Appendix A: Robustness Check using a Panel Model

We compared results from a panel model to those from a path analysis. The independent variables in the panel model are exactly the same as those used in the path analysis. However, there is no structure imposed among these variables. In other words, this is a flattened, reduced-form model. The fixed effect model is supported by the Hausman test. As we can tell from Table A, only the transportation infrastructure investment variable is statistically significant. Increases in transportation infrastructure investment are associated with a greater speed of urban expansion. The panel model is weaker than the path analysis; therefore, we mainly report results from path analysis because it enables us to measure direct and indirect effects explicitly in the causal processes, which is not allowed by a straight regression setup.

Table A: Robustness check using fixed effect panel model

	Dependent Variable: Speed of Urban Expansion		
	Coefficient	Standard error	p-value
Transportation Infrastructure Investment	0.1024	0.0440	0.023
Population Density	6961.986	7608.1210	0.364
Amount of Government Reserve Land	-458.1536	442.4907	0.305
Urban Per Capita Income	-10.3415	12.1458	0.398
Rural Per Capita Income	-104.7934	88.0143	0.239
Constant	-402.3886	1220.1870	0.743
R-squared	0.381		
Adj R-squared	0.255		
AIC	1078.411		
BIC	1092.071		
N	72		