The following supplements accompany the article

Multiscale input-output subsystem model of methane and nitrous oxide emissions from the service sector: a case study of Beijing, China

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Appendix 1: Formulations associated with the three-scale input-output subsystem model

To help the reader, we define the variables and parameters used:

A Technical coefficient matrix $(n\times n)$ of the input-output extension table of Beijing for 2010, including A^L, A^D, and A^F, which represent the technical coefficient matrices $(n\times n)$ at the local, domestic, and foreign scales, respectively;

N $(1,2,\dots,n)$ where sectors $1,2,\dots,$ m are the subsectors of the non-service sector and sectors $\mathrm{m}+1,\dots,$ n are the subsectors of the service sector;

I Identity matrix $(n\times n)$;

B Leontief inverse matrix $(n\times n)$, meaning $(I-A)^{-1}$, including B^L, B^D, and B^F, which represent the Leontief inverse matrices $(n\times n)$ at the local, domestic, and foreign scales, respectively;

z_{ij} Intermediate input from sector i to sector j, including z_{ij}^L, z_{ij}^D, and z_{ij}^F, which represent intermediate inputs from sector i to sector j at the local, domestic, and foreign scales, respectively, where $i,j\in(1,2,\dots,n)$;

y_j Final demand of local sector j, including y_j^L, y_j^D, and y_j^F, which represent the final demand for local sector j produced by the local intermediate inputs, the domestically imported intermediate inputs, and the foreign-imported intermediate inputs, respectively; y_j^{LL}, y_j^{LD}, and y_j^{LF}, which belong to y_j^L and represent the local, domestic, and foreign demands for local sector j produced by the local intermediate inputs; y_j^{DL}, y_j^{DD}, and y_j^{DF}, which belong to y_j^D and represent the local, domestic, and foreign demands for local sector j produced by the domestically imported intermediate inputs; and y_j^{FL}, y_j^{FD}, and y_j^{FF}, which belong to y_j^F and represent the local, domestic, and foreign demands for local sector j produced by the foreign-imported intermediate inputs, where $i,j\in(1,2,\dots,n)$;

x_j Total output of sector j, where $i, j \in (1,2, \dots, n)$;

i_j^D Domestically imported economic flow in sector j, where $i, j \in (1,2, \dots, n)$;

i_j^F Foreign-imported economic flow in sector j, where $i, j \in (1,2, \dots, n)$;

x^L Column vector $(n \times 1)$ denoting production in sectors using the local intermediate inputs;

x^{LM} Column vector $(m \times 1)$ denoting production in the m subsectors that belong to the non-service sector using the local intermediate inputs;

x^{LS} Column vector $(s \times 1)$ denoting production in the s subsectors that belong to the service sector using the local intermediate inputs;

x^D Column vector $(n \times 1)$ denoting production in sectors using the domestically imported intermediate inputs;

x^{DM} Column vector $(m \times 1)$ denoting production in the m subsectors that belong to the non-service sector using the domestically imported intermediate inputs;

x^{DS} Column vector $(s \times 1)$ denoting production of the s subsectors that belong to the service sector using the domestically imported intermediate inputs;

x^F Column vector $(n \times 1)$ denoting production of sectors using the foreign-imported intermediate inputs;

x^{FM} Column vector $(m \times 1)$ denoting production of the m subsectors that belong to the non-service sector using the foreign-imported intermediate inputs;

x^{FS} Column vector $(s \times 1)$ denoting production of the s subsectors that belong to the service sector using the foreign-imported intermediate inputs;

y^L Column vector $(n \times 1)$ denoting final demand of x^L;

y^{LM} Column vector $(m \times 1)$ denoting final demand of x^{LM};

y^{LS} Column vector $(s \times 1)$ denoting final demand of x^{LS};

y^D Column vector $(n \times 1)$ denoting final demand of x^D;

y^{DM} Column vector $(m \times 1)$ denoting final demand of x^{DM};

y^{DS} Column vector $(s \times 1)$ denoting final demand of x^{DS};

y^F Column vector $(n \times 1)$ denoting final demand of x^F;

y^{FM} Column vector $(m \times 1)$ denoting final demand of x^{FM};

y^{FS} Column vector $(s\times1)$ denoting final demand of x^{FS};

