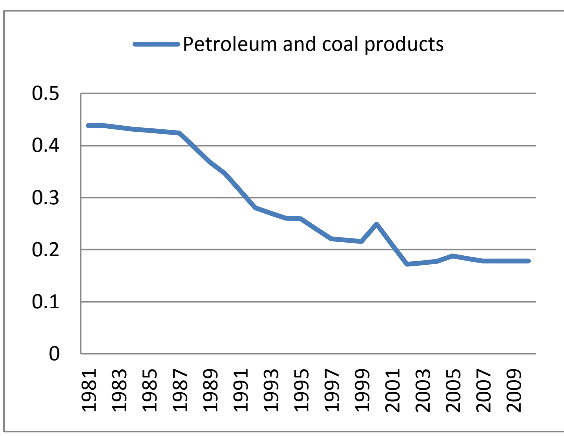

Textile mill products
0.3
0.25
0.2
0.15
0.1
0.05
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009

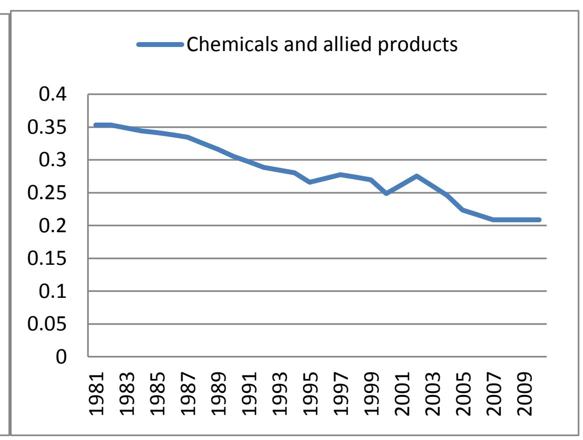

Apparel and other textile products
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

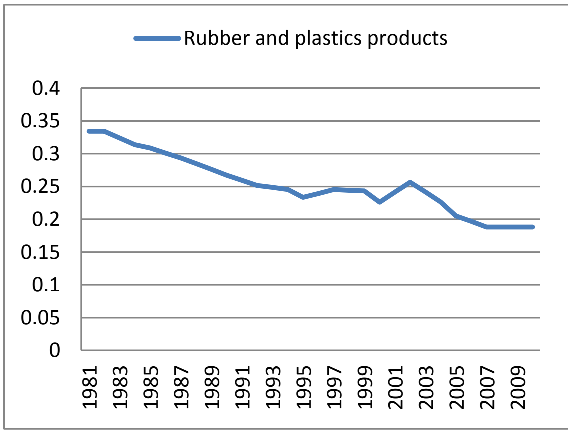

Leather and leather products
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

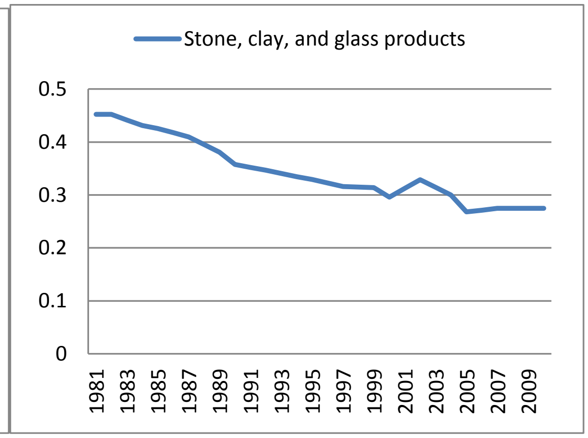

Saw mill products, furniture, fixtures
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

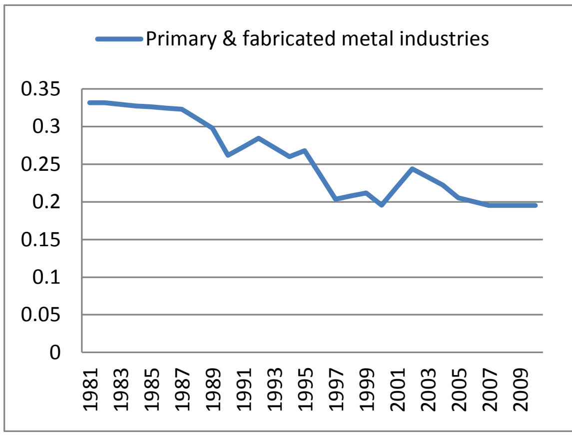

Paper products, printing & publishing
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

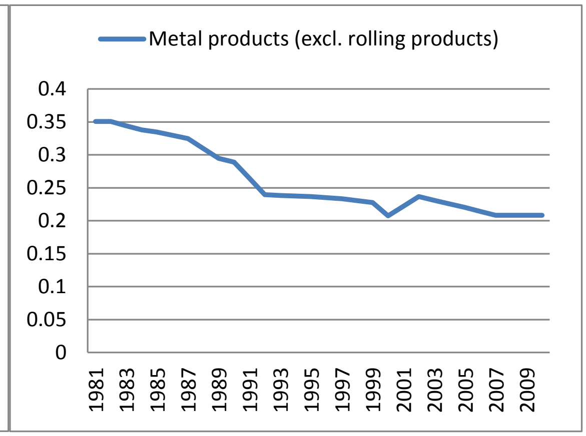

Petroleum and coal products
0.5
0.4
0.3
0.2
0.1
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

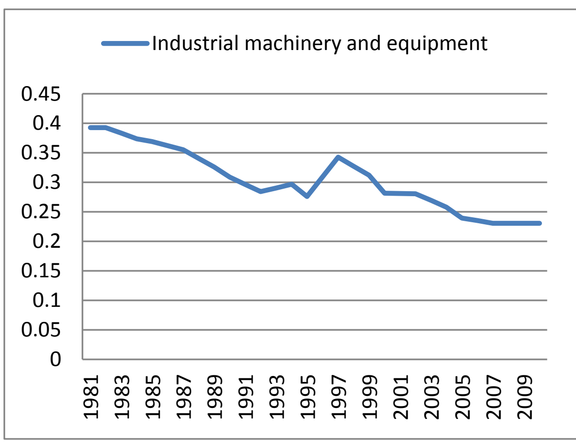

Chemicals and allied products
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

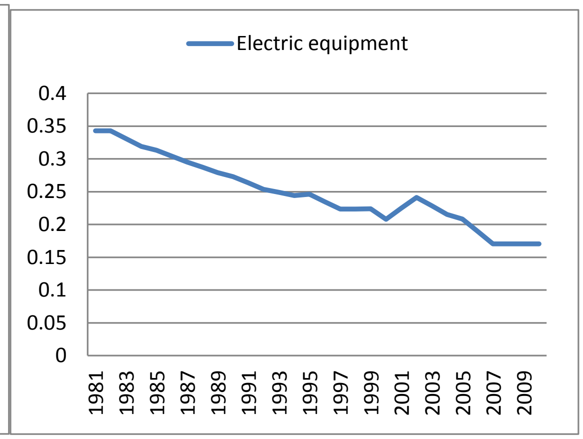

Rubber and plastics products
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

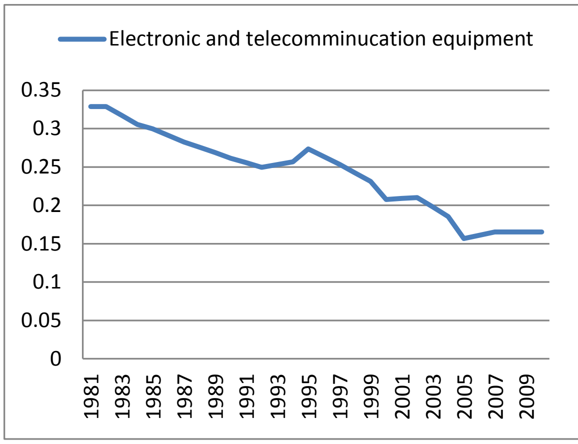

Stone, clay, and glass products
0.5
0.4
0.3
0.2
0.1
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

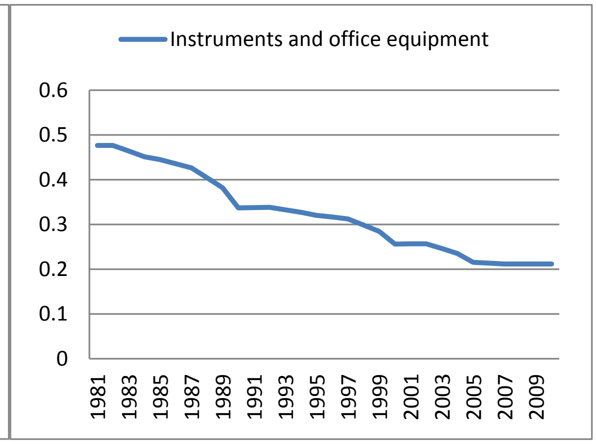

Primary & fabricated metal industries
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

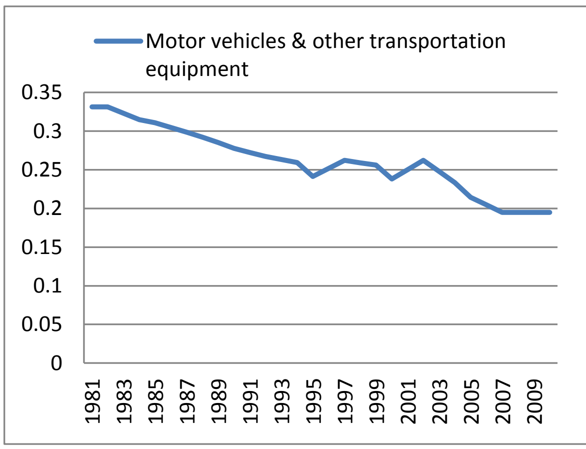

Metal products (excl. rolling products)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

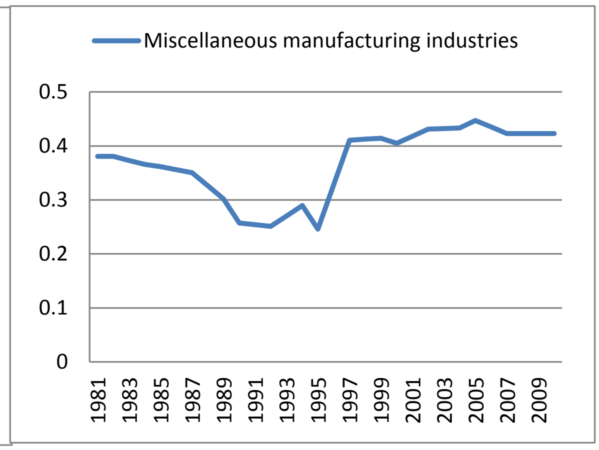

Industrial machinery and equipment
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

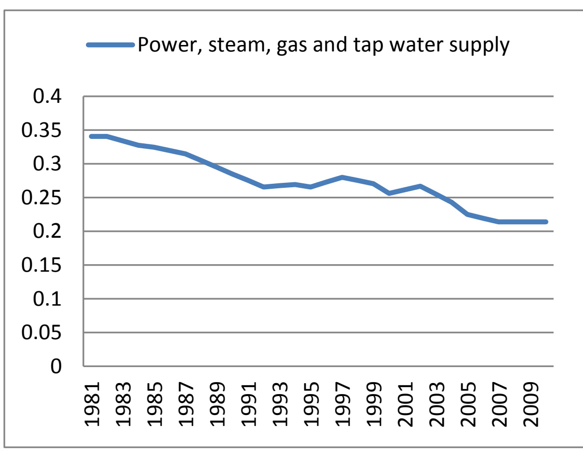

Electric equipment
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

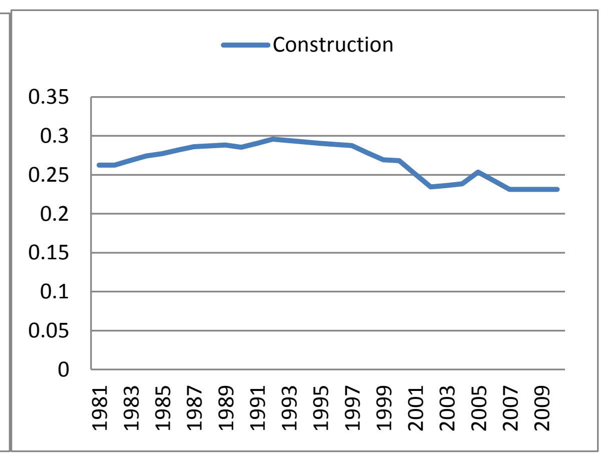

Electronic and telecomminucation equipment
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009


