Modeling the exchange rate pass-through in Turkey with uncertainty and geopolitical risk: A Markov regime-switching approach

Appendix C

Additionally, we considered analyzing the moderating effects by following different distributions and different quantiles to show some moderating effects of economic uncertainty and geopolitical risk on ERPT.

The moderator effects might be investigated through two-way and three-way interactions by linear functions with normal distribution and by non-linear functions with e.g. binomial or Poisson distributions as depicted in Dawson (2014). It can be also analyzed through categorical variable when nominal or ordinal scale (e.g. male and female) is employed, or, it can be investigated through continuous variable when interval scale is observed (e.g. high level and low level of skepticism) as is indicated by Memon et al. (2019).

This paper has launched the regressions through (1) Generalized Linear Model (GLM) with normal distributions with identity, log, and logit functions, and (2) Quantile regressions to observe the effects of economic uncertainty and geopolitical risk on ERPT at 25^{th}, 50^{th}, and 75^{th} quantiles. When we attempted to follow binomial and Poisson distributions, the models did not reach convergence due to negative dependent variable values.

In the regressions with normal distributions with identity and logit functions, the economic uncertainty and geopolitical risk variables were found insignificant on ERPT while the regression with normal distribution with log function resulted in a negative significant coefficient of economic uncertainty on ERPT at 10% level. Predicted outputs are presented in the appendix tables C1.a, C1.b, and C1.c.

The quantile regressions at 25^{th} and 50^{th} quantiles revealed also insignificant effects of economic uncertainty and geopolitical risk variables, as the regression at 75^{th} quantile yielded negative significant coefficient estimation of economic uncertainty on ERPT at 1% level. The estimations are shown in tables C2.a, C2.b, and C2.c in the appendix.

In comparison with the outputs from MS models and the outputs from regressions with normal distributions with different functions and/or quantile regressions at different quantiles, one might state that, although distributions and quantiles matter, any regression function might fail to capture the effects of independent variables on ERPT without estimating the outputs from different regimes/states.

Table C1.a GLM-Normal distribution with identity function*

	Coefficient	z-Stat.	Prob.
Constant	0.040907	2.886258	0.0039
Exchange_g	0.272054	5.968333	0.0000
GDP_g	0.005442	3.668374	0.0002
IP_g	-0.240156	-1.931327	0.0534
Econ_Uncertainty	-0.016090	-0.720376	0.4713
Geo_Risk	-0.000107	-0.895063	0.3708
Log Likelihood	166.8684		
AIC	-3.785138		
SC	-3.612716		

*Dep. Var. CPI_g; Method: GLM with Newton-Raphson / Marquardt algorithm

Table C1.b GLM-Normal distribution with log function*

	Coefficient	z-Stat.	Prob.
Constant	-3.449264	-8.929800	0.0000
Exchange_g	3.139285	6.383822	0.0000
GDP_g	0.146214	4.945170	0.0000
IP_g	-9.899692	-3.759178	0.0002
Econ_Uncertainty	-0.706310	-1.728422	0.0839
Geo_Risk	0.000238	0.079495	0.9366
Log Likelihood	170.8509		
AIC	-3.878845		
SC	-3.706423		

*Dep. Var. CPI_g; Method: GLM with Newton-Raphson / Marquardt algorithm

Table C1.c GLM-Normal distribution with logit function*

	Coefficient	z-Stat.	Prob.
Constant	-3.422136	-8.463100	0.0000
Exchange_g	3.539016	6.434811	0.0000
GDP_g	0.154258	4.790620	0.0000
IP_g	-10.47311	-3.592832	0.0003
Econ_Uncertainty	-0.695691	-1.568945	0.1167
Geo_Risk	8.32E-05	0.026349	0.9790
Log Likelihood	170.9697		
AIC	-3.881639		
SC	-3.709217		

*Dep. Var. CPI._g; Method: GLM with Newton-Raphson / Marquardt algorithm

Table C2.a Quantile regression at 25th quantile*

	Coefficient	t-Stat.	Prob.
Constant	0.021579	1.731987	0.0872
Exchange_g	0.172697	3.161029	0.0022
GDP_g	0.003288	2.150637	0.0346
IP_g	-0.108696	-0.910519	0.3653
Econ_Uncertainty	0.006846	0.416261	0.6783
Geo_Risk	-0.000140	-1.185129	0.2395
Quasi-LR statistic	166.8684		

*Dep. Var. CPI_g; Sparsity method: Epanechnikov; Bandwidth method: Hall-Sheather

Table C2.b Quantile regression at 50th quantile*

	Coefficient	t-Stat.	Prob.
Constant	0.042078	2.812702	0.0062
Exchange_g	0.165193	2.445969	0.0167
GDP_g	0.003124	1.737721	0.0862
IP_g	-0.118151	-0.785867	0.4343
Econ_Uncertainty	-0.016292	-0.671856	0.5036
Geo_Risk	-0.000147	-1.070974	0.2874
Quasi-LR statistic	170.8509		

*Dep. Var. CPI_g; Sparsity method: Epanechnikov; Bandwidth method: Hall-Sheather

Table C2.c Quantile regression at 75th quantile*

	Coefficient	t-Stat.	Prob.
Constant	0.050386	3.123093	0.0025
Exchange_g	0.312426	6.623944	0.0000
GDP_g	0.008344	2.903120	0.0048
IP_g	-0.356210	-2.447727	0.0166
Econ_Uncertainty	-0.080417	-3.082332	0.0028
Geo_Risk	9.89E-05	0.856271	0.3944
Quasi-LR statistic	170.9697		

*Dep. Var. CPI_g; Sparsity method: Epanechnikov; Bandwidth method: Hall-Sheather

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