sustainability

MDPI

Supplementary information

Does Staying at Home during the COVID-19 Pandemic Help Reduce CO_2 Emissions?

Kentaka Aruga [1,*], Md Monirul Islam, [2,3] and Arifa Jannat [3,4]

[1] Graduate School of Humanities and Social Sciences, Saitama University, 255 Shimo-Okubo, Sakura-ku, Saitama 338-8570, Japan
[2] Department of Agricultural Economics, Bangladesh Agricultural University, Mymensingh 2202, Bangladesh; monir.bau_96@yahoo.com
[3] Graduate School of Life and Environmental Sciences, University of Tsukuba, Tsukuba 305-8572, Japan
[4] Institute of Agribusiness and Development Studies, Bangladesh Agricultural University, Mymensingh 2202, Bangladesh; arifaecon_bau@yahoo.com
* Correspondence: aruga@mail.saitama-u.ac.jp

This supplement consists of the followings:

Supplementary table:

1. Table S1. Johansen cointegration tests for the US and France grocery models

Supplementary figures:

2. Figure S1. CUSUM test for the US model.
3. Figure S2. CUSUM of Squares test for the US model.
4. Figure S3. CUSUM test for the India model.
5. Figure S4. CUSUM of Squares test for the India model.
6. Figure S5. CUSUM test for the France model.
7. Figure S6. CUSUM of Squares test for the France model.

Table S1. Johansen cointegration tests for the US and France grocery models.

Variables	H_0: rank=r	Trace test		Max-Eigen test	
CO_2 vs grocery for the US	r=0	26.18	**	22.06	**
	r<=1	4.12		4.12	
CO_2 vs grocery for France	r=0	29.37	**	22.23	**
	r<=1	7.14		7.14	

Note: ** denote significance at the 5% level. The Johansen tests conducted on both models are performed under the assumption of linear deterministic trend.