Instruments and office equipment
0.6
0.5
0.4
0.3
0.2
0.1
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009

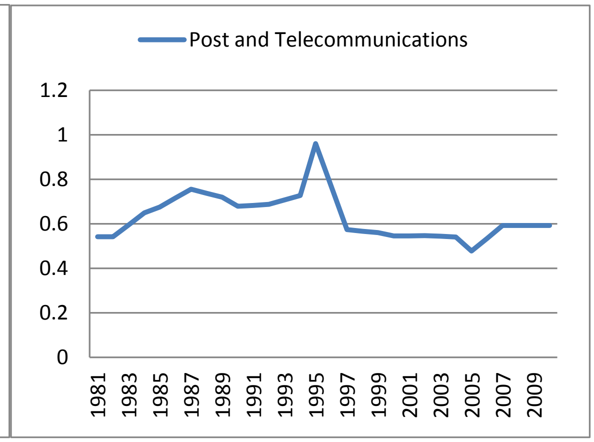

Motor vehicles & other transportation equipment
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009

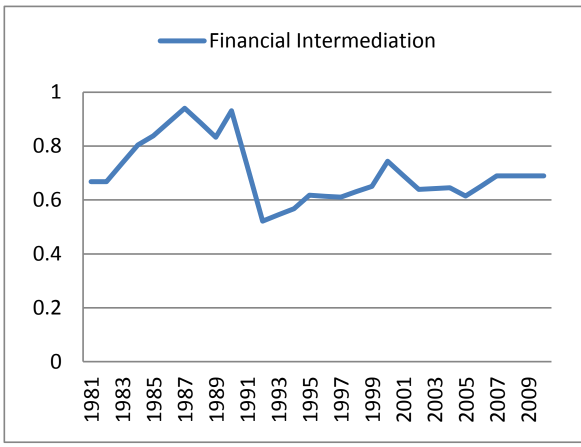

Miscellaneous manufacturing industries
0.5
0.4
0.3
0.2
0.1
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009

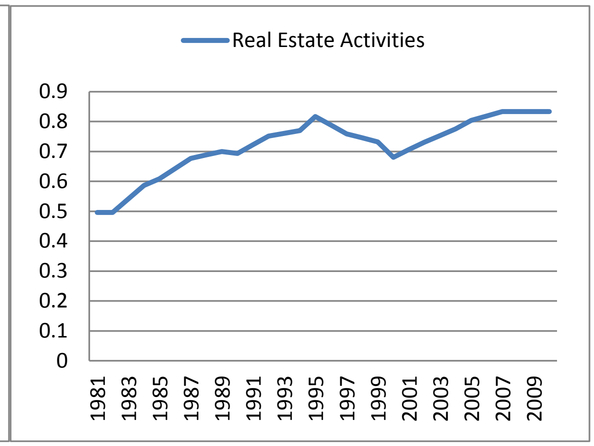

Power, steam, gas and tap water supply
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009

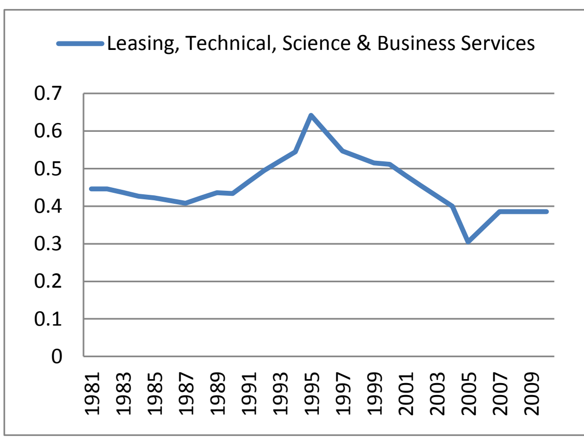

Construction
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009

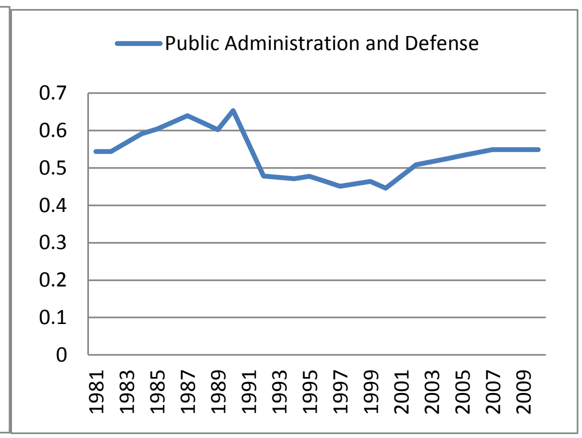

Wholesale and Retail Trades
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

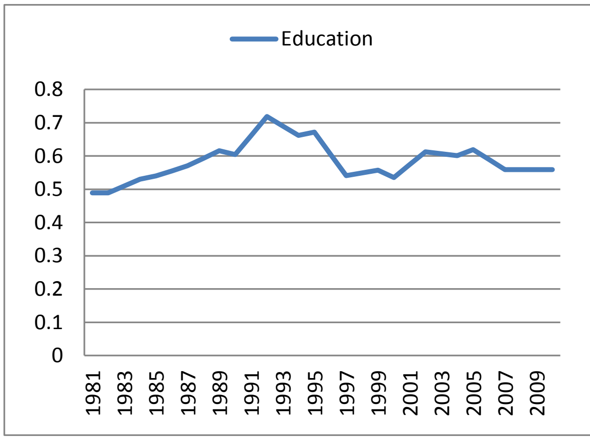

Post and Telecommunications
1.2
1
0.8
0.6
0.4
0.2
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

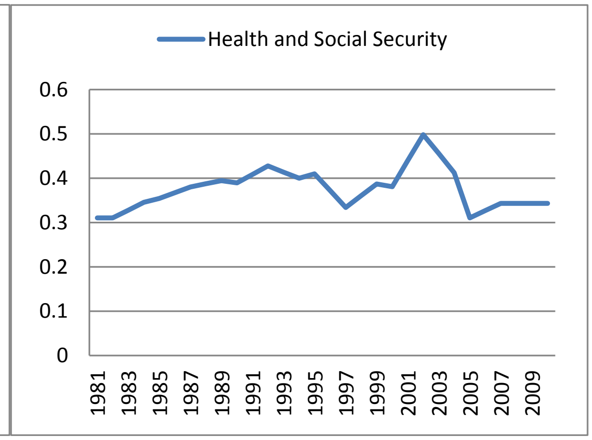

Financial Intermediation
1
0.8
0.6
0.4
0.2
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009


Real Estate Activities
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009


Leasing, Technical, Science & Business Services
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009


Public Administration and Defense
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009





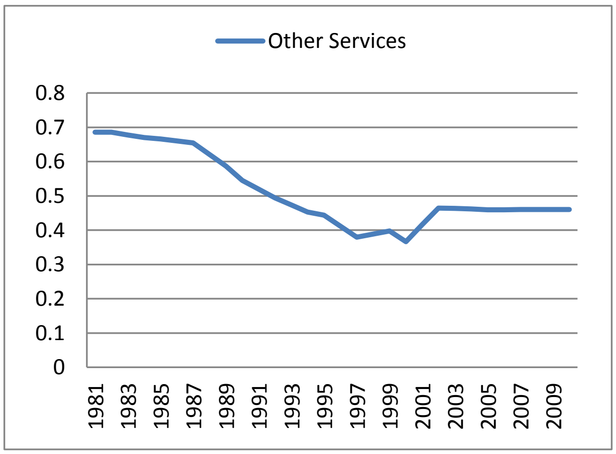
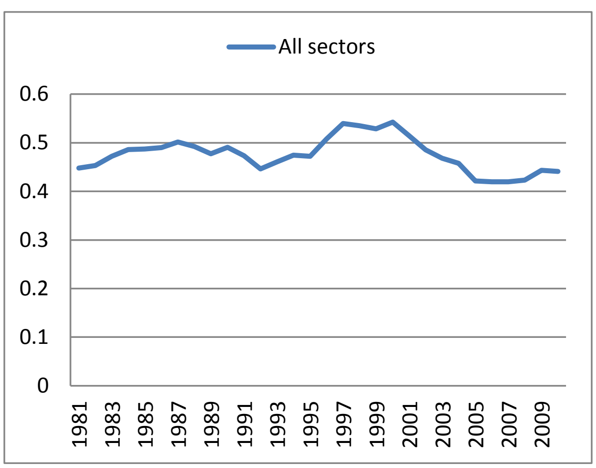
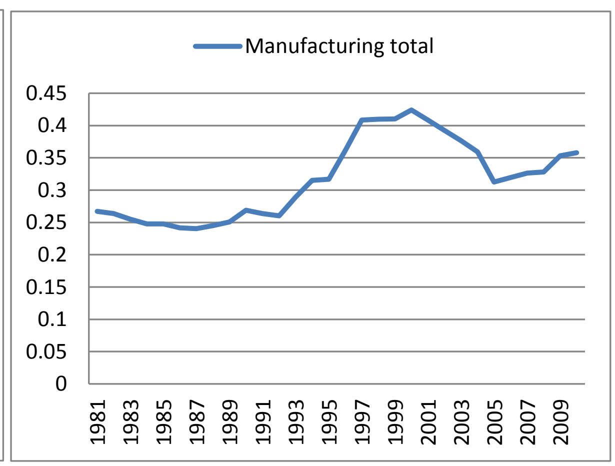
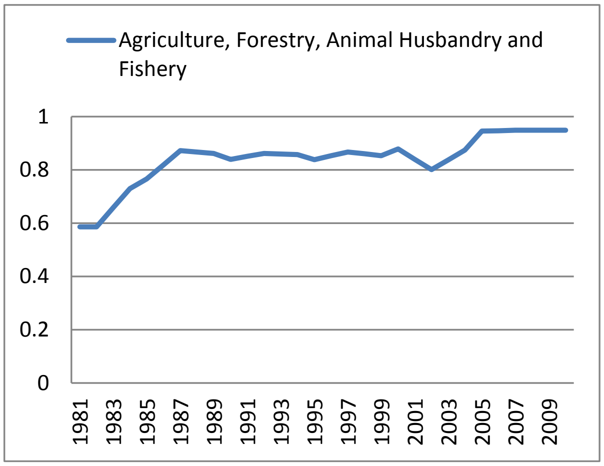