C^{L} Column vector $(n\times1)$ denoting local CH_4 or N_2O emission factors for sectors;

C^{LM} Column vector $(m\times1)$ denoting local CH_4 or N_2O emission factors for the m subsectors that belong to the non-service sector;

C^{LS} Column vector $(s\times1)$ denoting local CH_4 or N_2O emission factors for the s subsectors that belong to the service sector;

C^{D} Column vector $(n\times1)$ denoting domestic CH_4 or N_2O emission factors for sectors;

C^{DM} Column vector $(m\times1)$ denoting domestic CH_4 or N_2O emission factors for the m subsectors that belong to the non-service sector;

C^{DS} Column vector $(s\times1)$ denoting domestic CH_4 or N_2O emission factors for the s subsectors that belong to the service sector;

C^{F} Column vector $(n\times1)$ denoting foreign CH_4 or N_2O emission factors for sectors;

C^{FM} Column vector $(m\times1)$ denoting foreign CH_4 or N_2O emission factors for the m subsectors that belong to the non-service sector;

C^{FS} Column vector $(s\times1)$ denoting foreign CH_4 or N_2O emission factors for the s subsectors that belong to the service sector;

E_S^L Total CH_4 or N_2O emissions at the local scale;

E_S^D Total CH_4 or N_2O emissions at the domestic scale;

E_S^F Total CH_4 or N_2O emissions at the foreign scale;

EC_S^L Local external component denoting the emission from local subsystem M due to the demand for local S;

EC_S^D Domestic external component denoting the emission from domestic subsystem M due to the demand for local S;

EC_S^F Foreign external component denoting the emission from foreign subsystem M due to the demand for local S;

INC_S^L Local induced component denoting the emission from local subsystem S due to the demand for local M;

INC_S^D Domestic induced component denoting the emission from local subsystem S due to the demand for domestic M;

INC_S^F Foreign induced component denoting the emission from local subsystem S due to the demand for foreign M;

ITC_S^L Local internal component denoting the emission from local subsystem S due to the demand for local S;

ITC_S^D Domestic internal component denoting the emission from domestic subsystem S due to the demand for local S;

ITC_S^F Foreign internal component denoting the emission from foreign subsystem S due to the demand for local S;

DLC_S^L Local demand-level components denoting the emissions due to local, domestic, and foreign demands for local S in the local scale;

DLC_S^D Domestic demand-level components denoting the emissions due to local, domestic, and foreign demands for local S in the domestic scale;

DLC_S^F Foreign demand-level components denoting the emissions due to local, domestic, and foreign demands for local S in the foreign scale;

From these definitions, the production, final demand, and emission vectors are obtained as follows:

$$x^L = \begin{pmatrix} x^{LM} \\ x^{LS} \end{pmatrix}, x^D = \begin{pmatrix} x^{DM} \\ x^{DS} \end{pmatrix}, \text{ and } x^F = \begin{pmatrix} x^{FM} \\ x^{FS} \end{pmatrix} \quad (1)$$

$$y^L = \begin{pmatrix} y^{LM} \\ y^{LS} \end{pmatrix}, y^D = \begin{pmatrix} y^{DM} \\ y^{DS} \end{pmatrix}, \text{ and } y^F = \begin{pmatrix} y^{FM} \\ y^{FS} \end{pmatrix} \quad (2)$$

$$C^L = \begin{pmatrix} C^{LM} \\ C^{LS} \end{pmatrix}, C^D = \begin{pmatrix} C^{DM} \\ C^{DS} \end{pmatrix}, \text{ and } C^F = \begin{pmatrix} C^{FM} \\ C^{FS} \end{pmatrix} \quad (3)$$