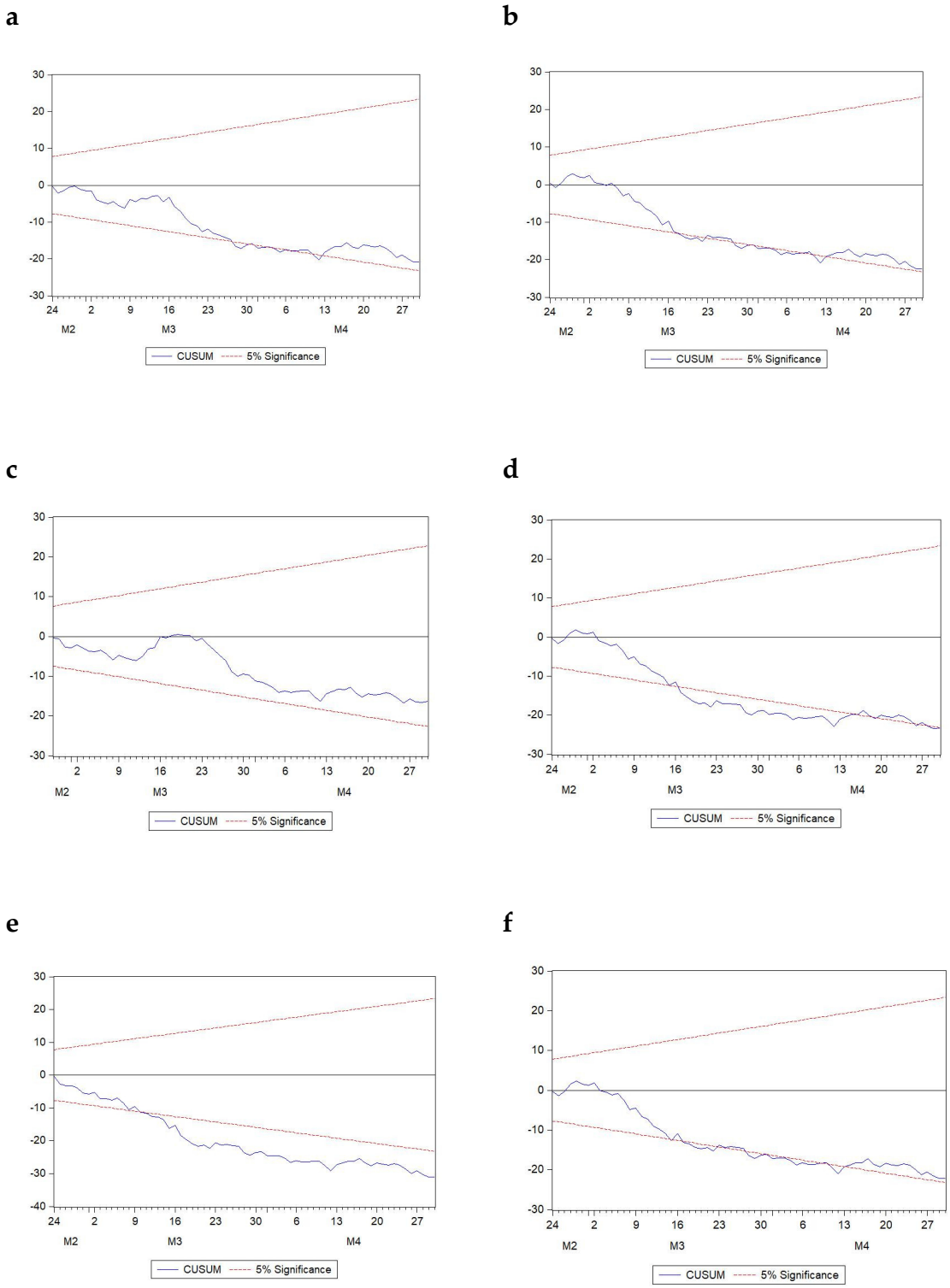

Figure S1. CUSUM test for the US model. a. Parks, and outdoor spaces. **b,** Time spent at home (Residential). **c**, Grocery, and pharmacy stores. **d**, Workplace. **e**, Retail, and recreation. **f**, Public transport stations (Transit). The analyses are conducted by EViews 12 software.

