**Appendix**

**Table A1: Short-run and Long-run the symmetry test results.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **EXPORT** | | | | | | | | **IMPORT** | | | | | | | |
| **Model I: sanctioned entities** | | | | **Model II: sanctioned persons** | | | | **Model I: sanctioned entities** | | | | **Model II: sanctioned persons** | | | |
| **Wald-S** | | **Wald-L** | | **Wald-S** | | **Wald-L** | | **Wald-S** | | **Wald-L** | | **Wald-S** | | **Wald-L** | |
| **Eq (6)** | **Eq (8)** | **Eq (6)** | **Eq (10)** | **Eq (6)** | **Eq (8)** | **Eq (6)** | **Eq (10)** | **Eq (7)** | **Eq (9)** | **Eq (7)** | **Eq (11)** | **Eq (7)** | **Eq (9)** | **Eq (7)** | **Eq (11)** |
| **I Live Animals and Products** | 2.71 | 4.18 \*\* | 0.22 | 3.49 \*\*\* | 7.03 \*\* | 8.93 \* | 0.08 | 0.9 | 0.002 | 1.18 | 4.94 \*\* | 0.27 | 0.13 | 0.72 | 0.95 | 0.33 |
| **II Vegetable Products** | 2.05 | 0.44 | 1.31 | 1.15 | 3.17 \*\*\* | 1.34 | 2.21 | 1.13 | 0.96 | 0.23 | 1.53 | 0.8 | 0.74 | 0.06 | 2.15 | 1.37 |
| **III Animal or Vegetable Fats & Oils** | 3.97 \*\*\* | 4.25 \*\* | 0.01 | 2 | 1.92 | 4.44 \*\* | 1.52 | 2.61 | 1.73 | 1.86 | 0.001 | 0.00001 | 0.0006 | 0.05 | 0.37 | 0.01 |
| **IV Beverages & Tobacco** | 2.06 | 4.33 \*\* | 4.70 \*\* | 0.18 | 0.01 | 5.37 \*\* | 15.19 \* | 2.11 | 2.12 | 0.93 | 18.28 \* | 4.47 \*\* | 0.04 | 1.14 | 1 | 2.03 |
| **V Mineral Products** | 1.65 | 1.93 | 0.00003 | 0.02 | 3.53 \*\*\* | 4.08 \*\* | 0.0002 | 0.93 | 0.34 | 0.01 | 1.29 | 0.89 | 0.07 | 0.04 | 0.04 | 0.008 |
| **VI Chemical products** | 0.78 | 3.50 \*\*\* | 8.27 \* | 6.77 \*\* | 0.35 | 0.09 | 4.23 \*\* | 3.95 \*\*\* | 5.86 \*\* | 6.58 \*\* | 0.03 | 7.80 \* | 0.57 | 6.38 \*\* | 5.58 \*\* | 10.84 \* |
| **VII Rubber and Plastics** | 0.63 | 1.18 | 0.08 | 0.74 | 0.48 | 0.17 | 0.44 | 0.21 | 0.16 | 2.58 | 6.24 \*\* | 1.74 | 1.97 | 2.43 | 0.05 | 0.76 |
| **VIII Leather and Skins** | 3.49 \*\*\* | 2.22 | 1.15 | 0.61 | 12.76 \* | 3.18 \*\*\* | 4.11 \*\* | 2.12 | 0.93 | 0.45 | 3.99 \*\*\* | 2.81 \*\*\* | 3.04 \*\*\* | 5.07 \*\* | 2.7 | 0.73 |
| **IX Wood** | 0.21 | 1.73 | 1.06 | 2.25 | 1.12 | 2.65 | 3.27 \*\*\* | 3.99 \*\*\* | 0.32 | 0.68 | 0.01 | 0.36 | 0.33 | 0.98 | 0.12 | 0.76 |
| **X Paper & Pulp** | 10.99 \* | 17.15 \* | 0.86 | 1.38 | 11.72 \* | 12.89 \* | 0.01 | 0.21 | 0.02 | 0.14 | 0.05 | 0.16 | 0.13 | 0.02 | 0.52 | 0.4 |
