



Compilation of China's Logistics Industry Input-Output Tables and Estimation of Its Contributions to Economic and Employment Growth



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PART 01 Background





Background

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- Logistics is a foundational industry for smoothing economic circulation, improving resource allocation, and supporting high-quality development of the real economy.
- A well-functioning logistics network provides the physical infrastructure for building a unified national market by reducing interregional trade costs and strengthening supply chain connectivity.
- Logistics activities are scattered across transportation, warehousing, postal services, wholesale and retail trade, and other sectors in conventional industrial classifications. As a result, the economic and employment contributions of logistics are difficult to measure directly from standard input-output tables.
- Focusing only on the value added or employment within the logistics sector itself may underestimate its broader role in driving output and employment through interindustry linkages.



Core Questions

1. How can the logistics sector be identified and separated from standard input-output tables?
2. How large are the contributions of logistics to GDP and employment, and through which channels do they arise?
3. Are the employment effects of logistics transmitted to other regions through interprovincial supply chains?

Research Contributions

1. Construct logistics-specific IO tables by separating logistics activities from conventional sectors.
2. Decompose logistics' GDP and employment contributions into direct and indirect industrial-chain channels.
3. Identify how logistics-related employment effects are retained locally or transmitted across provinces through MRIO linkages.



PART 02 Method





Research Framework

- Define the logistics sector
- Construct logistics input-output tables
- Measure economic and employment contributions
- Decompose contribution channels
- Identify spatial employment transmission

1

- Identify logistics-related activities based on the Social Logistics Statistical Survey System.

2

- Separate logistics activities from conventional sectors and build 20-sector IO tables for 2012, 2017, 2020, and 2023.

3

- Use a non-competitive input-output model and the hypothetical extraction method.

4

- Distinguish logistics' own production chain, logistics-driven traditional industries, and traditional-industry-driven logistics.

5

- Use provincial MRIO tables to measure local retention and interregional spillover of employment effects.



Data

- National non-competitive IO tables: 2012, 2017, 2020, 2023
- Provincial MRIO tables: 2012, 2017, 2020, from CEADs
- Employment data: China Statistical Yearbook and China Economic Census Yearbook
- Logistics classification: Social Logistics Statistical Survey System

社会物流统计调查制度

国家发展和改革委员会
中国物流与采购联合会
国家统计局
2022 年 4 月

制定
批准

(一) 从事社会物流活动涉及的相关行业代码表

代码				类别名称	说明
门类	大类	中类	小类		
F	51			批发业	指向其他批发或零售单位（含个体经营者）及其他企事业单位、机关团体等批量销售生活用品、生产资料的活动，以及从事进出口贸易和贸易经纪与代理的活动，包括拥有货物所有权，并以本单位(公司)的名义进行交易活动,也包括不拥有货物的所有权,收取佣金的商品代理、商品代售活动; 本类还包括各类商品批发市场中固定摊位的批发活动, 以及以销售为目的的收购活动
				零售业	指百货商店、超级市场、专门零售店、品牌专卖店、售货摊等主要通过最终消费者（如居民等）的销售活动，以互联网、邮政、电话、售货机等方式的销售活动，还包括在同一地点，后面加工生产，前面销售的店铺（如面包房）；谷物、种子、饲料、牲畜、矿产品、生产用原料、化工原料、农用化工产品、机械设备（乘用车、计算机及通信设备除外）等生产资料的销售不作为零售活动。多数零售商对其销售的货物拥有所有权，但有些则是充当委托人的代理人，进行委托销售或收取佣金的方式进行销售；零售业按销售渠道分为有店铺零售和无店铺零售，其中有店铺零售分为综合零售和专门零售
				铁路运输业	指铁路的安全管理、调度指挥、行车组织、客运组织、货运组织，以及机车车辆、线路铺轨、牵引供电、通信信号、信息系统的运用及维护保养，不包括铁路机车车辆、线路铺轨、牵引供电、通信信号、信息系统的制造厂（公司）、建筑工程公司、商店、学校、科研院所、医院等活动
				道路运输业	指所有道路货物运输活动
G	53			铁路货物运输	指铁路旅客、货物运输及其服务的客、货运火车站以外的运输网、信号、调度及铁路设施的管理和维护
				铁路辅助活动	
				货运火车站	
				其他铁路辅助活动	
	54			道路运输业	指所有道路货物运输活动
				道路货物运输	指对运输、装卸、保管有特殊要求的道路货物运输活动
				普通道路货物运输	指农产品、食品、植物等货物始终处于适宜温度环境下，保证产品质量的配有专门运输设备的道路货物运输活动
				冷藏车道路运输	指以集装箱为承载货物容器的道路运输活动
				集装箱道路运输	指具备各长度超过 6m，高度超过 2.7m，宽度超过 2.5m，质量超过 4t 中一个及以上条件货物的道路运输活动
				大型货物道路运输	
				危险货物道路运输	指具有易燃、爆炸、腐蚀、有毒、放射性等物质，在运输、装卸、保管过程中可能引起人身伤亡和财产损失而需要特别防护的货物道路运输活动
				邮件包裹道路运输	指服务于城区以及市近郊的货物配送活动的货物临时存放地，在经济合理区域内，根据客户的要求对物品进行加工、包装、分割、组配等作业，并按约定送达指定地点的物流活动
				城市配送	
				搬家运输	