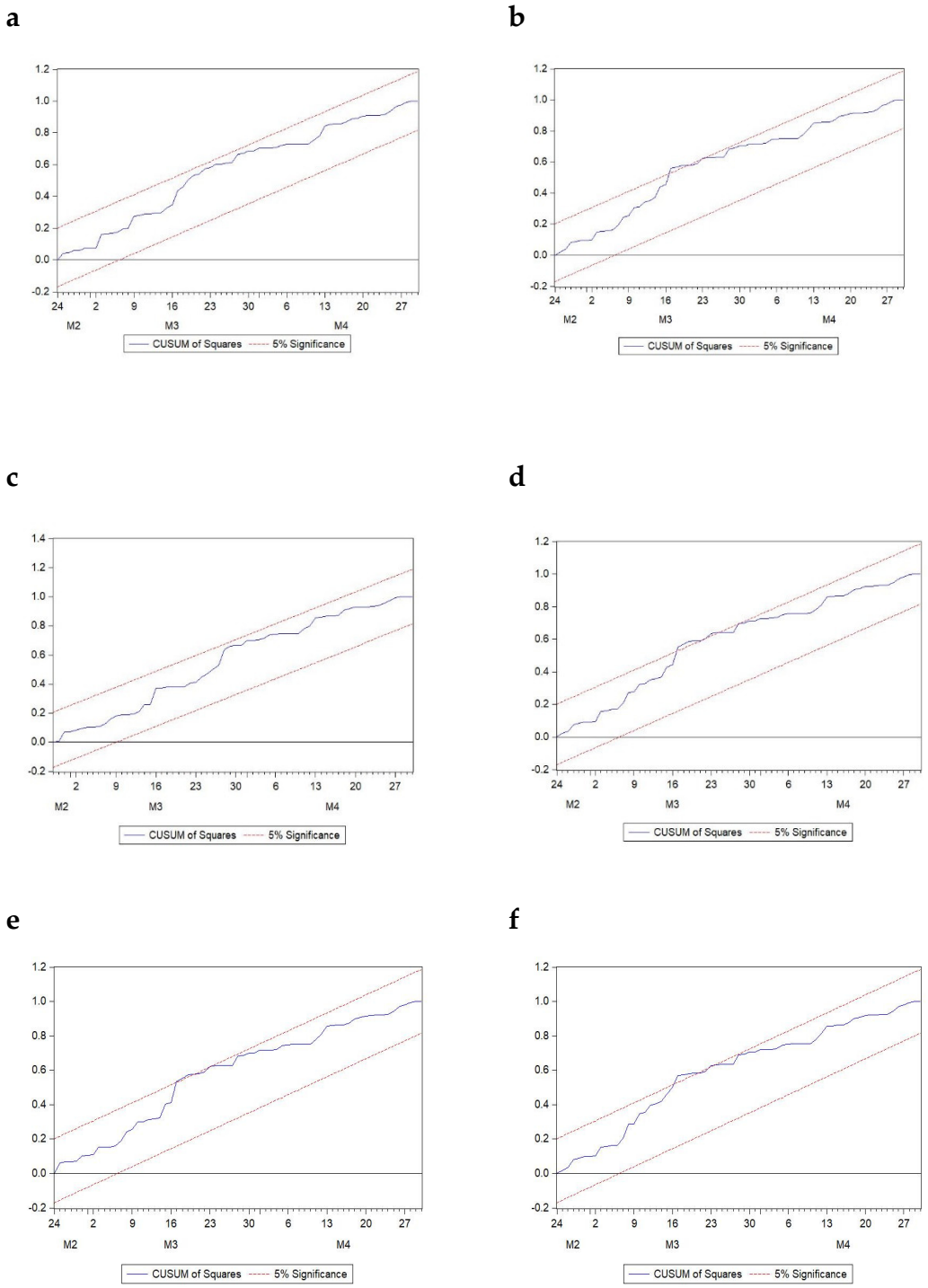

Figure S2. CUSUM of Squares test for the US model. a. Parks, and outdoor spaces. **b,** Time spent at home (Residential). **c**, Grocery, and pharmacy stores. **d**, Workplace. **e**, Retail, and recreation. **f**, Public transport stations (Transit). The analyses are conducted by EViews 12 software.

