

India Multi-Regional Input-output Dataset for 32 States from 2011 to 2019

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As the world's second most populous developing country, India has undergone profound economic transformation over recent decades, characterised by rapid industrialisation and structural changes in production and trade patterns. This transformation has made India one of the fastest-growing major economies and strengthened its role in the global economy (Huang et al., 2021). In 2022, India overtook the UK to become the fifth-largest economy worldwide, following the United States, China, Japan, and Germany. However, owing to its vast geographic scale and diverse socio-economic conditions, India exhibits substantial regional disparities and a highly heterogeneous economic structure across states (Nirola et al., 2022). Previous studies indicate that rapid economic growth since the 1980s has exacerbated, rather than reduced, regional inequality (Kurian, 2000; Jose, 2019). This divergence has resulted in persistent disparities, with several central states remaining significantly poorer. For example, the BIMARU states—Bihar, Madhya Pradesh, Rajasthan, Odisha, and Uttar Pradesh—are commonly associated with weaker economic performance (Huang et al., 2021). In contrast, neighbouring states such as Haryana, Himachal Pradesh, Delhi, Chandigarh, and Uttarakhand exhibit considerably higher income levels.

Regional economic development is inherently linked to supply chain integration. Therefore, understanding the transformation of cross-state supply chains is crucial for policymakers seeking to design effective development and equity strategies. The multi-regional input-output (MRIO) model has been widely applied to represent regional economic systems and to capture interregional supply-chain linkages. Most existing efforts have focused on the international level, resulting in several well-established global datasets, such as GTAP (Peters et al., 2011), WIOD (Dietzenbacher et al., 2013; Timmer et al., 2015), Eora, and EXIOBASE (Wood et al., 2014). In contrast, subnational MRIO modelling is relatively recent but gaining increasing importance. It has been extensively used in environmental and socio-economic impact assessments (Kan et al., 2023; Zheng et al., 2023a; Zheng et al., 2023b; Xia et al., 2024). Nevertheless, subnational MRIO databases remain scarce, particularly in developing countries such as India (Zheng et al., 2021b).

To the best of our knowledge, only one Indian MRIO model has previously been developed, based on our earlier work (Huang et al., 2021). That model employed a non-survey approach using the Flegg Location Quotient (FLQ) method and covered 32 states and 50 sectors for the year 2015. While valuable, its single-year coverage limits the ability to analyse supply-chain dynamics during India's ongoing economic transition. Moreover, a key assumption in that framework was that state-level domestic and foreign trade flows were fully determined by an optimisation model rather than observed real-world trade data, potentially introducing uncertainty and accuracy concerns.

To address these limitations, we construct a new series of inter-state MRIO tables for the period 2011–2019 using a hybrid approach that integrates real-world data with entropy-based estimation. This methodology has been successfully applied in subnational MRIO development for China (Zheng et al., 2021a; Zheng et al., 2021b) and Russia (Li et al., 2024). The resulting dataset covers 32 Indian states and 66 sectors annually, ensuring consistency with India's official national supply–use tables. It integrates multiple official data sources, including the Annual Survey of Industries (ASI), national supply–use tables, inter-state transport trade statistics, state-level socio-economic datasets, and customs data. The period 2011–2019 captures a critical phase of India's rapid economic expansion, spanning the post-2008 financial crisis recovery and preceding the economic disruption caused by the COVID-19 pandemic. This dataset provides a

robust foundation for a wide range of economic, social, and environmental analyses, particularly in relation to interregional trade, regional inequality, and the environmental consequences of economic development.