代码				类别名称	说明
门类	大类	中类	小类		
	55			其他道路货物运输	指其他未列明的道路货物运输活动
				道路运输辅助活动	指与道路运输相关的运输辅助活动
				水上运输业	
				水上货物运输	
				远洋货物运输	
				沿海货物运输	
				内河货物运输	指江、河、湖泊、水库的水上货物运输活动
				水上运输辅助活动	
	56			货运港口	指其他未列明的水上运输辅助活动
				其他水上运输辅助活动	
				航空运输业	
				航空客货运输	
				航空货物运输	指以货物或邮件为主的航空运输活动
				通用航空服务	指使用民用航空器从事除公共航空运输以外的民用航空活动
				通用航空生产服务	指通用航空为农业、测绘、航拍、抢险、救援等活动的服务
				其他通用航空服务	
				航空运输辅助活动	
				机场	
				其他航空运输辅助活动	指其他未列明的航空运输辅助活动
				管道运输业	
	57			海底管道运输	指通过海底管道对气体、液体等运输活动
				陆地管道运输	指通过陆地管道对气体、液体等运输活动
				多式联运和运输代理业	
				多式联运	指由两种及其以上的交通工具相互衔接、转运而共同完成的货物复合运输活动
	58			运输代理业	指与运输有关的代理及服务活动
				货物运输代理	
				其他运输代理业	
				装卸搬运和仓储业	指装卸搬运活动和专门从事货物仓储、货物运输中转仓储，以及以仓储为主的货物配送活动，还包括以仓储为目的的收购活动
	59			装卸搬运	
				通用仓储	指除冷藏冷冻物品、危险品、谷物、棉花、中药材等具有特殊要求以外的物品暂存活动
				低温仓储	指对冷藏冷冻物品等低温货物的仓储活动
				危险品仓储	指对具有易燃易爆物品、危险化学品、放射性物品等能够危及人身安全和财产安全的物品的仓储活动
				油气仓储	
				危险化学品仓储	
				其他危险品仓储	
				谷物、棉花等农产品仓储	
	60			谷物仓储	指国家储备及其他谷物仓储活动
				棉花仓储	指棉花加工厂仓储、中转仓储、棉花专业仓储、棉花物流配送活动，还包括在棉花仓储、物流配送过程中的棉花信息化管理活动
				其他农产品仓储	指除棉花仓储、物流配送过程中的棉花信息化管理活动外，还包括其他农产品仓储活动，包括林产品的仓储
				中药材仓储	
				其他仓储业	
				邮政业	
				邮政基本服务	指邮政企业或者受邮政企业委托的企业提供的信件、印刷品、包裹、汇兑、报刊发行等邮政服务，以及国家规定的其他邮政服务，不包括邮政企业提供的快递服务
				快递服务	指快递服务组织在承诺的时限内快速完成的寄递服务
	60			快速服务	指邮政企业和快递企业之外的企业提供的多种类型的寄递服务
				其他快速服务	