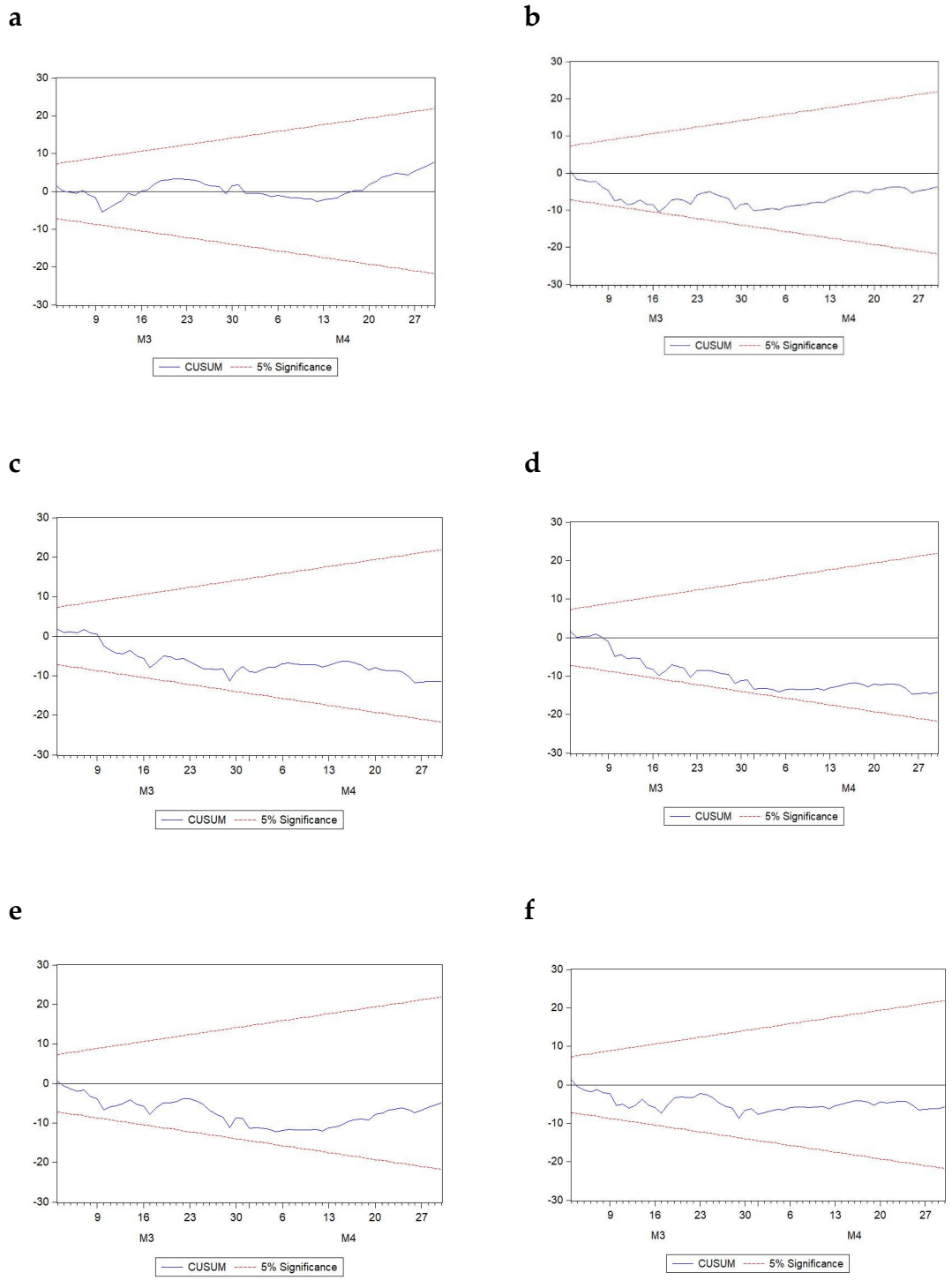

Figure S3. CUSUM test for the India model. a. Parks, and outdoor spaces. **b,** Time spent at home (Residential). **c**, Grocery, and pharmacy stores. **d**, Workplace. **e**, Retail, and recreation. **f**, Public transport stations (Transit). The analyses are conducted by EViews 12 software.