The matrices A^L, A^D, A^F, B^L, B^D, and B^F can be expressed as follows:

$$A^L = \begin{pmatrix} A_{MM}^L & A_{MS}^L \\ A_{SM}^L & A_{SS}^L \end{pmatrix}, A^D = \begin{pmatrix} A_{MM}^D & A_{MS}^D \\ A_{SM}^D & A_{SS}^D \end{pmatrix}, \text{ and } A^F = \begin{pmatrix} A_{MM}^F & A_{MS}^F \\ A_{SM}^F & A_{SS}^F \end{pmatrix} \quad (4)$$

$$B^L = \begin{pmatrix} B_{MM}^L & B_{MS}^L \\ B_{SM}^L & B_{SS}^L \end{pmatrix}, B^D = \begin{pmatrix} B_{MM}^D & B_{MS}^D \\ B_{SM}^D & B_{SS}^D \end{pmatrix}, \text{ and } B^F = \begin{pmatrix} B_{MM}^F & B_{MS}^F \\ B_{SM}^F & B_{SS}^F \end{pmatrix} \quad (5)$$

where the subscripts MM, MS, SM, and SS represent the submatrices of each matrix $(n \times n)$. Specifically, only the service subsectors and non-service subsectors are included in the columns and rows of submatrices MM and SS. In submatrix MS, the columns include service activities and the rows

contain non-service activities. In submatrix SM, the columns include non-service subsectors and the rows include service subsectors.

The intermediate and final uses in Table 1 were divided into three parts based on the proportions of local total output, domestic imports, and foreign imports (Chen et al. 2013). A first-order approximation is represented by the following equations:

$$z_{ij}^{L} = z_{ij}\left(x_i/\left(x_i + i_i^D + i_i^F\right)\right), \quad (6)$$

$$z_{ij}^{D} = z_{ij}\left(i_i^D/\left(x_i + i_i^D + i_i^F\right)\right), \quad (7)$$

$$z_{ij}^{F} = z_{ij}\left(i_i^F/\left(x_i + i_i^D + i_i^F\right)\right), \quad (8)$$

$$y_j^{L} = y_j\left(x_j/\left(x_j + i_j^D + i_j^F\right)\right), \quad (9)$$

$$y_j^{D} = y_j\left(i_j^D/\left(x_j + i_j^D + i_j^F\right)\right), \quad (10)$$

$$y_j^{F} = y_j\left(i_j^F/\left(x_j + i_j^D + i_j^F\right)\right). \quad (11)$$

For each scale, the decomposition of N includes the input-output matrix based on two subsystems (M and S), with $1, 2, \ldots, m$ sectors (non-service sectors) belonging to subsystem M and $m+1, \ldots, n$ (service sectors) belonging to subsystem S. Therefore, the input-output equations for the local, domestic, and foreign scales are written as follows:

$$\begin{pmatrix} A_{MM}^{L} & A_{MS}^{L} \\ A_{SM}^{L} & A_{SS}^{L} \end{pmatrix}\begin{pmatrix} x^{LM} \\ x^{LS} \end{pmatrix} + \begin{pmatrix} y^{LM} \\ y^{LS} \end{pmatrix} = \begin{pmatrix} x^{LM} \\ x^{LS} \end{pmatrix}, \quad (12)$$

$$\begin{pmatrix} A_{MM}^{D} & A_{MS}^{D} \\ A_{SM}^{D} & A_{SS}^{D} \end{pmatrix}\begin{pmatrix} x^{DM} \\ x^{DS} \end{pmatrix} + \begin{pmatrix} y^{DM} \\ y^{DS} \end{pmatrix} = \begin{pmatrix} x^{DM} \\ x^{DS} \end{pmatrix}, \quad (13)$$

$$\begin{pmatrix} A_{MM}^{F} & A_{MS}^{F} \\ A_{SM}^{F} & A_{SS}^{F} \end{pmatrix}\begin{pmatrix} x^{FM} \\ x^{FS} \end{pmatrix} + \begin{pmatrix} y^{FM} \\ y^{FS} \end{pmatrix} = \begin{pmatrix} x^{FM} \\ x^{FS} \end{pmatrix}. \quad (14)$$