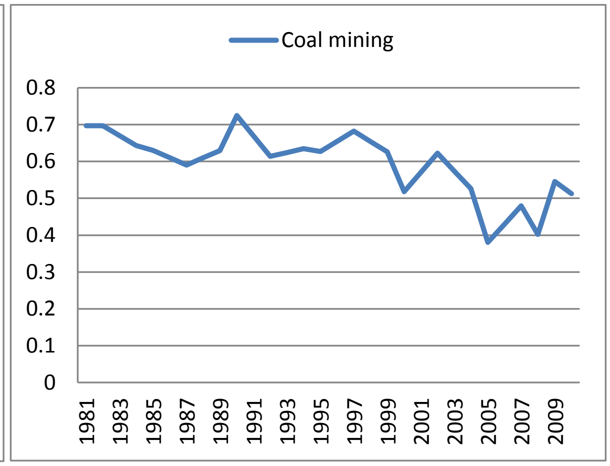
FIGURE 3

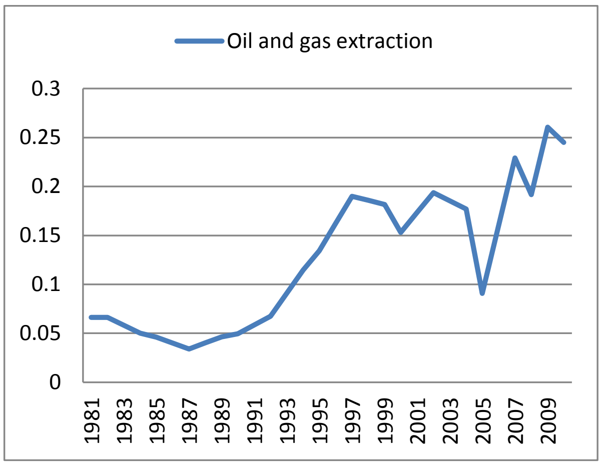
THE EVOLUTION OF INCOME SHARES OF LABOR

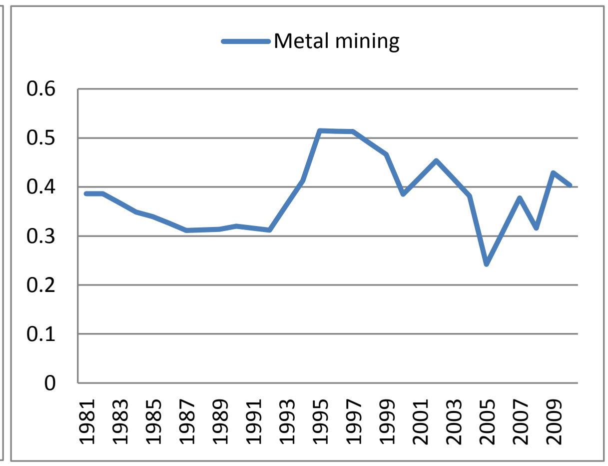


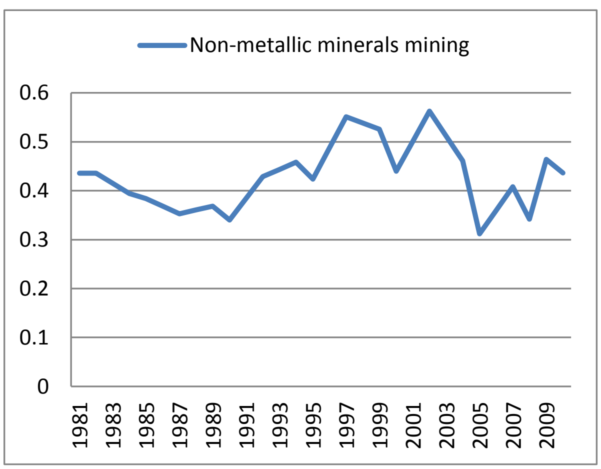


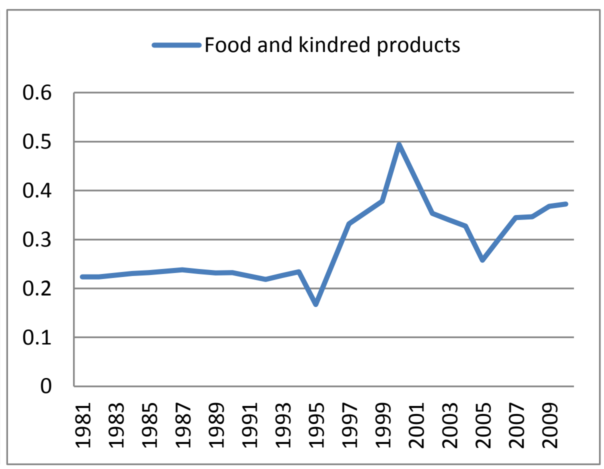

Agriculture, Forestry, Animal Husbandry and Fishery
1
0.8
0.6
0.4
0.2
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009

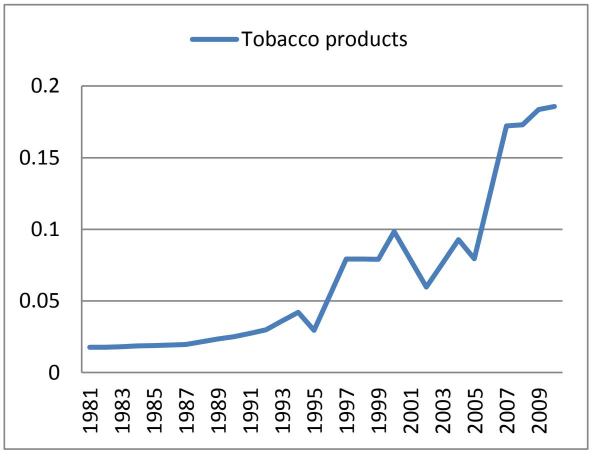

Coal mining
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009

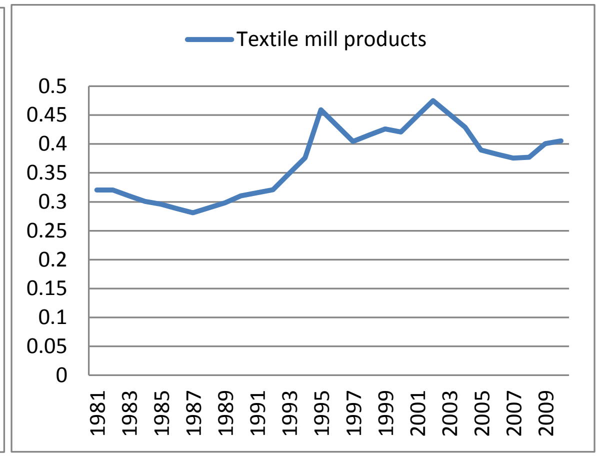

Oil and gas extraction
0.3
0.25
0.2
0.15
0.1
0.05
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009


Metal mining
0.6
0.5
0.4
0.3
0.2
0.1
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009

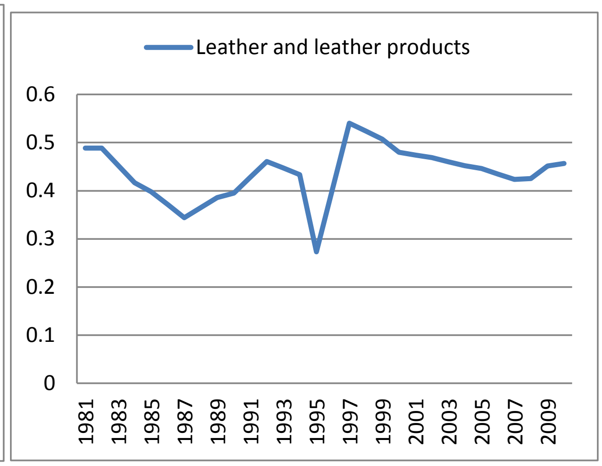

Non-metallic minerals mining
0.6
0.5
0.4
0.3
0.2
0.1
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009


Food and kindred products
0.6
0.5
0.4
0.3
0.2
0.1
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009

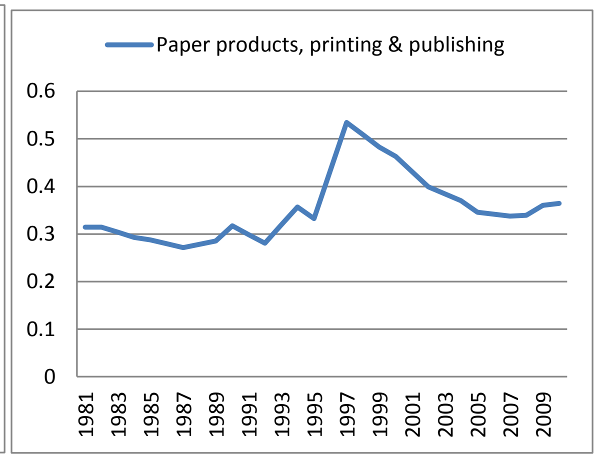

Tobacco products
0.2
0.15
0.1
0.05
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

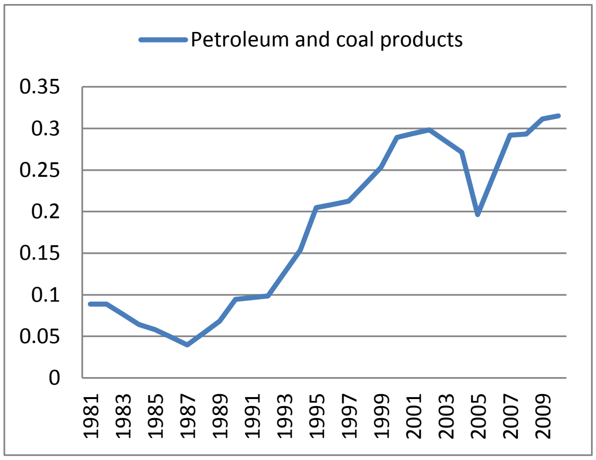

Textile mill products
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

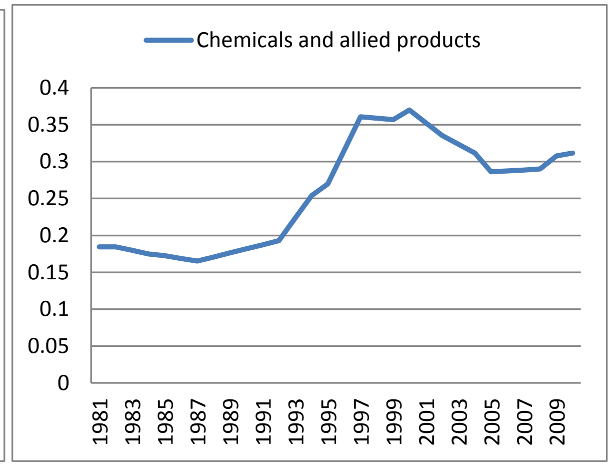

Apparel and other textile products
0.6
0.5
0.4
0.3
0.2
0.1
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

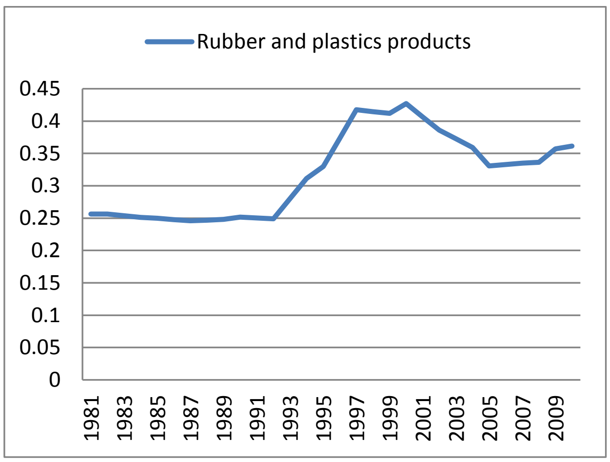

Leather and leather products
0.6
0.5
0.4
0.3
0.2
0.1
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

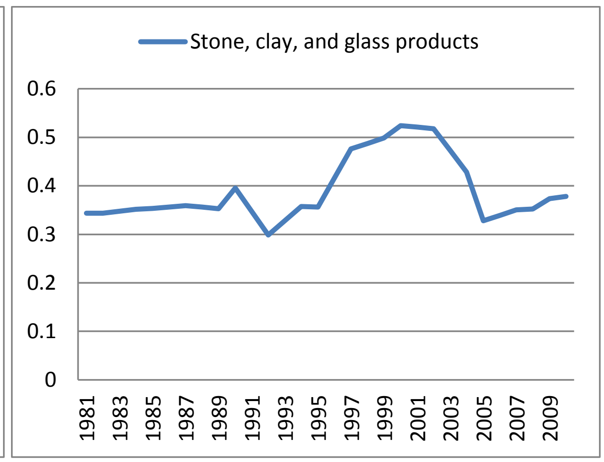

Saw mill products, furniture, fixtures
0.6
0.5
0.4
0.3
0.2
0.1
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

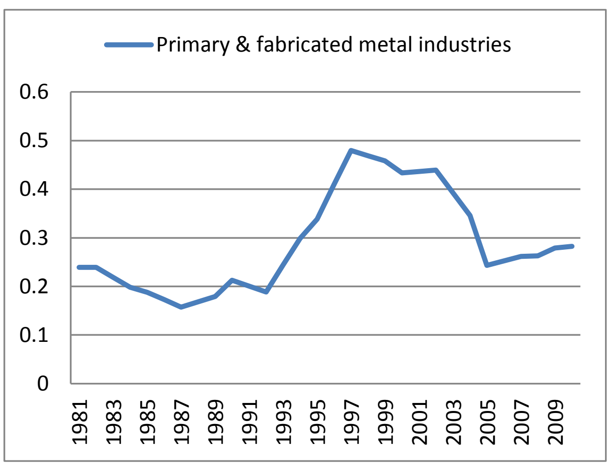

Paper products, printing & publishing
0.6
0.5
0.4
0.3
0.2
0.1
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

