

## **Global City-level Household Demand: Data, Derivation and Deviation**

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Global multiregional input-output databases (GMRIOD) provide a consistent framework that can be used to reassign greenhouse gas emissions from the producing to consuming nations. However, the final demand information contained within GMRIODs is typically at the national level. Subnational consumption-based accounts are usually based on single country's IO tables and it may not be advisable to make comparisons between cities in two different countries since the data sources and methods of constructing the country IO tables may be very different. In this paper we disaggregate national household final demand for countries in the GTAP GMRIOD to city and non-city expenditure. This allows for a consistent approach to calculating the environmental impact of the city. This paper reviews a variety of sources of city-level household consumption data. We present the many challenges involved in mapping data from both household surveys and data derived from geodemographic expenditure profiles to the sectors in the GTAP GMRIOD. Particular attention is paid to the multiple possible techniques for constructing weighted correspondence tables and the resulting changes this makes to the distribution of spends. We also present initial results and characterise, compare and contrast global cities in terms of the pattern of their expenditure and resulting impact. The paper concludes with recommendations as to the most suitable method for deriving household expenditure data and suggestions as to the potential applications for this type of research.