Therefore, the model at the local, domestic, and foreign scales was written as follows:

$$\left[\begin{pmatrix} A_{MM}^{L} & A_{MS}^{L} \\ A_{SM}^{L} & A_{SS}^{L} \end{pmatrix}\right]\begin{pmatrix} B_{MM}^{L} & B_{MS}^{L} \\ B_{SM}^{L} & B_{SS}^{L} \end{pmatrix}\begin{pmatrix} y^{LM} \\ y^{LS} \end{pmatrix} + \begin{pmatrix} y^{LM} \\ y^{LS} \end{pmatrix} = \begin{pmatrix} x^{LM} \\ x^{LS} \end{pmatrix}, \quad (15)$$

$$\left[\begin{pmatrix} A_{MM}^{D} & A_{MS}^{D} \\ A_{SM}^{D} & A_{SS}^{D} \end{pmatrix}\right]\begin{pmatrix} B_{MM}^{D} & B_{MS}^{D} \\ B_{SM}^{D} & B_{SS}^{D} \end{pmatrix}\begin{pmatrix} y^{DM} \\ y^{DS} \end{pmatrix} + \begin{pmatrix} y^{DM} \\ y^{DS} \end{pmatrix} = \begin{pmatrix} x^{DM} \\ x^{DS} \end{pmatrix}, \quad (16)$$

$$\left[\begin{pmatrix} A_{MM}^{F} & A_{MS}^{F} \\ A_{SM}^{F} & A_{SS}^{F} \end{pmatrix}\right]\begin{pmatrix} B_{MM}^{F} & B_{MS}^{F} \\ B_{SM}^{F} & B_{SS}^{F} \end{pmatrix}\begin{pmatrix} y^{FM} \\ y^{FS} \end{pmatrix} + \begin{pmatrix} y^{FM} \\ y^{FS} \end{pmatrix} = \begin{pmatrix} x^{FM} \\ x^{FS} \end{pmatrix}. \quad (17)$$

Based on Llop & Tol (2013), the total CH_4 or N_2O emissions at the local scale (E_S^L) associated with the production of the S subsystem from local intermediate inputs can be expressed by Eq. 18:

$$E_S^L = EC_S^L + INC_S^L + ITC_S^L + DLC_S^L$$
$$= C^{LM}(A_{MM}^L B_{MS}^L + A_{MS}^L B_{SS}^L)y^{LS} + C^{LS}(A_{SS}^L B_{SM}^L + A_{SM}^L B_{MM}^L)y^{LM}$$
$$+C^{LS}(A_{SS}^L B_{SS}^L + A_{SM}^L B_{MS}^L)y^{LS} + C^{LS}y^{LS}. \quad (18)$$

Similarly, the total CH_4 or N_2O emissions at the domestic scale (E_S^D) associated with the production of the S subsystem from domestically imported intermediate inputs can be expressed by Eq. 19:

$$E_S^D = EC_S^D + INC_S^D + ITC_S^D + DLC_S^D$$
$$= C^{DM}(A_{MM}^D B_{MS}^D + A_{MS}^D B_{SS}^D)y^{DS} + C^{DS}(A_{SS}^D B_{SM}^D + A_{SM}^D B_{MM}^D)y^{DM}$$
$$+C^{DS}(A_{SS}^D B_{SS}^D + A_{SM}^D B_{MS}^D)y^{DS} + C^{DS}y^{DS}. \quad (19)$$