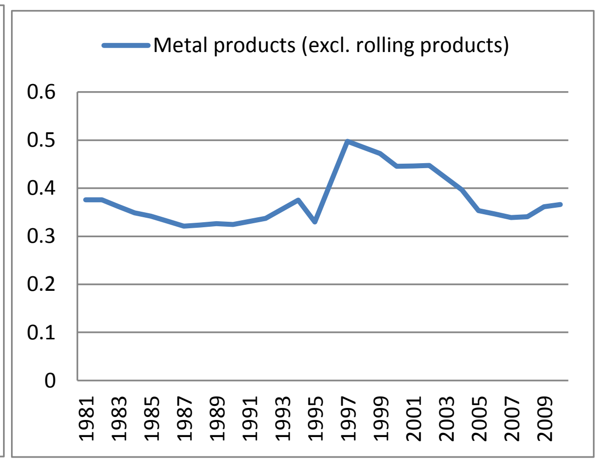

Petroleum and coal products
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

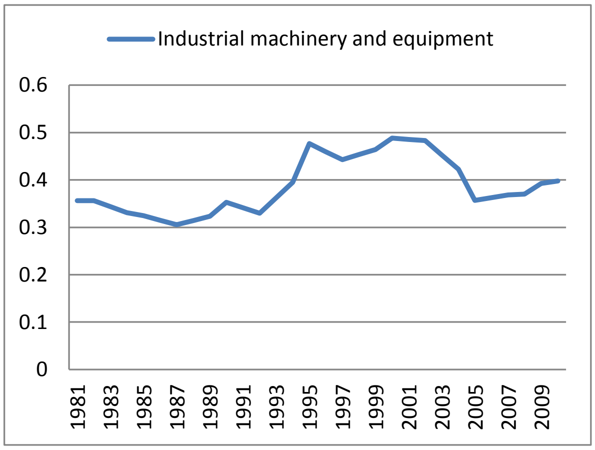

Chemicals and allied products
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

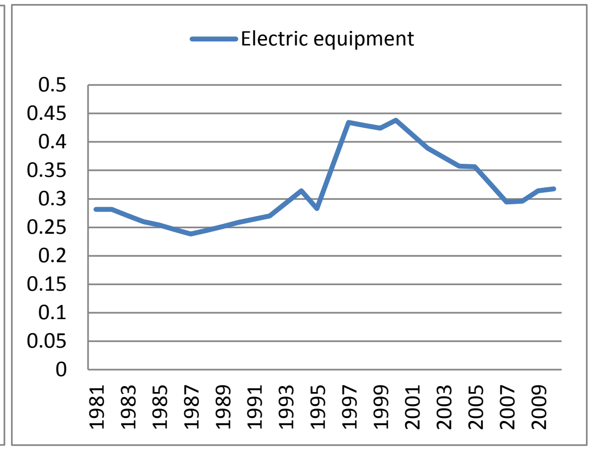

Rubber and plastics products
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

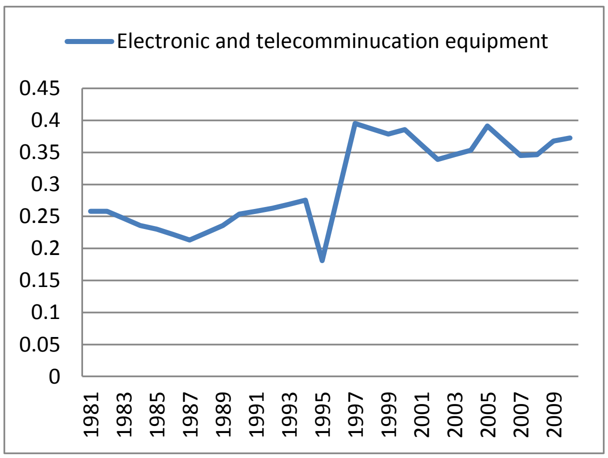

Stone, clay, and glass products
0.6
0.5
0.4
0.3
0.2
0.1
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009


Primary & fabricated metal industries
0.6
0.5
0.4
0.3
0.2
0.1
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009


Metal products (excl. rolling products)
0.6
0.5
0.4
0.3
0.2
0.1
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009


Industrial machinery and equipment
0.6
0.5
0.4
0.3
0.2
0.1
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009


Electric equipment
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009


Electronic and telecomminucation equipment
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
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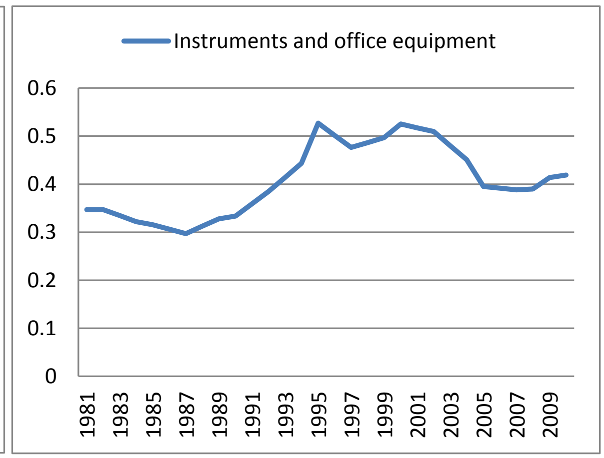
2001
2003
2005
2007
2009


Instruments and office equipment
0.6
0.5
0.4
0.3
0.2
0.1
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
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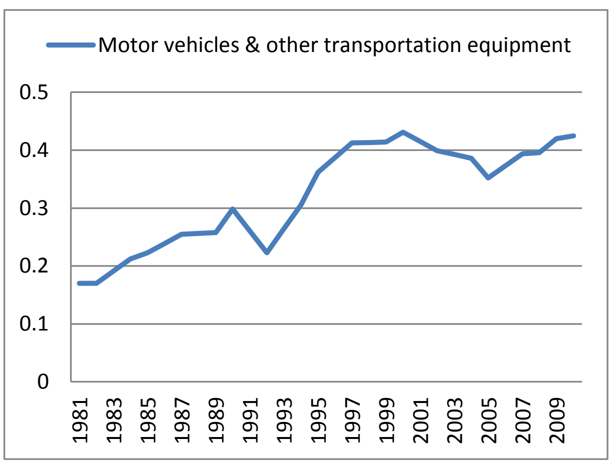
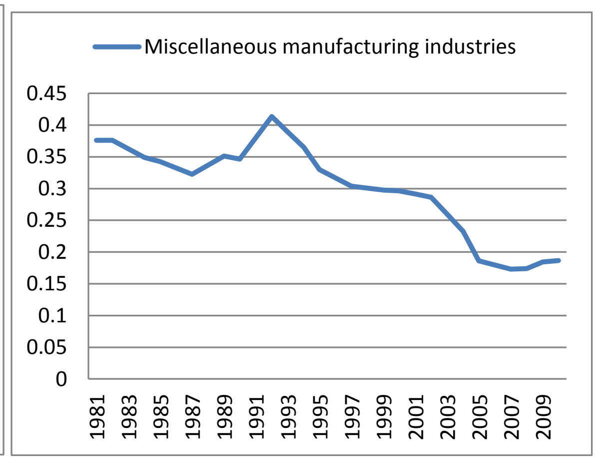
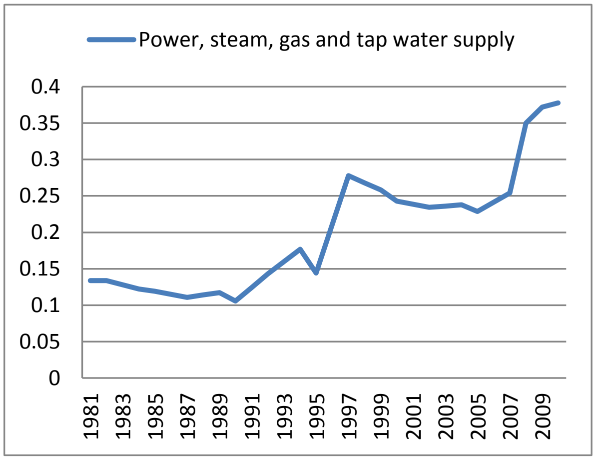
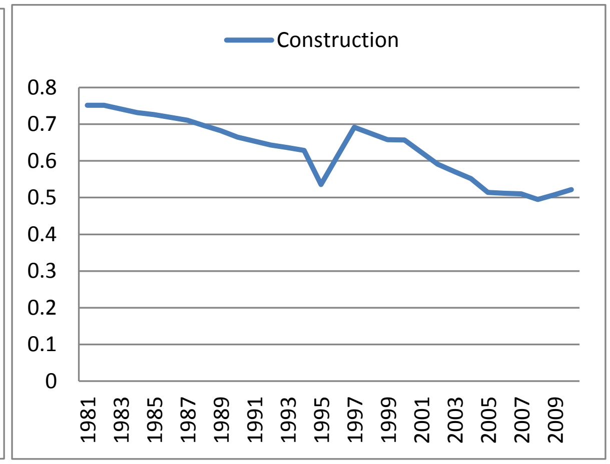
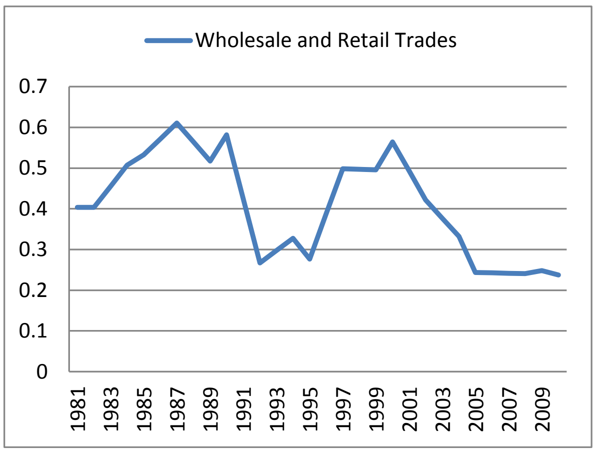
2001
2003
2005
2007
2009

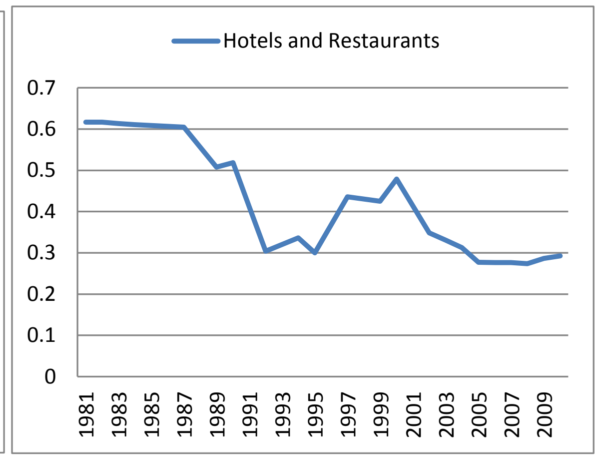

Motor vehicles & other transportation equipment
0.5
0.4
0.3
0.2
0.1
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009

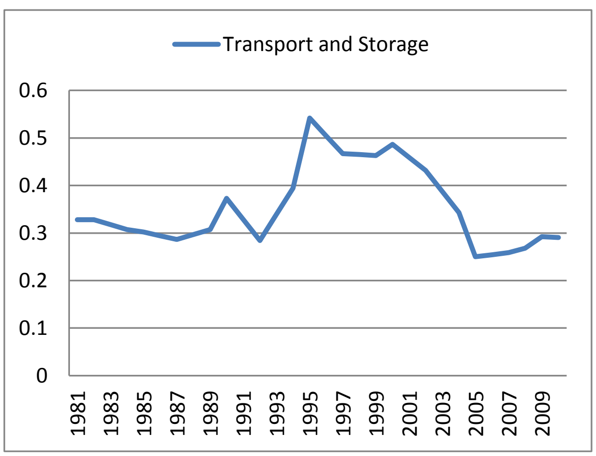

Miscellaneous manufacturing industries
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009

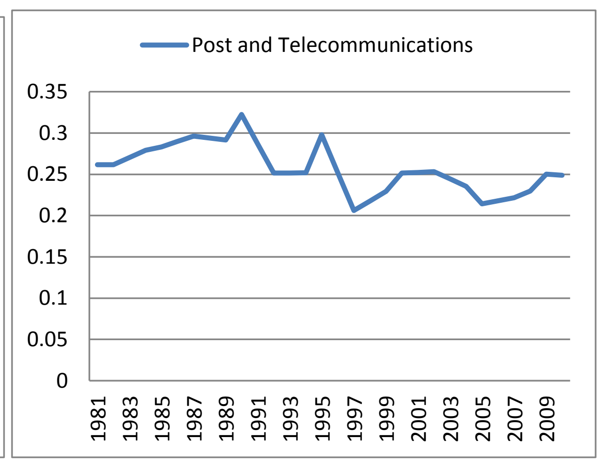

Power, steam, gas and tap water supply
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