PART 03 Result





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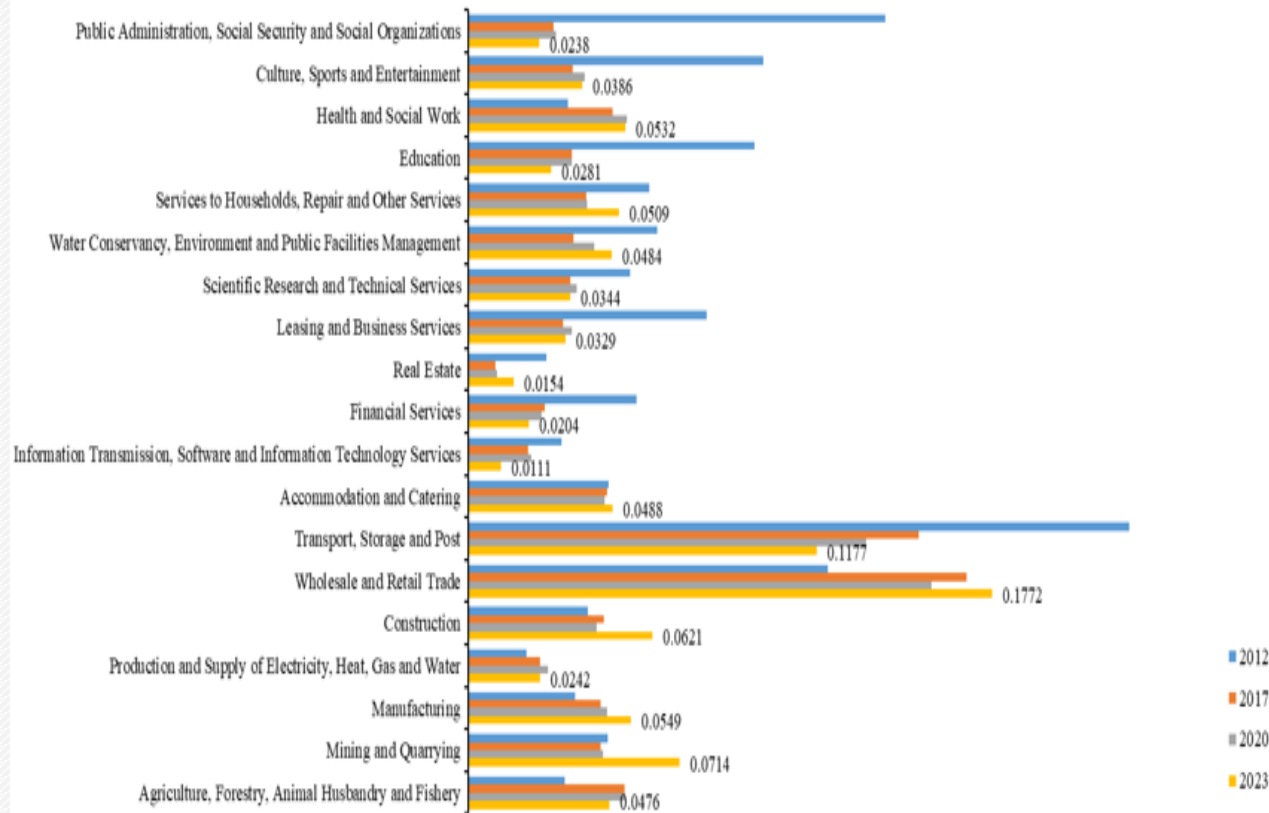


Figure 1. Direct Dependence of Other Industries on the Logistics Industry

1. Upstream sectors, including agriculture, mining, and manufacturing, show a noticeable increase in logistics dependence over time.
2. Service sectors such as resident services, technical services, and business services show relatively lower and more fluctuating dependence.
3. Complete dependence suggests that logistics affects traditional industries not only through direct inputs, but also through indirect supply-chain linkages.