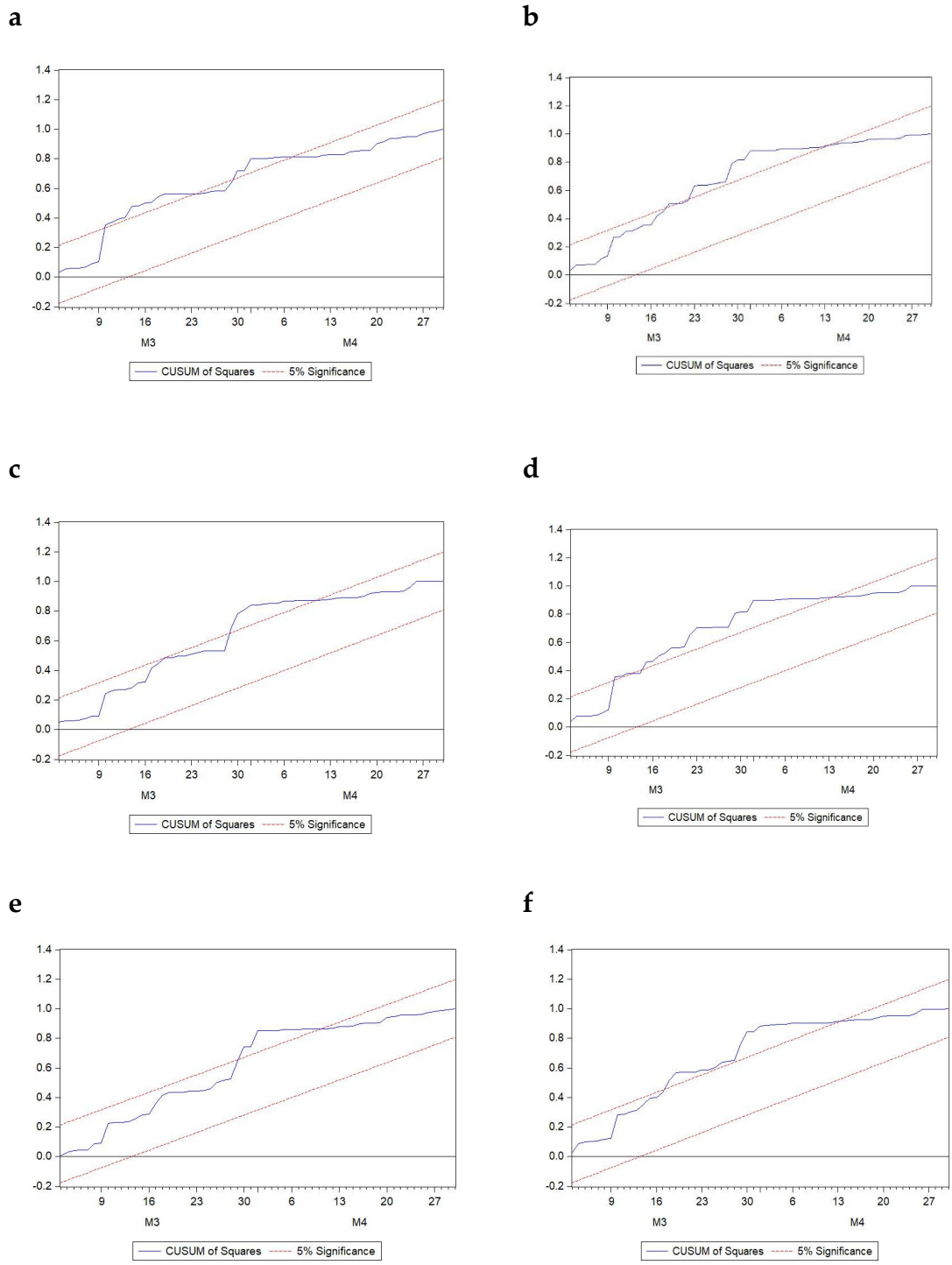

Figure S4. CUSUM of Squares test for the India model. a. Parks, and outdoor spaces. **b,** Time spent at home (Residential). **c**, Grocery, and pharmacy stores. **d**, Workplace. **e**, Retail, and recreation. **f**, Public transport stations (Transit). The analyses are conducted by EViews 12 software.