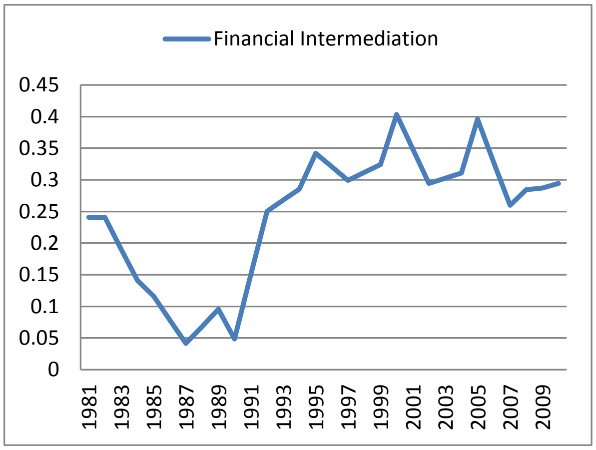

Construction
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

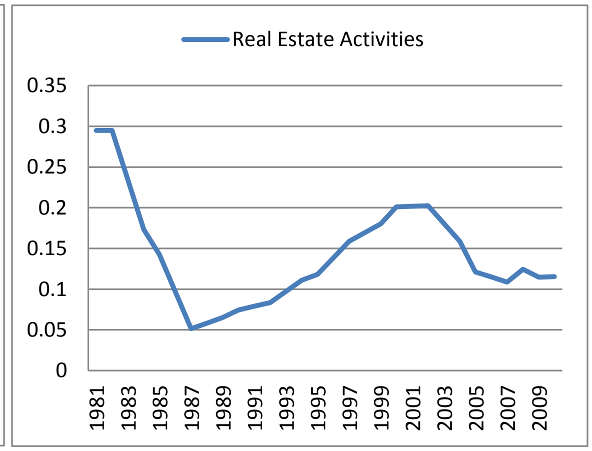

Wholesale and Retail Trades
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

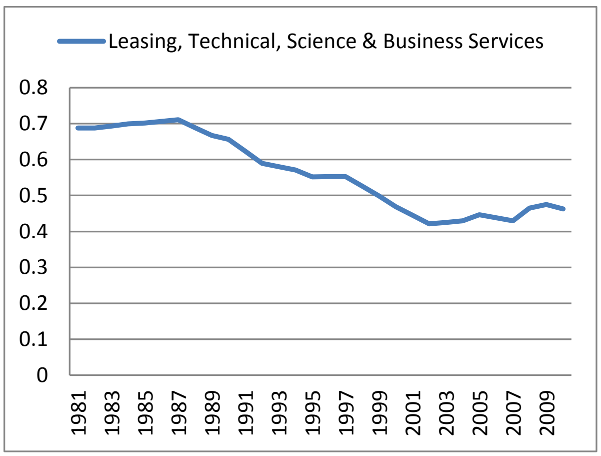

Hotels and Restaurants
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

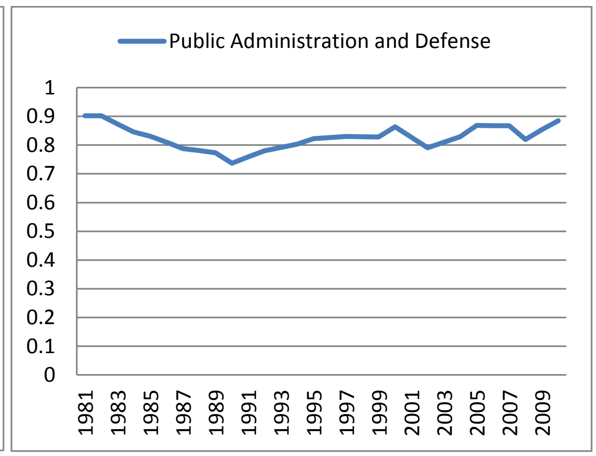

Transport and Storage
0.6
0.5
0.4
0.3
0.2
0.1
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

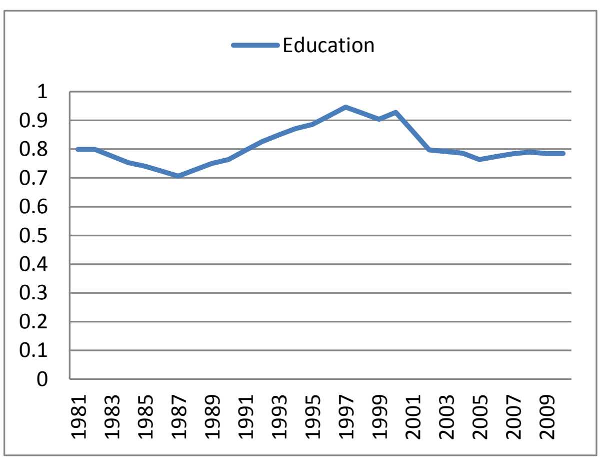

Post and Telecommunications
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

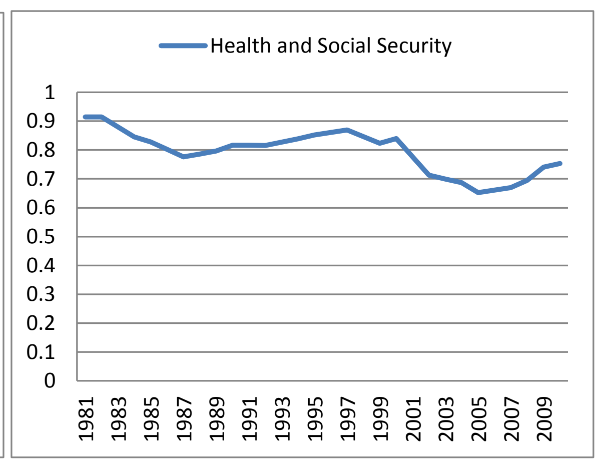

Financial Intermediation
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009

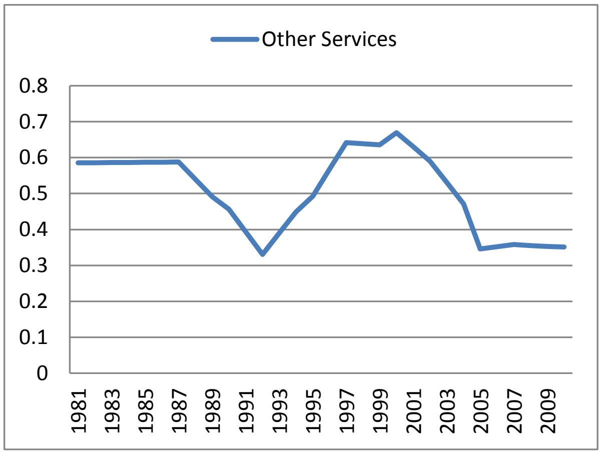

Real Estate Activities
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009


Leasing, Technical, Science & Business Services
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009


Public Administration and Defense
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009


Education
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009


Health and Social Security
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009



China's real GDP growth revisited

Table 2 shows the annual growth rates of gross output and value added for all the industries and for the manufacturing industries total. Further breakdown by industry is shown in Figure 4. The real value added underlying these tables and figures are derived from the double deflation approach using the industry-level PPIs for gross output. Vis-à-vis

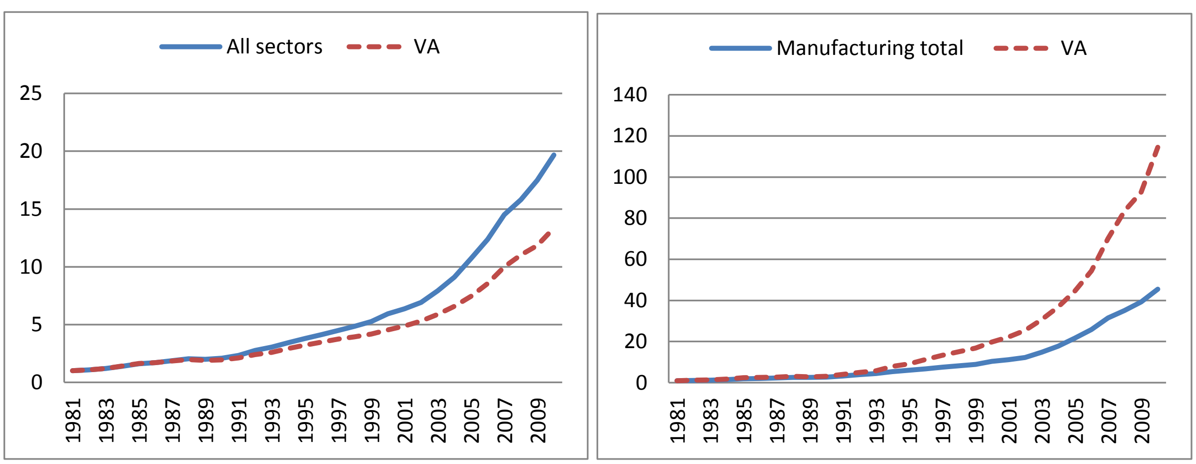
TABLE 2
ANNUAL GROWTH RATES: RECONSTRUCTED GROSS OUTPUT AND VALUE ADDED VIS-À-VIS OFFICIAL NATIONAL ACCOUNTS GDP

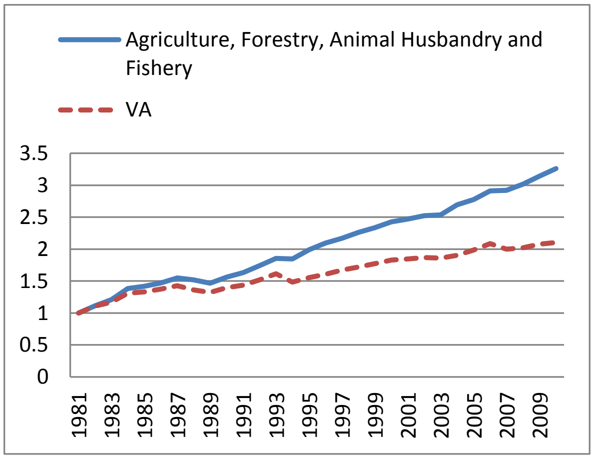
	CIP Reconstructed GO		CIP Reconstructed VA		NBS GDP	
	Total	Manuf.	Total	Manuf.	Total	Industry
1982	7.1	8.7	8.6	14.6	8.9	5.6
1983	11.3	15.8	11.0	21.2	10.3	9.3
1984	16.4	20.2	16.8	28.6	14.2	13.8
1985	15.3	23.1	15.0	36.5	12.1	16.7
1986	6.7	8.8	5.3	2.8	8.4	9.2
1987	9.0	11.8	8.0	7.7	10.7	12.4
1988	10.2	13.3	7.1	12.5	10.0	14.2
1989	-2.9	-3.0	-3.5	-7.9	3.7	4.9
1990	4.3	6.9	2.0	12.0	3.9	3.3
1991	12.2	18.7	8.7	27.3	8.9	13.4
1992	18.7	23.4	13.5	24.7	13.7	19.2
1993	10.2	15.5	8.5	16.8	13.0	18.3
1994	12.7	19.5	12.4	37.3	12.3	17.3
1995	10.6	13.1	9.6	15.2	10.4	13.1
1996	8.5	11.5	8.3	22.9	9.4	11.8
1997	9.0	10.9	7.5	18.4	8.8	10.7
1998	8.1	9.0	5.4	12.8	7.6	8.5
1999	8.2	9.0	5.8	11.2	7.3	8.2