The total CH_4 or N_2O emissions at the foreign scale (E_S^F) associated with the production of the S subsystem from foreign-imported intermediate inputs can be expressed by Eq. 20:

$$E_S^F = EC_S^F + INC_S^F + ITC_S^F + DLC_S^F$$
$$= C^{FM}(A_{MM}^F B_{MS}^F + A_{MS}^F B_{SS}^F)y^{FS} + C^{FS}(A_{SS}^F B_{SM}^F + A_{SM}^F B_{MM}^F)y^{FM}$$
$$+C^{FS}(A_{SS}^F B_{SS}^F + A_{SM}^F B_{MS}^F)y^{FS} + C^{FS}y^{FS}. \quad (20)$$

Appendix 2: Three-scale sectoral N_2O and CH_4 emissions intensities in 2010 (tons CO_2-eq/10,000 CNY)

Sector code	Sector category	Local emissions		Domestic emissions		Foreign emissions	
		N2O emissions	CH4 emissions	N2O emissions	CH4 emissions	N2O emissions	CH4 emissions
1	Farming,forestry,animal husbandry and fishery	1.90×10^{-1}	1.93×10^{-1}	7.95×10^{-1}	1.19×10^{0}	9.65×10^{-1}	1.52×10^{0}
2	Mining and washing of coal	2.20×10^{-4}	2.78×10^{-1}	9.57×10^{-4}	2.65×10^{0}	2.07×10^{-3}	7.25×10^{-1}
3	Extraction of petroleum and natural gas	3.96×10^{-4}	9.21×10^{-1}	9.57×10^{-4}	2.65×10^{0}	2.07×10^{-3}	7.25×10^{-1}
4	Mining and processing of metal ores	4.20×10^{-3}	4.34×10^{-4}	9.57×10^{-4}	2.65×10^{0}	2.07×10^{-3}	7.25×10^{-1}
5	Mining and processing of nonmetal ores and other ores	2.25×10^{-2}	2.23×10^{-3}	9.57×10^{-4}	2.65×10^{0}	2.07×10^{-3}	7.25×10^{-1}
6	Manufacture of foods and tobacco	1.40×10^{-3}	9.03×10^{-3}	7.13×10^{-4}	7.90×10^{-4}	1.17×10^{-3}	1.49×10^{-3}
7	Manufacture of textile	1.53×10^{-3}	2.70×10^{-2}	2.40×10^{-4}	4.29×10^{-4}	6.01×10^{-4}	7.44×10^{-4}
8	Manufacture of textile wearing apparel,footware,caps,leather,furs and related products	1.28×10^{-3}	8.22×10^{-5}	1.22×10^{-4}	2.03×10^{-4}	2.76×10^{-4}	7.15×10^{-4}
9	Manufacture of wood and furniture	5.16×10^{-4}	5.70×10^{-5}	1.01×10^{-3}	8.08×10^{-4}	2.09×10^{-3}	3.03×10^{-3}
10	Manufacture of paper,printing and manufacture of articles for culture,education and sports activity	9.45×10^{-4}	1.46×10^{-2}	1.38×10^{-3}	2.43×10^{-3}	2.27×10^{-3}	2.15×10^{-3}
11	Processing of petroleum, cokiing, processing of nuclear fuel	7.38×10^{-4}	1.33×10^{-4}	9.58×10^{-3}	9.84×10^{-3}	3.52×10^{-3}	1.96×10^{-2}
12	Chemical industry	1.43×10^{-3}	1.09×10^{-3}	5.31×10^{-2}	1.18×10^{-2}	6.61×10^{-2}	1.16×10^{-2}
13	Manufacture of non-metallic mineral products	9.31×10^{-3}	5.95×10^{-4}	1.97×10^{-5}	1.47×10^{-4}	4.22×10^{-3}	5.34×10^{-3}
14	Smelting and pressing of metals	1.62×10^{-2}	7.60×10^{-4}	2.18×10^{-3}	5.28×10^{-3}	1.81×10^{-3}	5.99×10^{-3}
15	Manufacture of metal products	3.95×10^{-4}	4.43×10^{-5}	2.18×10^{-3}	5.28×10^{-3}	1.81×10^{-3}	5.99×10^{-3}
16	Manufacture of general and special	4.15×10^{-4}	3.12×10^{-5}	3.09×10^{-4}	2.18×10^{-4}	3.96×10^{-4}	2.82×10^{-4}
17	purpose machinery Manufacture of transport equipment	3.80×10^{-4}	2.89×10^{-5}	3.84×10^{-4}	2.16×10^{-4}	3.82×10^{-4}	2.45×10^{-4}
18	Manufacture of electrical machinery and equipment	1.30×10^{-4}	1.61×10^{-5}	8.25×10^{-5}	6.22×10^{-5}	2.60×10^{-4}	1.64×10^{-4}
19	Manufacture of communication equipment,computers and other electronic equipment	8.30×10^{-6}	2.55×10^{-6}	8.25×10^{-5}	6.22×10^{-5}	2.60×10^{-4}	1.64×10^{-4}
20	Manufacture of measuring instruments and machinery for culture activity and office work	5.61×10^{-5}	9.52×10^{-6}	8.25×10^{-5}	6.22×10^{-5}	3.96×10^{-4}	2.82×10^{-4}
21	Manufacture of artwork and other manufacturing	1.88×10^{-3}	1.07×10^{-4}	5.82×10^{-4}	8.38×10^{-4}	1.85×10^{-3}	2.23×10^{-3}