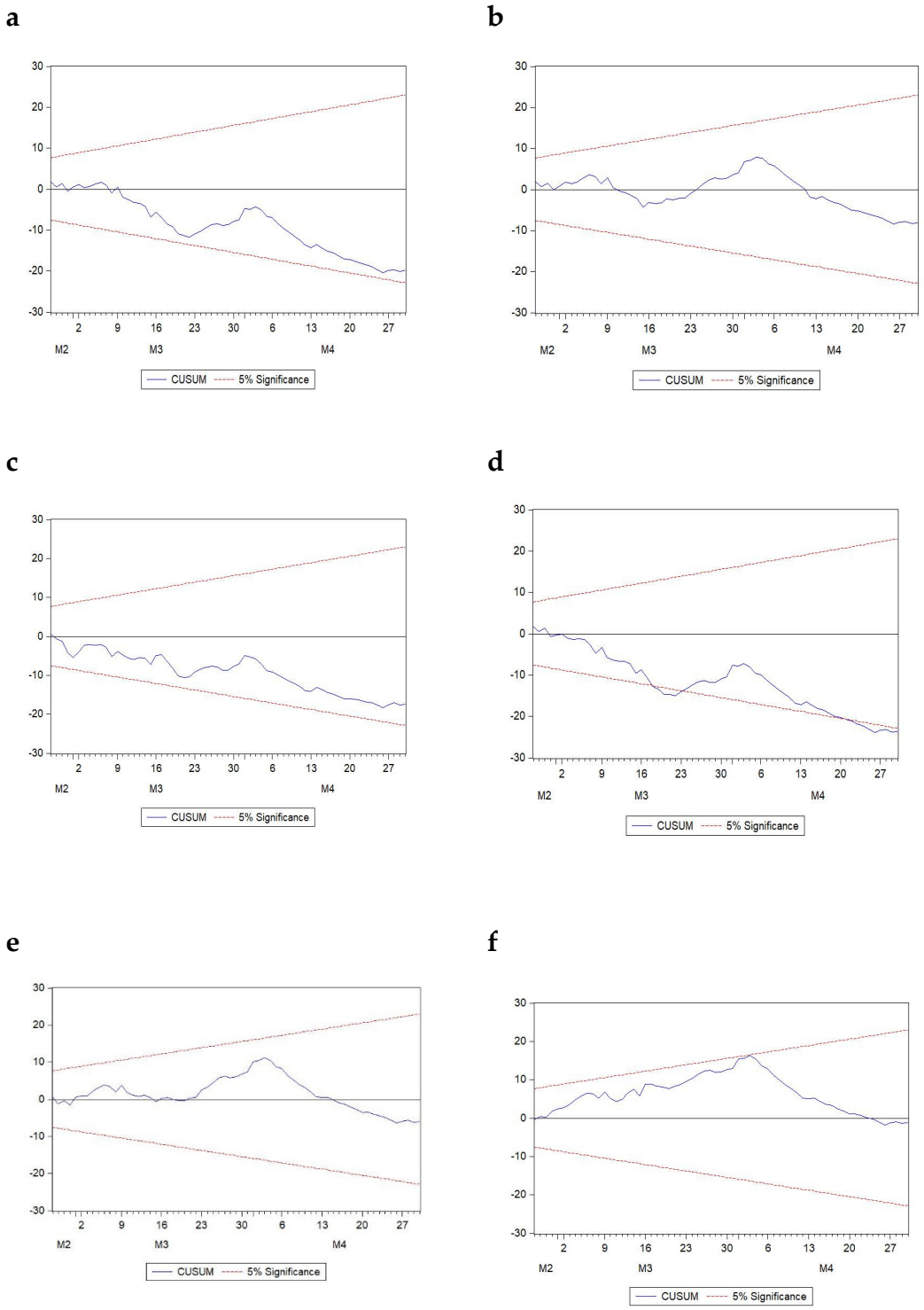

Figure S5. CUSUM test for the France model. a. Parks, and outdoor spaces. **b,** Time spent at home (Residential). **c**, Grocery, and pharmacy stores. **d**, Workplace. **e**, Retail, and recreation. **f**, Public transport stations (Transit). The analyses are conducted by EViews 12 software.