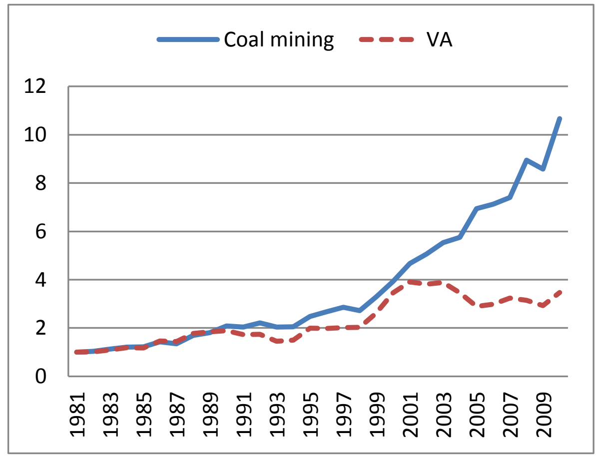
2000	12.9	16.3	8.7	18.0	8.1	9.3
2001	7.5	7.5	7.8	11.9	7.8	8.3
2002	8.6	9.4	8.9	14.5	8.6	9.5
2003	14.4	21.6	10.5	20.7	9.8	12.0
2004	14.9	19.7	11.8	20.6	9.8	10.9
2005	17.9	21.7	13.4	20.7	10.6	11.0
2006	15.3	19.1	14.9	21.9	12.0	12.1
2007	17.4	22.4	16.6	29.2	13.4	13.9
2008	8.9	11.2	10.5	19.0	9.1	9.5
2009	10.5	12.1	7.4	11.0	8.7	8.4
2010	12.5	15.7	12.8	23.5	10.2	11.4
1981-1991	9.0	12.4	7.9	15.5	9.1	10.3
1991-2001	10.6	13.6	8.8	18.9	9.9	12.5
2001-2007	14.7	19.0	12.7	21.3	10.7	11.6
2001-2010	10.7	13.0	10.2	17.8	9.4	9.7
1981-2010	10.9	14.2	9.4	18.1	9.7	11.3

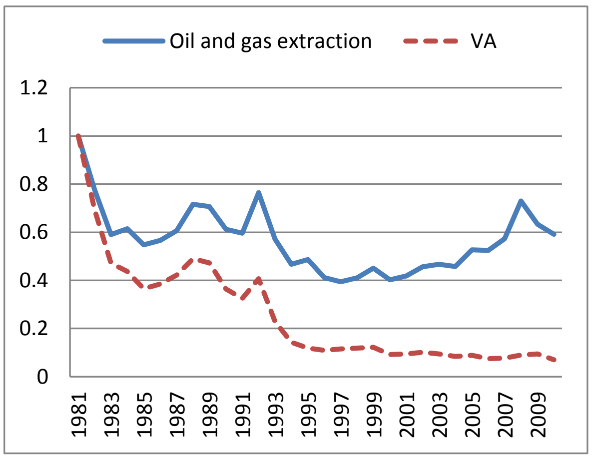
FIGURE 4

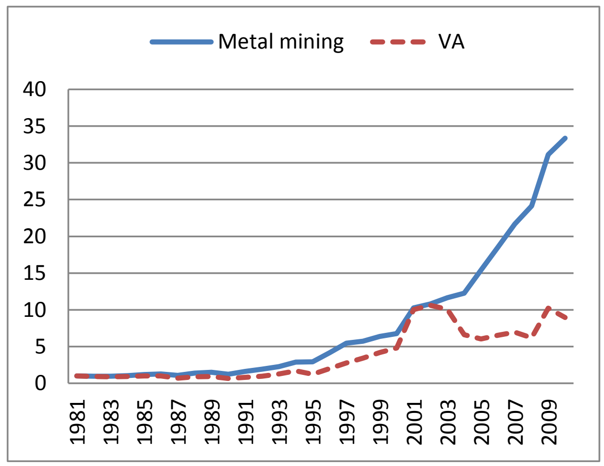
THE EVOLUTION OF REAL GROSS OUTPUT AND REAL VALUE ADDED (1981=1, BLUE SOLID LINE: GROSS OUTPUT, RED DASHED LINE: VALUE ADDED)

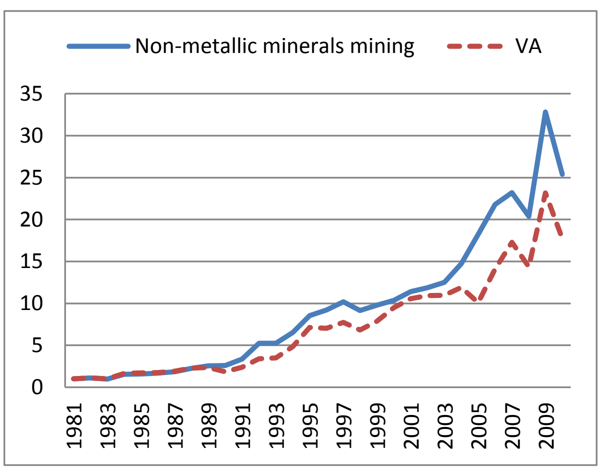


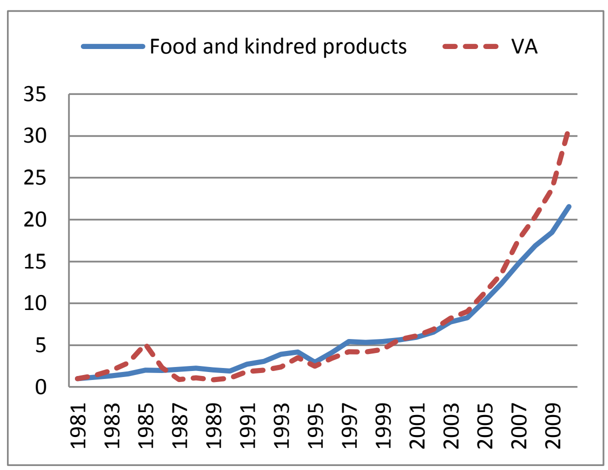

Agriculture, Forestry, Animal Husbandry and Fishery
VA
3.5
3
2.5
2
1.5
1
0.5
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009

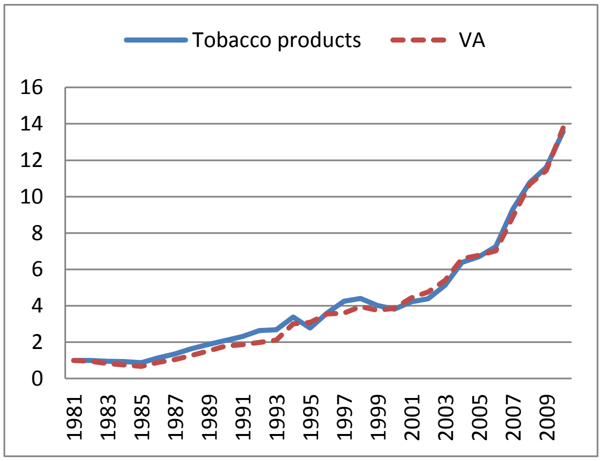

Coal mining
VA
12
10
8
6
4
2
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009

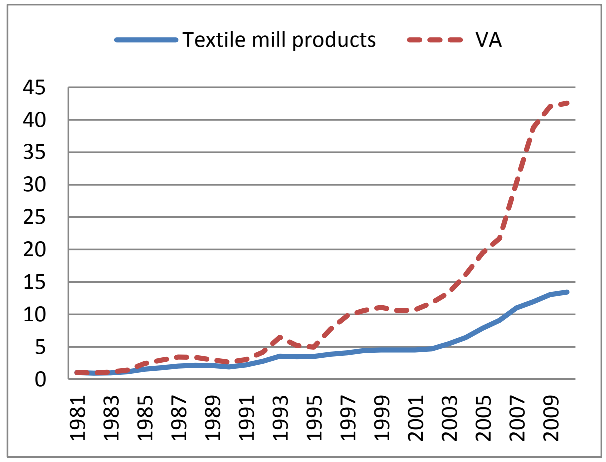

Oil and gas extraction
VA
1.2
1
0.8
0.6
0.4
0.2
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009

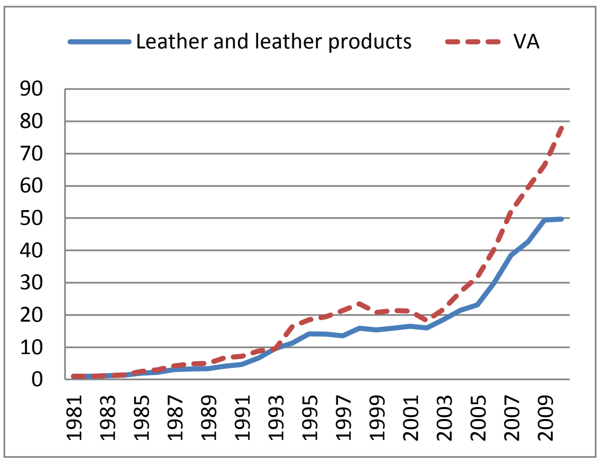

Metal mining
VA
40
35
30
25
20
15
10
5
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009

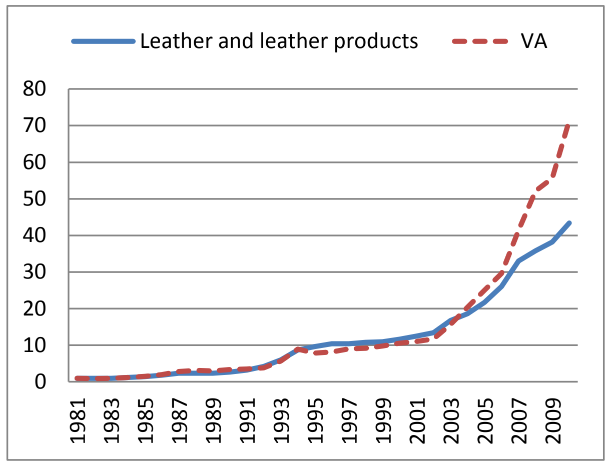

Non-metallic minerals mining
VA
35
30
25
20
15
10
5
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009

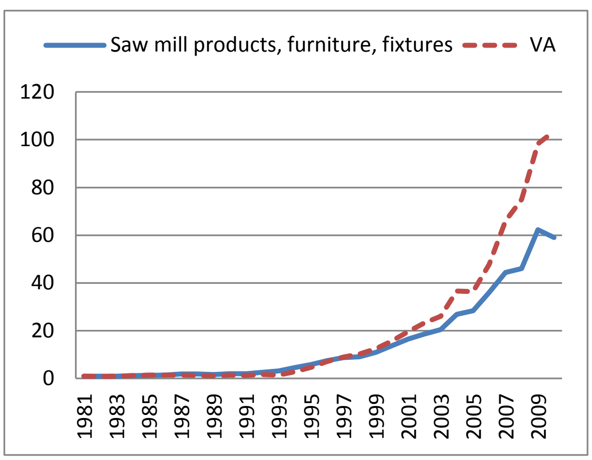

Food and kindred products
VA
35
30
25
20
15
10
5
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009

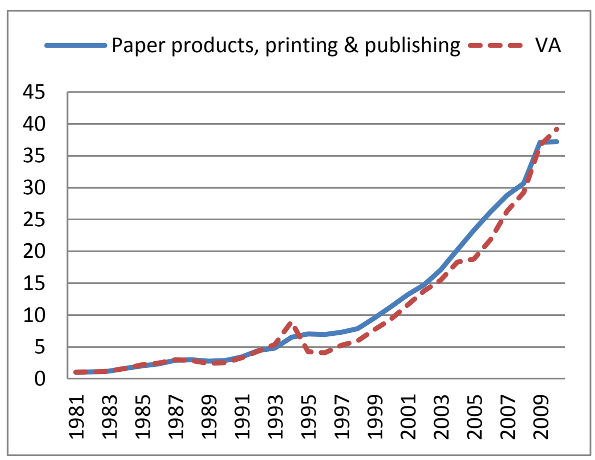

Tobacco products
VA
16
14
12
10
8
6
4
2
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009

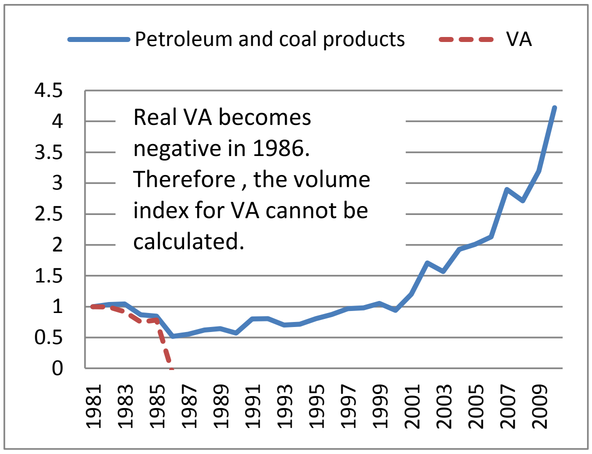

Textile mill products
VA
45
40
35
30
25
20
15
10
5
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009

