

Table S1. Principal component score coefficient matrix

Indicator	Code	Principal component score coefficient			
		Principal Component 1	Principal Component 2	Principal Component 3	Principal Component 4
Zscore(K1(Outflow))	X1	0.055	0.003	-0.026	0.754
Zscore(K2(Outflow))	X2	0.085	0.195	0.00	-0.092
Zscore(K3(Outflow))	X3	0.096	0.187	-0.032	-0.026
Zscore(K4(Outflow))	X4	0.12	0.185	-0.048	-0.032
Zscore(K5(Outflow))	X5	0.025	0.042	0.531	0.03
Zscore(K6(Outflow))	X6	0.202	0.019	-0.043	-0.063
Zscore(K7(Outflow))	X7	-0.196	0.049	0.07	-0.096
Zscore(K1(Inflow))	X8	-0.02	-0.065	0.007	0.549
Zscore(K2(Inflow))	X9	-0.086	0.199	-0.05	0.093
Zscore(K3(Inflow))	X10	-0.077	0.189	-0.093	0.181
Zscore(K4(Inflow))	X11	-0.094	0.195	-0.055	0.088
Zscore(K5(Inflow))	X12	0.038	0.049	0.522	0.063
Zscore(K6(Inflow))	X13	-0.194	0.048	0.064	-0.1
Zscore(K7(Inflow))	X14	0.198	0.019	-0.021	-0.075

Table S2. Results of metro station classification

Cluster	Type	Number	Typical Station name
1	Residence-oriented type	47	Beizulin, Benxi Road, Bianxing, University of Finance and Economics, Changling Road, Chenglin Road, Cuifu New Village, Dengzhou Road, Donggu Road, No. 2 Bridge, Gaozhuangzi, Guoshan Road, Hongqi South Road, Honghuli, Hujiayuan, Huashanli, Jiayuanli, Jianchang Road, Jiefang South Road, Mustard Garden West Road, Jinshi Bridge, Jinzhonghe Street, Jinzhong Street, Jingjiang Road, Lilou, Liahe North Road, Liu Yuan, Meilin Road, Minquanmen, Ruijing Xinyuan, Shuanglin, Shunchi Bridge, Siyuan Road, Southwest Corner, Tanggu, Tiantai Road, Tiedong Road, Wangdingdi, Xiaodongzhuang, Yixingbu, Yixingbu North, Yudongcheng, Yueya River, Zhanguizhuang, Zhangxingzhuang, Zhicheng Road, Zhongshanmen
2	Employment-oriented type	19	Anshan Road, Dawangzhuang, Donghai Road, Southeast Corner, Gaoxin District, Gulou, Haiguangsi, Heping Road, Huayuan, Exhibition Center, Jianguo Road, Jinwan Square, Eleventh Jing Road, East Water Park Road, Sports Center, Cultural Center, Xiaobailou, Xuefu Industrial Zone, Yingkou Road
3	Residence-oriented hybrid type	28	Beichen Road, Beichen Science and Technology Park North, Beining Park, Caozhuang, Dabizhuang, University City, Dongting Road, Fuxingmen, Steel Pipe Company, Huaihe Road, Jintang Road, Military Food City, Meijiang Park, South Cuiping, Qinjian Road, People's Hospital, Xianyang Road, Xinli, Happiness Park, Yang Wuzhuang, No.1 Bridge, Yibin Road, Yingfeng Road, Changhong Park, Vocational University, Zhongshan Road, First Affiliated Hospital of Traditional Chinese Medicine, Zuojiang Road
4	Employment-oriented hybrid type	17	Anshan West Road, Dongxing Road, Erwei Road, Guorui Road, Paradise Road, Lingbin Road, Nanhezhuang, Nanlou, Nansunzhuang, Citizen Square, Taihu Road, Tianjin Hotel, Tianta, Northwest Corner, Xikang Road, Xinkaihe, Xuzhuangzi
5	Residence-employment mixed type	28	North Station, Chen Tangzhuang, Danhe North Road, Dongli Development Zone, Fountain River Road, Fuxing Road, Guangkai Fourth Road, Heiniucheng Road, North China Group, Jianshan Road, Airport Economic Zone, Meijiang Road, Meijiang Exhibition Center, Taida, Tianshi Li, Tiantu, Tucheng, Foreign Hospital Annex, Wujiayao, Southwest Building, Xiaowafang, Xiaodian, First Central Hospital, National Convention and Exhibition Center, Ocean International Center, Zhigu, Cancer Hospital, Zhou Deng Memorial Hall
6	Special functional type	4	Tianjin Station, Tianjin West Station, Tianjin South Station, Binhai International Airport