

Developing a PECAS Spatial Economic Model for Sri Lanka: Opportunities and Challenges

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Abstract

With the fast-growing economy of Sri Lanka, many new economic activities are taking place. These economic activities have direct impacts on changing, adjusting or reshaping the current land use patterns. (residential, commercial, industrial, institutional, mixed, etc.). Apart from that, the government policies on planned developments; namely the expressways, airports, ports, new LRTs (Light Rapid Transit), new railway lines, etc. have clear impacts on the current use of the land. Even though these are very complex processes to model, a PECAS (Production, Exchange, Consumption Allocation System) special economic model is capable of modelling very slow (networks/land use), slow (workplace/ housing), fast (employment/population) and immediate (goods transport/travel) economic activities on an urban subsystem with an acceptable accuracy, providing a scientific way of predicting land use changes. Thus, a carefully calibrated PECAS spatial model can be used for evaluating and forecasting of land use patterns due to policy changes or infrastructure developments. This will be highly beneficial to infrastructure planners, economists, policy makers, investors and especially transport planners, because the differences in land use are the basic origins of transport needs. Thus, there are numerous opportunities to develop a PECAS spatial model for Sri Lanka, while the acceptance of the need for integrated land use and transport planning for Western Region Megapolis Planning Project (WRMPP), a multi-billion, flagship project implemented by the Sri Lankan government, being the most important one.

Main challenges of developing a PECAS model for Sri Lanka arise with inefficient, incomplete or unavailable data. Social Accounting Matrices (SAM) are considered to be the friendliest data source while developing a PECAS model. An effort has been taken on developing a framework for developing SAMs for Sri Lanka but a complete SAM is not present yet. The next best data source is Input-Output tables (I/O tables). They have been developed only for 2001 and 2006 in recent past. Among those two also 2001 tables are considered a failure and anyhow it is quite outdated for today. The one developed for 2006 by Asian Development Bank (ADB) consists 24 activity categories and 34 commodity categories, but only one household category and labour category. Apart from above data,

available other data sources on space data (especially the distribution of non-residential space) and labour data (employment and income) are also not up to the expected level and descriptiveness. Problems like inefficiencies, inconsistencies, interpretation problems and data not being in readable formats can also be seen in available data.

The complexity and the usefulness of a PECAS model increase from Setup Model through Demonstration Model to Production Model. As Demonstration Models and Production Models are more data hungry, previous studies show that acquiring data for developing such a model will be quite expensive (more than Rs. 100 million). Allocation of such an amount of money just for a planning process is still a challenge for Sri Lanka. Therefore, it can be concluded that developing a PECAS spatial economic Setup Model is the most viable one for the time being.

Key Words: Spatial Economic Models, PECAS, Policy Evaluation, SAM, Setup Model

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