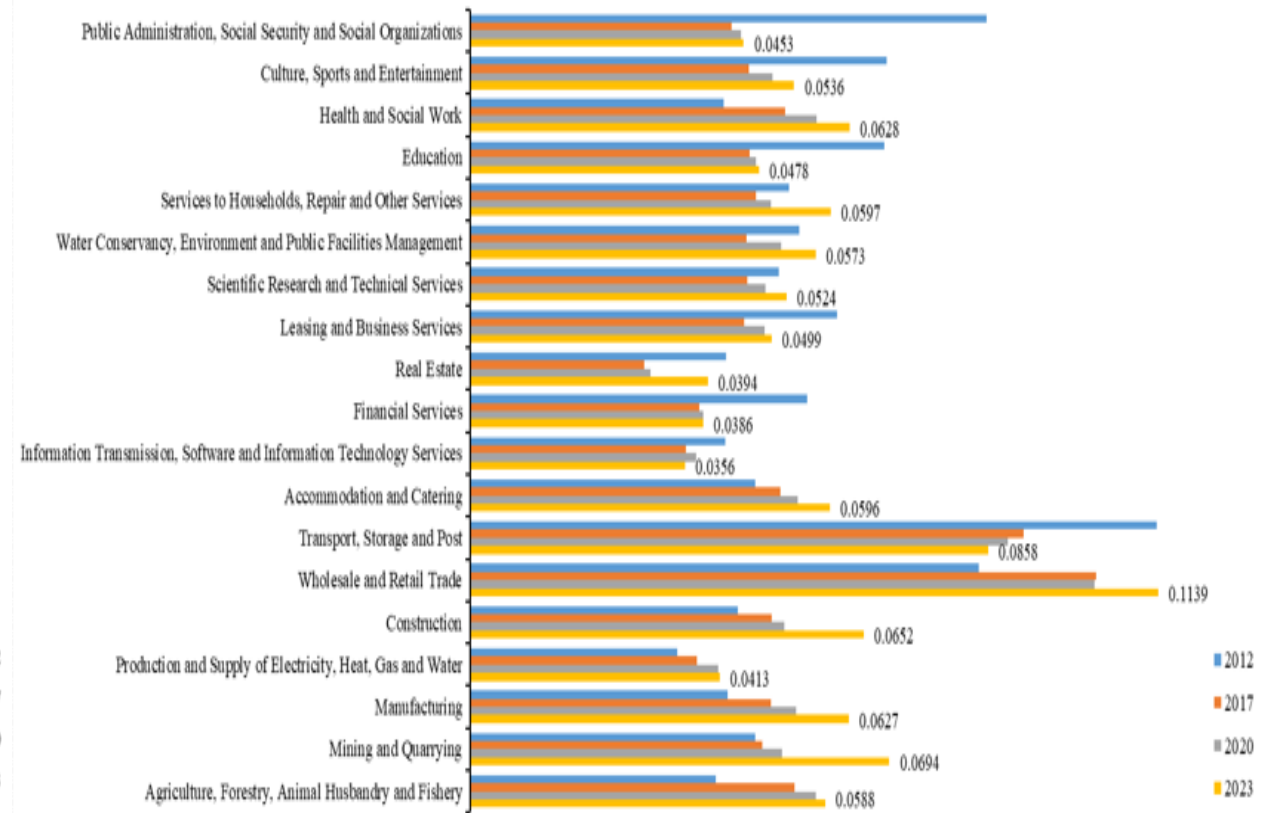


Figure 2. Total Dependence of Other Industries on the Logistics Industry



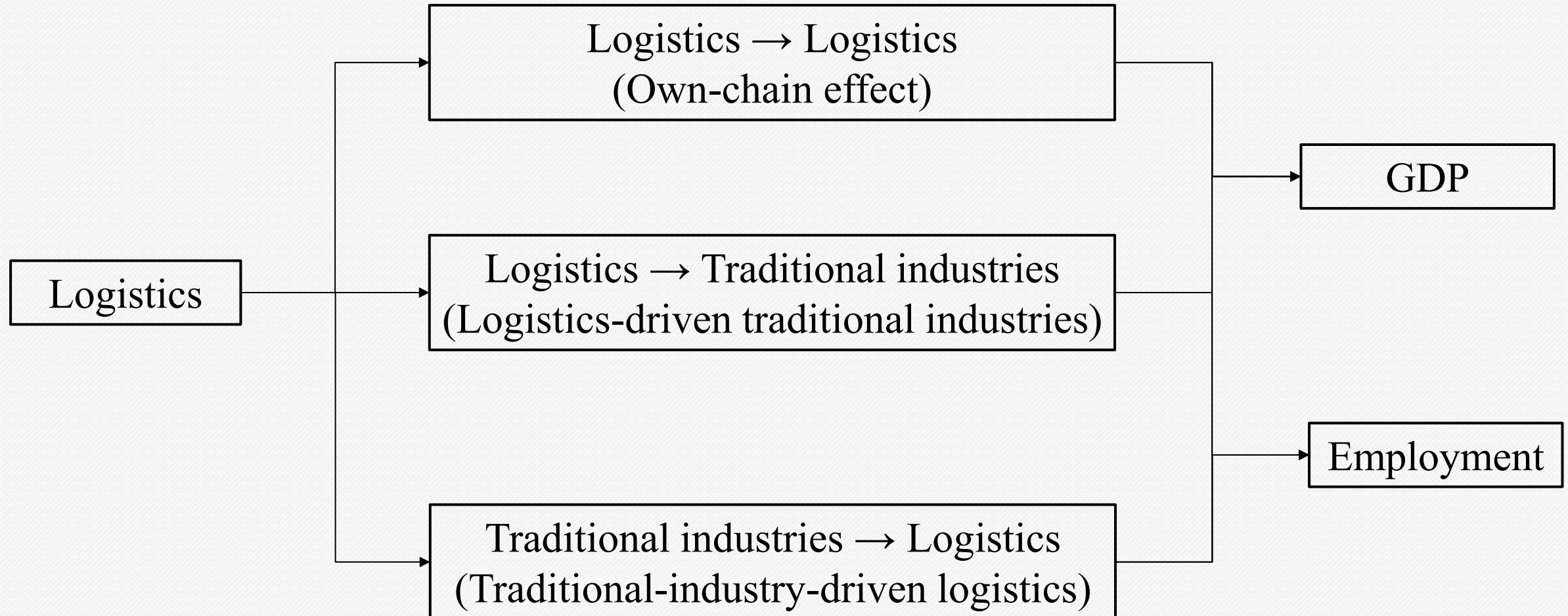
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Three Contribution Channels





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		2012	2017	2020	2023	
Panel A: Impact of the Logistics Industry on China's GDP					RMB 100 million; %	
GDP	Logistics → Logistics	Value	329803952	555057402	615328890	797708427
		Share	6.149927	6.742551	6.053872	6.131666
	Logistics → Traditional industries	Value	940110246	1161247585	1549796834	2138710559
		Share	17.530442	14.106237	15.247573	16.439414
	Traditional industries → Logistics	Value	631663869	977348333	1017947543	1366472355
		Share	11.778775	11.872324	10.015009	10.503527
	Total	Value	1901578066	2693653320	3183073267	4302891341
		Share	35.459144	32.721112	31.316454	33.074608
Panel B: Impact of the Logistics Industry on China's Employment					10,000 persons; %	
Employment	Logistics → Logistics	Value	843.2508	1025.041	1221.014	1019.076
		Share	5.53446	5.80963	7.165959	6.22591
	Logistics → Traditional industries	Value	1938.1117	1772.108	1722.839	1929.727
		Share	12.72030	10.04378	10.111098	11.78941
	Traditional industries → Logistics	Value	1615.0536	1804.899	2019.941	1745.674
		Share	10.59999	10.22963	11.854751	10.66497
	Total	Value	4396.4161	4602.049	4963.794	4694.477
		Share	28.85474	26.08304	29.131808	28.68029

1. The absolute contribution of logistics increased over time.
2. GDP effects are mainly driven by the logistics-driven traditional industries channel.
3. Employment effects show stronger two-way linkages between logistics and traditional industries.