| **XI Textiles** | 9.76 \* | 2.93 \*\*\* | 6.93 \*\* | 4.13 \*\* | 2.44 | 1.61 | 4.43 \*\* | 2.53 | 0.1 | 0.0002 | 0.13 | 0.06 | 0.29 | 0.21 | 0.08 | 0.01 |
| **XII Footwear** | 0.73 | 0.0001 | 3.83 \*\*\* | 3.59 \*\*\* | 1.92 | 0.08 | 6.67 \*\* | 3.30 \*\*\* | 0.35 | 0.00006 | 0.62 | 0.41 | 0.0008 | 0.02 | 0.04 | 0.06 |
| **XIII Glass & Stone** | 3.17 \*\*\* | 5.47 \*\* | 0.47 | 2.73 | 3.18 \*\*\* | 1.84 | 0.76 | 0.35 | 0.02 | 1.44 | 1.92 | 3.63 \*\*\* | 1.11 | 0.6 | 13.54 \* | 9.99 \* |
| **XIV Precious Metal & Stones** | 0.55 | 0.16 | 1.21 | 0.36 | 1.22 | 0.14 | 2.55 | 1.57 | 0.58 | 0.28 | 0.83 | 0.9 | 1.16 | 0.7 | 1.9 | 1.39 |
| **XV Metal** | 7.04 \*\* | 0.92 | 39.30 \* | 4.38 \*\* | 5.15 \*\* | 1.23 | 26.42 \* | 0.16 | 0.27 | 0.55 | 0.1 | 0.38 | 0.1 | 0.18 | 0.02 | 0.1 |
| **XVI Machinery** | 0.02 | 2.79 \*\*\* | 5.20 \*\* | 7.34 \* | 0.77 | 1.11 | 0.01 | 6.26 \*\* | 0.0006 | 0.004 | 0.005 | 0.01 | 0.42 | 0.52 | 0.0006 | 0.1 |
| **XVII Transport Equipment** | 0.15 | 0.01 | 0.95 | 0.0004 | 0.002 | 0.53 | 1.44 | 2.23 | 5.11 \*\* | 5.61 \*\* | 0.18 | 0.19 | 12.38 \* | 10.94 \* | 1.56 | 0.48 |
| **XVIII Optical, Medical, Music Instruments** | 7.24 \* | 4.55 \*\* | 10.29 \* | 6.70 \*\* | 7.64 \* | 3.95 \*\*\* | 5.13 \*\* | 6.35 \*\* | 0.001 | 1.1 | 4.66 \*\* | 5.77 \*\* | 0.04 | 0.91 | 1.67 | 2.49 |
| **XIX Arms & Ammunition** | 2.03 | 0.01 | 2.90 \*\*\* | 2 | 4.92 \*\* | 1.87 | 3.25 \*\*\* | 2.52 | 0.35 | 0.002 | 4.55 \*\* | 4.39 \*\* | 0.004 | 0.004 | 0.0007 | 0.00008 |
| **XX Furniture, Toys, Misc.** | 0.4 | 0.74 | 0.28 | 0.66 | 0.31 | 0.96 | 0.38 | 0.86 | 0.74 | 0.74 | 17.16 \* | 7.50 \* | 0.51 | 0.0008 | 4.07 \*\* | 5.37 \*\* |
| **XXI Art & Antiques** | 0.35 | 0.47 | 1.11 | 13.47 \* | 0.07 | 0.12 | 3.97 \*\*\* | 15.85 \* | 0.0007 | 0.05 | 0.15 | 0.2 | 0.55 | 0.004 | 1.41 | 1.28 |
| **XXII Confidential** | 3.38 \*\*\* | 4.78 \*\* | 0.31 | 1.1 | 4.49 \*\* | 5.03 \*\* | 0.17 | 0.67 | 1.29 | 0.05 | 2.56 | 1.16 | 0.11 | 0.005 | 0.22 | 0.12 |
| **Total** | 1.12 | 2.19 | 0.75 | 1.64 | 1.36 | 2.3 | 0.22 | 3.04 \*\*\* | 0.04 | 0.06 | 2.97 \*\*\* | 3.15 \*\*\* | 0.04 | 0.26 | 0.77 | 1.05 |

Notes: \*, \*\*, and \*\*\* show the significance at the 1%, 5% and 10% respectively. Both Wald tests are also distributed as χ2 with one degree of freedom. Its critical value at 1%, 5% and 10% level is 6.63, 3.84 and 2.71, respectively.

