PANEL VERİ ANALİZİ

Table. Model Results Comparision

Variables	(1) OLS	(2) Fixed Effects	(3) Random Effects
ln_democracy	1.40253	-0.185463	-0.1882519
	(0.324)	(0.467)	(0.441)
ln_hdi	-0.2513451	1.729444***	1.742434**
	(0.942)	(0.060)	(0.033)
ln_industrialization	1.187326	1.148598	1.1497327
	(0.350)	(0.126)	(0.464)
ln_services	-0.7834548	1.0659213	-0.0171804
	(0.642)	(0.180)	(0.975)
ln_industry	-2.077123	1.167661*	1.15902*
	(0.296)	(0.000)	(0.000)
cons	13.91161	3.273298	3.402435
	(0.188)	(0.255)	(0.167)
Observations	240	240	240
R-squared	0.1883	0.4915	0.4915

p values in parentheses

*p<0,01, **p<0,05, ***p<0,10

In the model, country averages of time-varying independent variables (between effects) are included in the RE model. The results are presented in Table. The F-test was used to test whether the mean variables are jointly significant and the p-value was found to be 0.3380>0.05. According to this result, there is no systematic relationship between fixed effects and

explanatory variables. Accordingly, the RE model is preferred. The RE model estimation results (Appendix Table 5), the details of which were given earlier, were analysed.

Accordingly, when the model results are analysed on a variable basis, industrial sector employment (ln_industry) has a strong and statistically significant positive effect on carbon emissions ($\beta = 1.159$, $p < 0.001$). This finding clearly reveals the environmental consequences of production and energy consumption in the industrial sector. The magnitude of the coefficient indicates that a 1% increase in industrial employment can lead to an average increase of 1.16% in CO_2 emissions.

The Human Development Index (ln_hdi) variable also exhibits a positive and significant relationship ($\beta = 1.742$, $p = 0.033$). This result indicates that with increasing level of development, emission production increases in areas such as energy consumption, industrial activities and transportation. This situation is clearly seen in Appendix Figure 2.

The effects of the other variables ln_democracy, ln_industrialization and ln_services on carbon emissions are not statistically significant. In particular, although the variable ln_democracy has a negative coefficient ($\beta = -0.188$, $p = 0.441$), this relationship is not significant and therefore democracy is not a factor that directly affects carbon emissions. The constant term (cons) of the model is positive ($\beta = 3.40$) but not statistically significant ($p = 0.167$); therefore, the main interpretations are based on the explanatory variables.