Sector code	Sector category	Local emissions		Domestic emissions		Foreign emissions	
		N2O emissions	CH4 emissions	N2O emissions	CH4 emissions	N2O emissions	CH4 emissions
22	Recycling and disposal of waster	9.37×10^{-4}	1.27×10^{-4}	5.82×10^{-4}	8.38×10^{-4}	1.85×10^{-3}	2.23×10^{-3}
23	Production and distribution of electricity and heat	1.46×10^{-2}	7.69×10^{-4}	6.62×10^{-2}	2.00×10^{-2}	2.57×10^{-2}	1.27×10^{-1}
24	Production and distribution of gas	5.42×10^{-4}	2.45×10^{-4}	6.62×10^{-2}	2.00×10^{-2}	2.57×10^{-2}	1.27×10^{-1}
25	Production and distribution of water	1.45×10^{-4}	2.49×10^{-5}	6.62×10^{-2}	2.00×10^{-2}	2.57×10^{-2}	1.27×10^{-1}
26	Construction	1.96×10^{-4}	1.57×10^{-2}	4.63×10^{-4}	1.92×10^{-4}	6.44×10^{-4}	2.51×10^{-4}
27	Transportation,storage,posts and telecommunications	2.56×10^{-3}	1.01×10^{-2}	2.98×10^{-5}	1.26×10^{-4}	5.46×10^{-3}	3.91×10^{-2}
28	Information transmission,computer services and software	2.04×10^{-5}	2.97×10^{-3}	8.96×10^{-2}	1.37×10^{0}	3.38×10^{-2}	5.80×10^{-1}
29	Wholesale trade and retail trade	3.29×10^{-4}	6.98×10^{-3}	4.86×10^{-7}	1.06×10^{-5}	4.78×10^{-4}	4.41×10^{-4}
30	Hotel and restaurants	7.76×10^{-4}	1.58×10^{-2}	2.11×10^{-4}	5.89×10^{-4}	6.66×10^{-4}	3.80×10^{-4}
31	Finance	2.28×10^{-5}	2.52×10^{-3}	5.93×10^{-5}	1.63×10^{-4}	1.58×10^{-4}	7.67×10^{-5}
32	Real estate trade	9.97×10^{-4}	4.04×10^{-3}	4.62×10^{-5}	2.54×10^{-4}	7.06×10^{-5}	9.80×10^{-5}
33	Tenancy and commercial services	3.11×10^{-4}	3.66×10^{-3}	2.94×10^{-4}	9.94×10^{-4}	3.66×10^{-4}	2.10×10^{-4}
34	Scientific studies and technical services	1.20×10^{-4}	4.24×10^{-3}	8.96×10^{-2}	1.37×10^{0}	3.38×10^{-2}	5.80×10^{-1}
35	Water,environment and municipal engineering conservancy	9.95×10^{-4}	3.15×10^{-2}	8.96×10^{-2}	1.37×10^{0}	3.38×10^{-2}	5.80×10^{-1}
36	Resident services and other services	1.58×10^{-3}	2.57×10^{-2}	8.96×10^{-2}	1.37×10^{0}	3.38×10^{-2}	5.80×10^{-1}
37	Education	7.98×10^{-4}	7.79×10^{-3}	1.88×10^{-4}	8.22×10^{-4}	3.96×10^{-4}	3.29×10^{-4}
38	Health care,social security and social welfare	2.40×10^{-4}	7.66×10^{-3}	3.63×10^{-3}	1.38×10^{-3}	2.13×10^{-3}	3.35×10^{-4}
39	Culture,art,sports and recreation	1.37×10^{-4}	8.56×10^{-3}	8.96×10^{-2}	1.37×10^{0}	3.38×10^{-2}	5.80×10^{-1}
40	Public manage and social organization	3.35×10^{-4}	6.79×10^{-3}	5.01×10^{-4}	3.41×10^{-3}	7.17×10^{-4}	1.22×10^{-3}