**Table A2: Diagnostic Statistics Associated with the optimum models.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Bound F** | | | | **Breusch-Godfrey Serial Correlation LM** | | | | **RESET** | | | | **ARCH** | | | |
| **EXPORT** | | **IMPORT** | | **EXPORT** | | **IMPORT** | | **EXPORT** | | **IMPORT** | | **EXPORT** | | **IMPORT** | |
| **Model I: sanctioned entities** | **Model II: sanctioned persons** | **Model I: sanctioned entities** | **Model II: sanctioned persons** | **Model I: sanctioned entities** | **Model II: sanctioned persons** | **Model I: sanctioned entities** | **Model II: sanctioned persons** | **Model I: sanctioned entities** | **Model II: sanctioned persons** | **Model I: sanctioned entities** | **Model II: sanctioned persons** | **Model I: sanctioned entities** | **Model II: sanctioned persons** | **Model I: sanctioned entities** | **Model II: sanctioned persons** |
| **I Live Animals and Products** | 7.34 \* | 8.88 \* | 1.66 | 1.44 | 0.05 | 1.52 | 0.38 | 0.06 | 1.17 | 1.05 | 0.97 | 1.13 | 5.73 \*\* | 1.85 | 1.92 | 0.3 |
| **II Vegetable Products** | 5.14 \* | 3.46 | 5.34 \* | 4.94 \*\* | 0.03 | 2.95 \*\*\* | 0.003 | 0.12 | 4.97 \*\* | 13.72 \* | 0.57 | 0.23 | 25.11 \* | 20.26 \* | 7.43 \* | 8.26 \* |
| **III Animal or Vegetable Fats & Oils** | 7.77 \* | 8.33 \* | 4.16 \*\* | 4.16 \*\* | 0.001 | 0.11 | 0.00005 | 2.27 | 2.01 | 0.14 | 3.47 \*\*\* | 3.58 \*\*\* | 12.40 \* | 10.27 \* | 2.92 \*\*\* | 2.74 |
| **IV Beverages & Tobacco** | 5.67 \* | 3.38 | 3.1 | 2.13 | 0.02 | 0.11 | 0.05 | 0.08 | 8.28 \* | 18.36 \* | 0.65 | 0.004 | 0.57 | 17.45 \* | 0.06 | 0.0001 |
| **V Mineral Products** | 4.05 \*\* | 3.62 \*\*\* | 4.09 \*\* | 1.53 | 0.09 | 0.00009 | 0.19 | 0.03 | 2.41 | 6.60 \*\* | 1.74 | 1.52 | 0.46 | 1.08 | 0.06 | 3.83 \*\*\* |
| **VI Chemical products** | 3.56 \*\*\* | 2.8 | 7.75 \* | 4.41 \*\* | 1.76 | 0.03 | 0.08 | 0.7 | 0.46 | 0.03 | 0.31 | 0.18 | 1.18 | 0.29 | 0.02 | 0.21 |
| **VII Rubber and Plastics** | 5.23 \* | 6.22 \* | 3.32 | 2.63 | 1.32 | 1.21 | 0.13 | 0.003 | 0.58 | 0.17 | 0.06 | 2.06 | 0.07 | 3.68 \*\*\* | 0.02 | 0.008 |