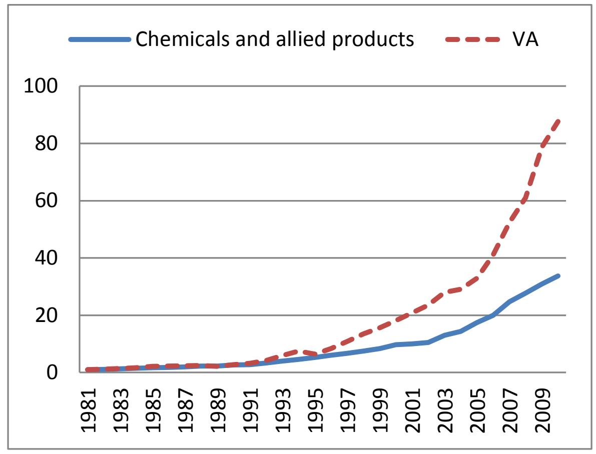

Leather and leather products
VA
90
80
70
60
50
40
30
20
10
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009

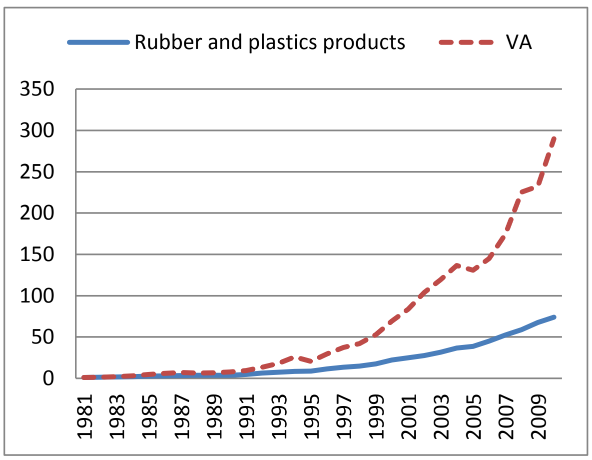

Leather and leather products
VA
80
70
60
50
40
30
20
10
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009

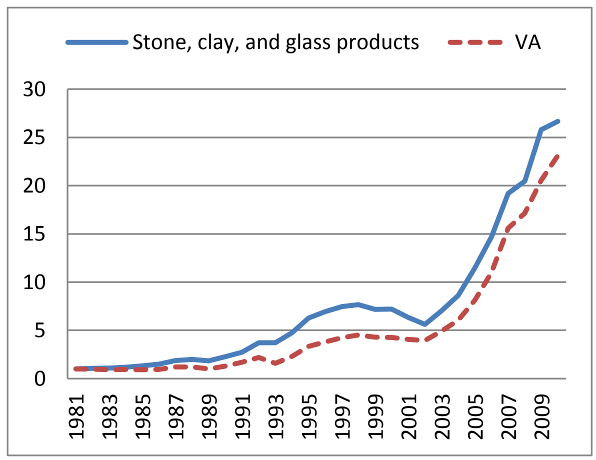

Saw mill products, furniture, fixtures
VA
120
100
80
60
40
20
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009

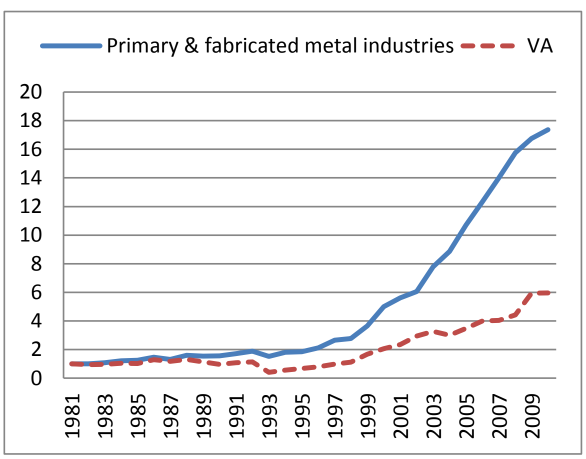

Paper products, printing & publishing
VA
45
40
35
30
25
20
15
10
5
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009

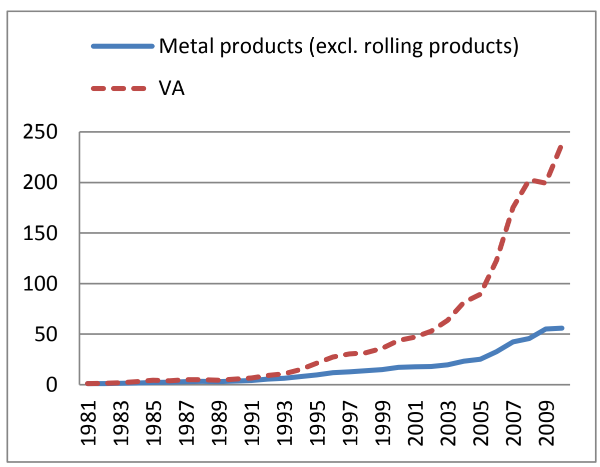

Petroleum and coal products
VA
Real VA becomes negative in 1986. Therefore , the volume index for VA cannot be calculated.
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

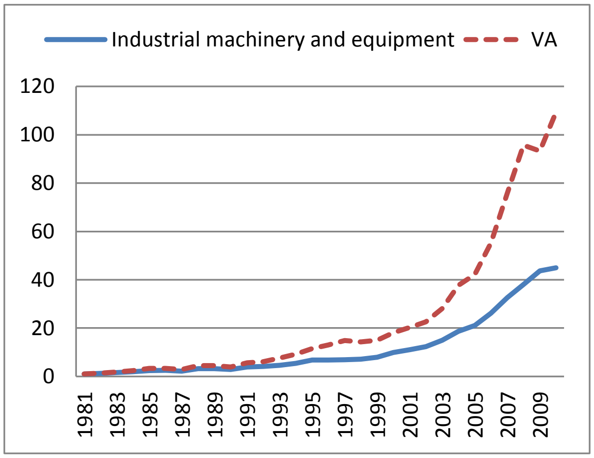

Chemicals and allied products
VA
100
80
60
40
20
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

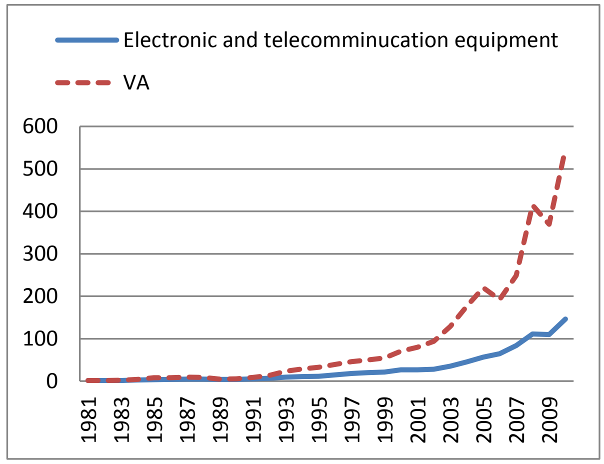

Rubber and plastics products
VA
350
300
250
200
150
100
50
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

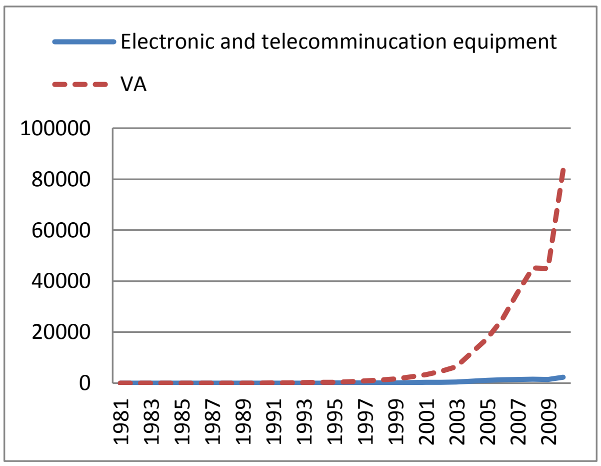

Stone, clay, and glass products
VA
30
25
20
15
10
5
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

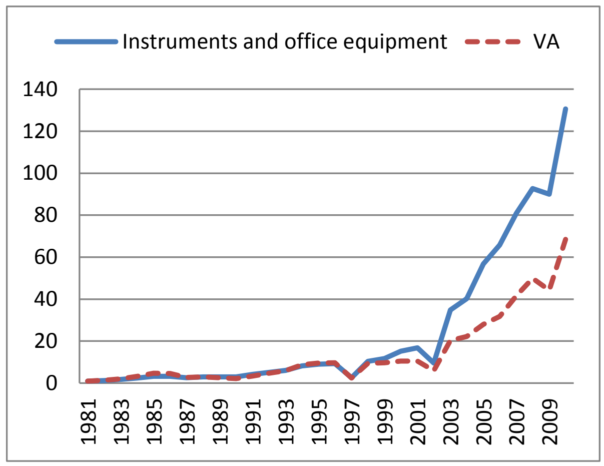

Primary & fabricated metal industries
VA
20
18
16
14
12
10
8
6
4
2
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

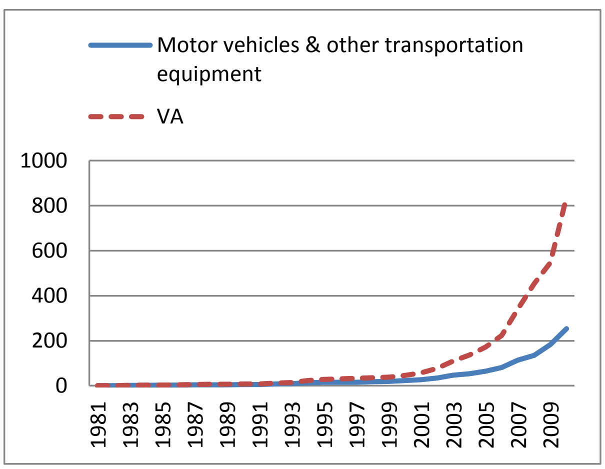

Metal products (excl. rolling products)
VA
250
200
150
100
50
0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009

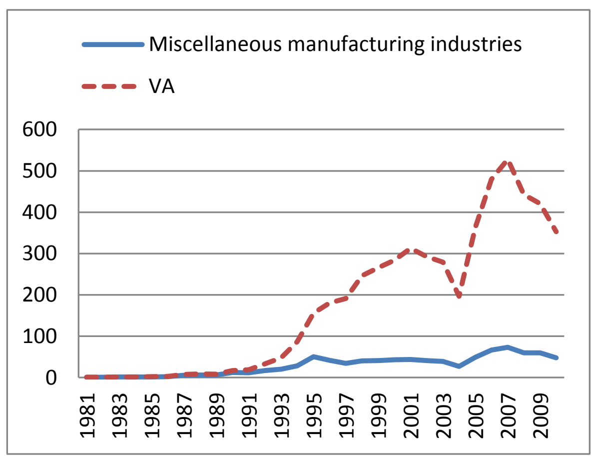

Industrial machinery and equipment
VA
120
100
80
60
40
20
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009

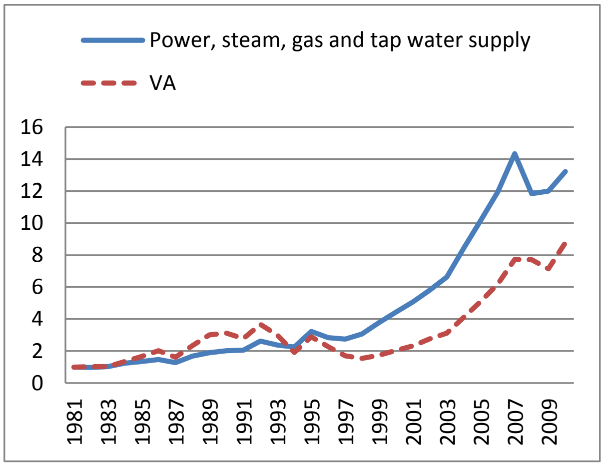

Electronic and telecomminucation equipment
VA
600
500
400
300
200
100
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009

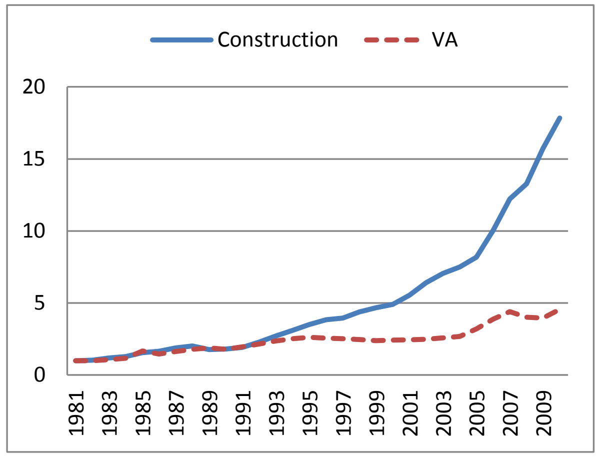

Electronic and telecomminucation equipment
VA
100000
80000
60000
40000
20000
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009