Appendix 3: Direct and total emissions generated by services in Beijing in 2010

Sectoral code	Sector category	Direct emissions				Total emissions			
		CH_4		N_2O		CH_4		N_2O	
		(thousand tons CO_2-eq)	(% total emission)	(thousand tons CO_2-eq)	(% total emission)	(thousand tons CO_2-eq)	(% total emission)	(thousand tons CO_2-eq)	(% total emission)
27	Transportation,storage,posts and telecommunications	149.10	6.01%	37.76	4.28%	230.69	0.62%	42.31	0.84%
28	Information transmission,computer services and software	68.50	2.76%	0.47	0.05%	1835.40	4.94%	125.29	2.49%
29	Wholesale trade and retail trade	107.00	4.32%	5.04	0.57%	129.19	0.35%	18.77	0.37%
30	Hotel and restaurants	106.00	4.27%	5.20	0.59%	134.91	0.36%	48.40	0.96%
31	Finance	46.80	1.89%	0.42	0.05%	103.02	0.28%	21.78	0.43%
32	Real estate trade	47.80	1.93%	11.80	1.34%	90.38	0.24%	32.67	0.65%
33	Tenancy and commercial services	47.30	1.91%	4.02	0.46%	115.60	0.31%	35.67	0.71%
34	Scientific studies and technical services	93.80	3.78%	2.66	0.30%	615.12	1.66%	66.63	1.32%
35	Water,environment and municipal engineering conservancy	46.90	1.89%	1.48	0.17%	451.91	1.22%	35.61	0.71%
36	Resident services and other services	47.00	1.90%	2.89	0.33%	30.64	0.08%	3.08	0.06%
37	Education	47.30	1.91%	4.85	0.55%	78.69	0.21%	21.94	0.44%
38	Health care,social security and social welfare	46.90	1.89%	1.47	0.17%	168.79	0.45%	93.36	1.86%
39	Culture,art,sports and recreation	46.90	1.89%	0.75	0.09%	1570.30	4.23%	107.80	2.14%
40	Public manage and social organization	47.10	1.90%	2.32	0.26%	86.59	0.23%	20.74	0.41%
Total		948.40	38.25%	81.14	9.21%	5641.25	15.20%	674.05	13.39%