Employment Effects: Beyond Direct Job Creation

The employment effect of logistics is mainly an industrial-chain effect, rather than merely direct job creation within the logistics sector.

Move to an Interregional Perspective

- National IO results show how much employment is induced, but not where it occurs.
- In a unified national market, logistics-related demand may generate employment beyond the local region.
- Provincial MRIO allows us to distinguish local employment retention from interregional employment transmission.



Network Centrality of Regional Logistics Sectors

We construct a weighted interregional production network based on direct input coefficients. For each regional logistics sector, we calculate its weighted degree centrality:

$$Centrality_r = OutStrength_r + InStrength_r$$

where:

$$OutStrength_r = \sum_j a_{\{rj\}} InStrength_r = \sum_i a_{\{ir\}}$$

OutStrength captures the forward linkage of a regional logistics sector.

InStrength captures the backward linkage of a regional logistics sector.

2012		2017		2020	
Region	Centrality	Region	Centrality	Region	Centrality
Shanghai	1.884685	Shanghai	2.11867	Shanghai	6.476806
Tianjin	1.712902	Henan	1.911449	Guangdong	4.255693
Hebei	1.677249	Neimenggu	1.762589	Jiangsu	4.254601
Beijing	1.549813	Zhejiang	1.609218	Beijing	3.91712
Jiangsu	1.527675	Shandong	1.553192	Henan	3.814736



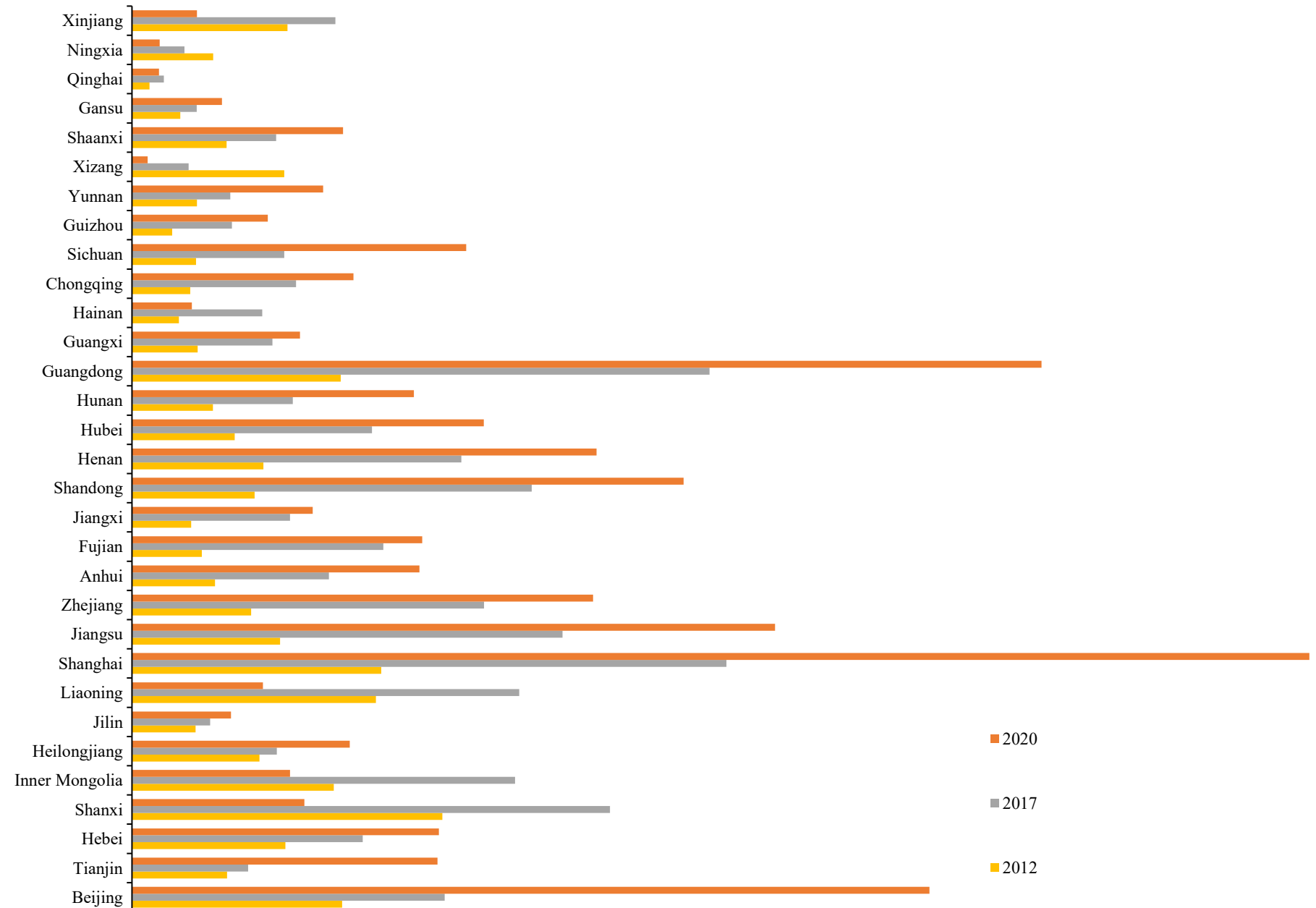
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Note : Total contribution includes both local retention and interregional spillovers.