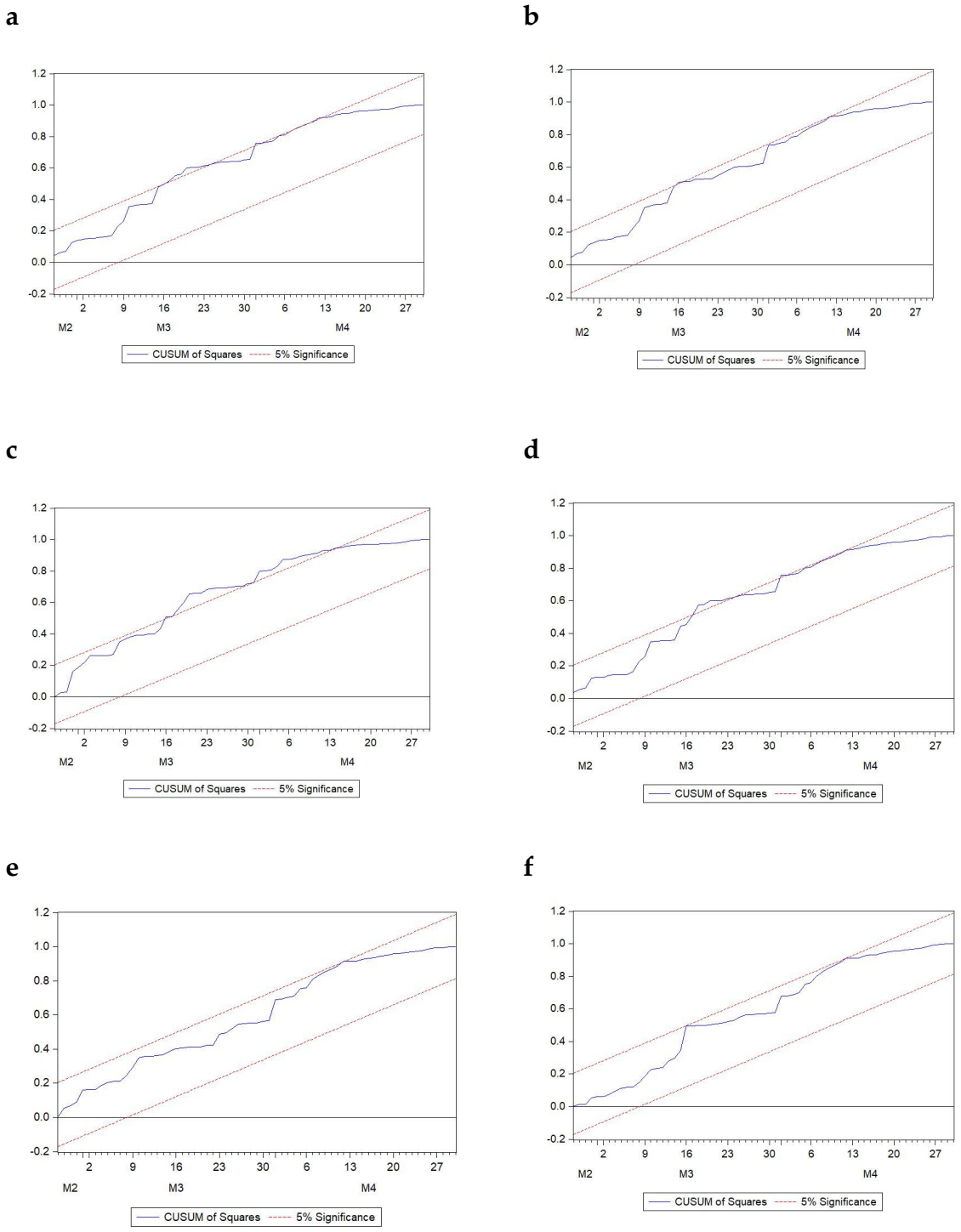

Figure S6. CUSUM of Squares test for the France model. a. Parks, and outdoor spaces. **b,** Time spent at home (Residential). **c**, Grocery, and pharmacy stores. **d**, Workplace. **e**, Retail, and recreation. **f**, Public transport stations (Transit). The analyses are conducted by EViews 12 software.