Instruments and office equipment
VA
140
120
100
80
60
40
20
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009


Motor vehicles & other transportation equipment
VA
1000
800
600
400
200
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009


Miscellaneous manufacturing industries
VA
600
500
400
300
200
100
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009


Power, steam, gas and tap water supply
VA
16
14
12
10
8
6
4
2
0
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009


Construction
VA
20
15
10
5
0
1981
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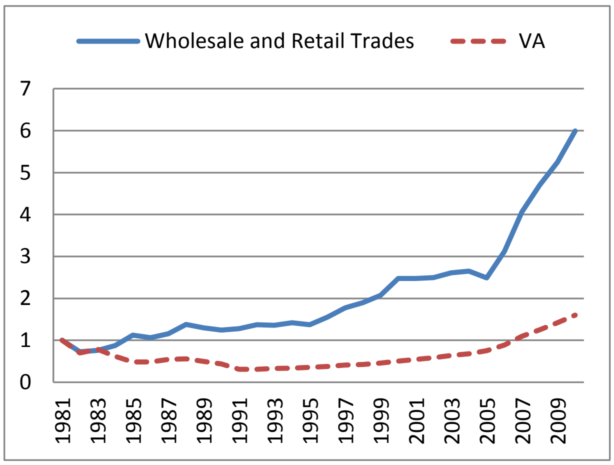
Wholesale and Retail Trades
VA
7
6
5
4
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2
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1981
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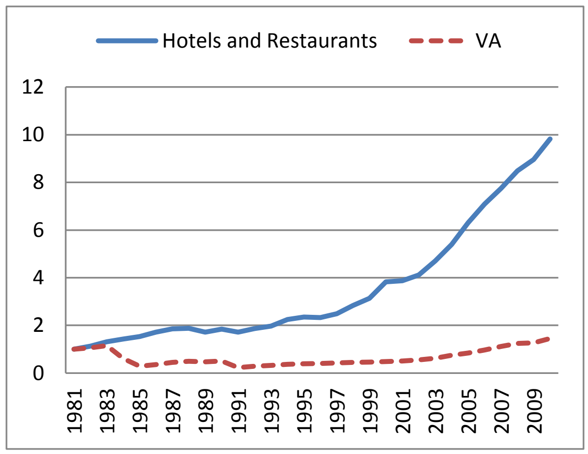
Hotels and Restaurants
VA
12
10
8
6
4
2
0
1981
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1985
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1997
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2007
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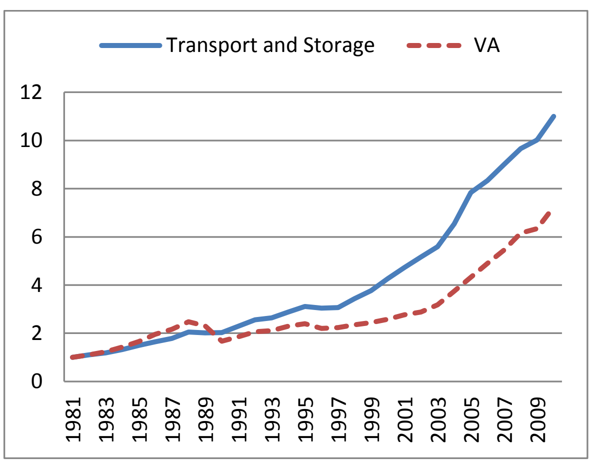
Transport and Storage
VA
12
10
8
6
4
2
0
1981
1983
1985
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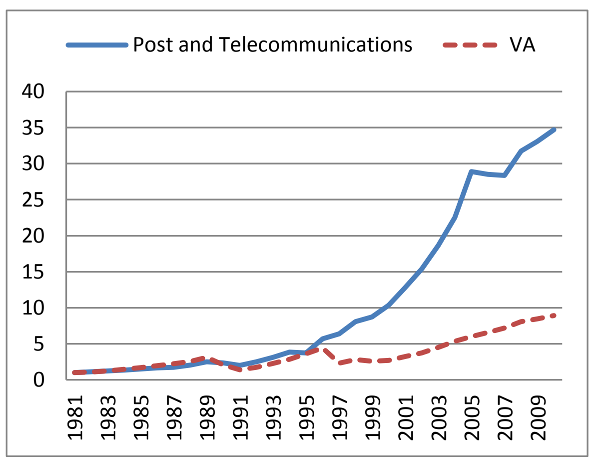
Post and Telecommunications
VA
40
35
30
25
20
15
10
5
0
1981
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1985
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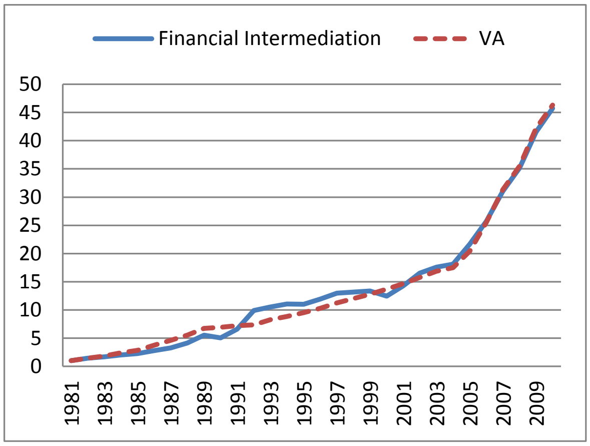
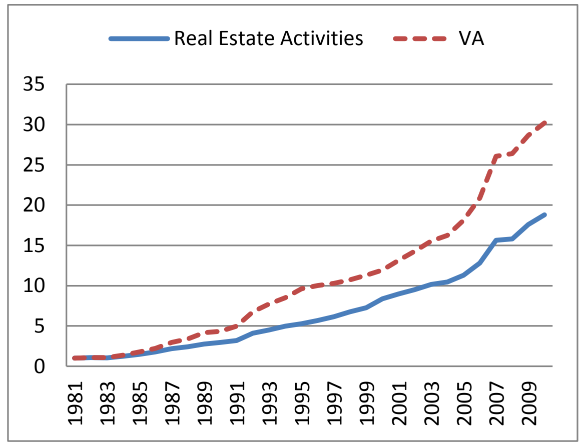
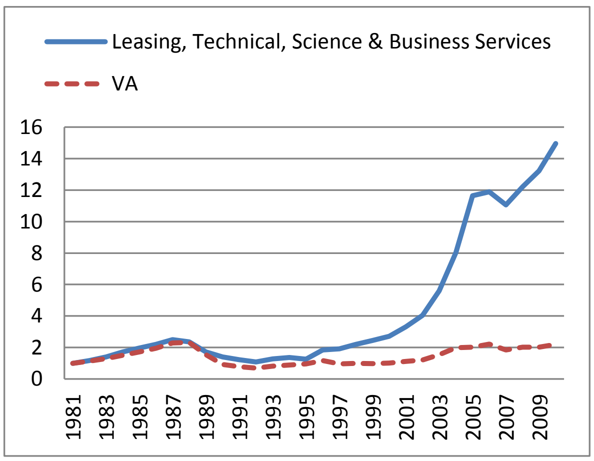


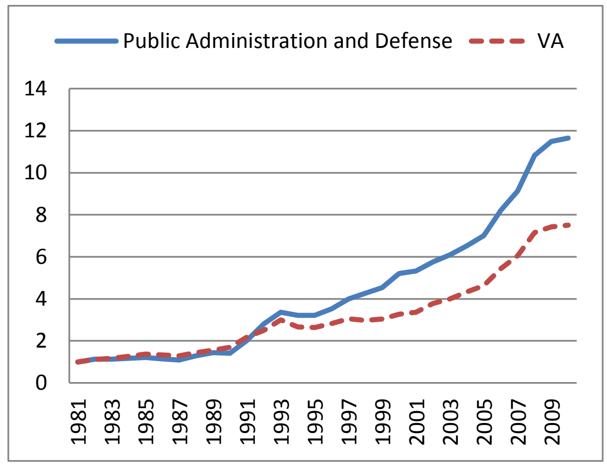
Financial Intermediation
VA
50 45 40 35 30 25 20 15 10 5 0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009



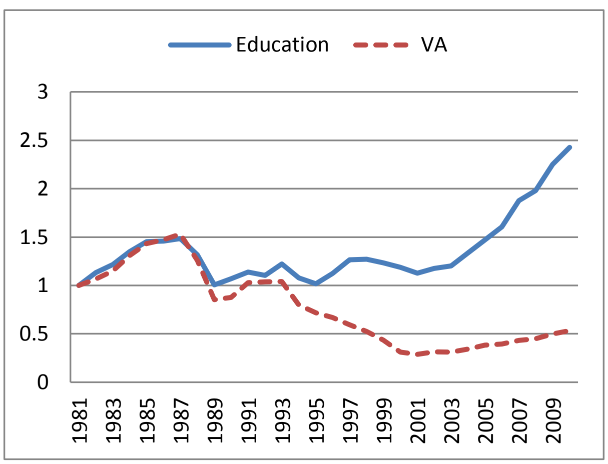
Real Estate Activities
VA
35 30 25 20 15 10 5 0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009



Leasing, Technical, Science & Business Services
VA
16 14 12 10 8 6 4 2 0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009



Public Administration and Defense
VA
14 12 10 8 6 4 2 0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009



Education
VA
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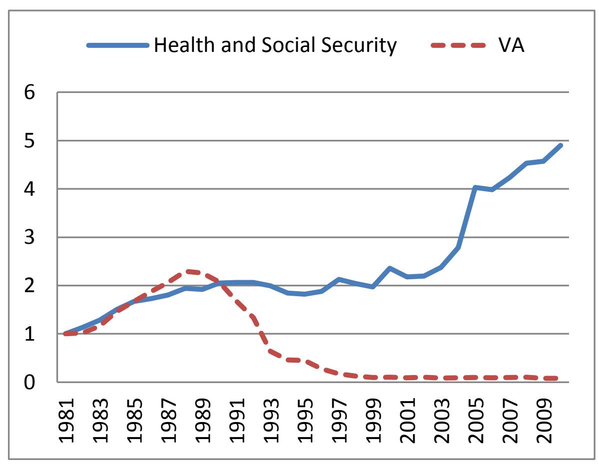
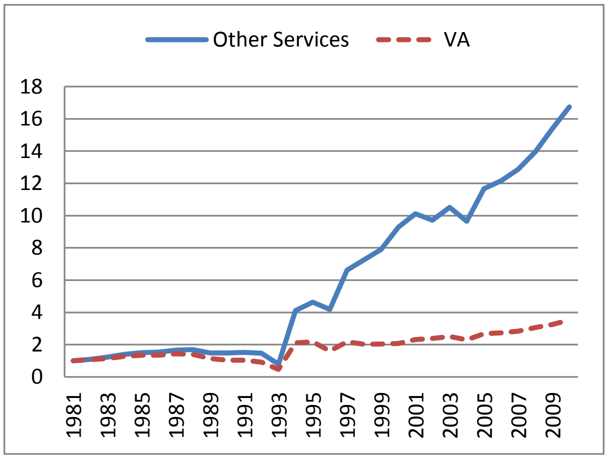
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009



Health and Social Security
VA
6 5 4 3 2 1 0
1981 1983 1985 1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009



Impact analysis using annual supply-use and input-output accounts

---We need to revise the estimates of annual input-output coefficients before finalizing our annual IOTs. The revision will be made following the adjustments described in Chapter 11, the Eurostat Manual of Supply, Use, and Input-Output Tables, 2008 edition.

Keiko/Harry: We need to show some results that are meaningful and useful for the analysis of the Chinese economy. The main contribution of the input-output accounts to economic analysis is that they permit users to measure the full, economy wide repercussions that changes in final uses (household, business, and government spending) have on industry and commodity output, employment, and income. A number of tables can be derived from the standard make and use tables; these tables can be used for additional analysis, such as an event study or impact analysis. The Symmetric Tables (a.k.a. the Analytical Tables) represent the modeling aspect of the Input-Output framework.

We need to assess our results against the background of the macroeconomic performance and policy regime shifts in China (Harry).

8. Concluding Remarks (Harry)

1. What have been achieved in this study?

2. What are the remaining issues to tackle?

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(To build up this based on what already at hands)

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