**Background****Method****Results****Conclusion**

- Spillover employment captures the absolute scale of jobs induced outside the source province.
- Top-ranked provinces play stronger roles in transmitting logistics-related employment effects across regions.
- The ranking changes over time, reflecting the evolving spatial structure of China's logistics-linked production network.

2012			2017		2020	
Rank	spillover_emp	spillover_rate	spillover_emp	spillover_rate	spillover_emp	spillover_rate
1	Shanghai	Anhui	Shanghai	Beijing	Shanghai	Shanghai
2	Beijing	Shanghai	Zhejiang	Henan	Beijing	Yunnan
3	Guangdong	Guizhou	Henan	Zhejiang	Guangdong	Fujian
4	Jiangsu	Jiangsu	Beijing	Tianjin	Jiangsu	Zhejiang
5	Hebei	Zhejiang	Guangdong	Jilin	Shandong	Jiangsu



PART 04 Conclusion





Main Conclusions

1. Logistics is increasingly embedded in traditional industries.

Direct and complete dependence indicators show that agriculture, mining, manufacturing, wholesale and retail sectors rely on logistics through direct and indirect linkages.

2. GDP effects are mainly driven by links to traditional industries.

The contribution of logistics is not limited to its own sector; logistics-driven traditional industries form a major channel of value-added creation.

3. Employment effects show stronger two-way industrial-chain linkages.

Logistics both stimulates employment in traditional industries and is itself supported by the demand expansion of traditional industries.

4. Regional logistics demand generates employment beyond local borders.

Provincial MRIO results indicate that logistics-related employment effects include both local retention and interregional spillovers.



Policy Implications

1. Promote integration between logistics and traditional industries.

Strengthening logistics links with manufacturing, agriculture, wholesale and retail can enhance industrial-chain efficiency and employment-supporting capacity.

2. Support regional logistics hubs and interprovincial connectivity.

Transport nodes, border regions and key logistics corridors can improve the spatial transmission of logistics-related employment effects.

3. Balance efficiency improvement with employment upgrading.

As logistics becomes more digital and efficient, policies should support skill upgrading in supply-chain management, cold-chain logistics, cross-border logistics and digital logistics services.

4. Improve logistics-related statistical accounting.

A logistics-specific IO accounting framework can better capture direct and indirect contributions that are hidden in conventional industrial classifications.



Thank you for listening



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