| **VIII Leather and Skins** | 3.47 | 4.02 \*\* | 2.94 | 5.75 \* | 0.33 | 0.38 | 0.13 | 0.002 | 0.91 | 0.74 | 1.07 | 0.06 | 0.07 | 1.14 | 1.77 | 0.76 |
| **IX Wood** | 3.14 | 6.58 \* | 8.95 \* | 7.74 \* | 0.12 | 1.18 | 1.21 | 0.02 | 0.22 | 0.34 | 1.46 | 1.78 | 3.09 \*\*\* | 1.13 | 6.31 \*\* | 0.18 |
| **X Paper & Pulp** | 6.50 \* | 8.74 \* | 3.17 | 3.77 \*\*\* | 0.79 | 0.02 | 0.15 | 2.45 | 0.0002 | 0.12 | 2.62 | 2.82 \*\*\* | 0.18 | 0.33 | 1.19 | 2.27 |
| **XI Textiles** | 10.71 \* | 11.41 \* | 5.61 \* | 5.92 \* | 0.14 | 0.59 | 1.26 | 2.16 | 0.01 | 0.37 | 0.08 | 1.78 | 0.0004 | 0.55 | 5.53 \*\* | 1.44 |
| **XII Footwear** | 3.39 \*\*\* | 3.2 | 1.58 | 1.47 | 0.2 | 0.63 | 0.92 | 0.08 | 0.99 | 0.04 | 0.07 | 0.19 | 3.45 \*\*\* | 0.1 | 0.5 | 0.94 |
| **XIII Glass & Stone** | 8.73 \* | 9.57 \* | 4.46 \*\* | 3.23 | 0.19 | 0.09 | 1.03 | 1.32 | 0.33 | 1.21 | 0.45 | 0.34 | 3.43 \*\*\* | 2.83 \*\*\* | 0.21 | 7.57 \* |
| **XIV Precious Metal & Stones** | 5.54 \* | 9.44 \* | 7.43 \* | 7.67 \* | 0.44 | 0.31 | 0.005 | 1.96 | 2.11 | 1.75 | 0.01 | 0.04 | 0.14 | 0.08 | 0.7 | 1.07 |
| **XV Metal** | 6.04 \* | 6.48 \* | 6.35 \* | 5.78 \* | 0.02 | 0.44 | 4.02 \*\* | 0.22 | 0.17 | 0.59 | 0.38 | 1.11 | 0.005 | 0.27 | 18.39 \* | 0.31 |
| **XVI Machinery** | 6.68 \* | 7.39 \* | 4.95 \*\* | 6.61 \* | 0.03 | 1.02 | 0.002 | 0.04 | 0.94 | 0.93 | 0.1 | 0.61 | 7.50 \* | 0.65 | 0.69 | 0.42 |
| **XVII Transport Equipment** | 6.03 \* | 4.08 \*\* | 5.23 \* | 4.71 \*\* | 0.005 | 0.1 | 0.02 | 0.49 | 2.29 | 3.34 \*\*\* | 2.77 | 2.58 | 0.03 | 0.17 | 3.47 \*\*\* | 24.28 \* |
| **XVIII Optical, Medical, Music Instruments** | 2.85 | 2.01 | 5.32 \* | 4.97 \*\* | 0.002 | 1.13 | 1.03 | 1.02 | 0.0004 | 0.56 | 0.34 | 0.04 | 0.34 | 0.79 | 0.66 | 0.94 |
| **XIX Arms & Ammunition** | 8.56 \* | 4.83 \* | 4.31 \*\* | 4.20 \*\* | 0.01 | 0.06 | 0.17 | 0.0009 | 1.05 | 4.53 \*\* | 0.5 | 0.17 | 2.5 | 4.02 \*\* | 0.13 | 1.12 |
| **XX Furniture, Toys, Misc.** | 4.23 \*\* | 3.43 | 4.46 \*\* | 2.66 | 0.19 | 0.35 | 0.93 | 0.05 | 0.0002 | 0.002 | 11.20 \* | 6.80 \*\* | 0.12 | 0.03 | 1.25 | 0.85 |
| **XXI Art & Antiques** | 8.65 \* | 11.33 \* | 3.56 \*\*\* | 2.74 | 1.85 | 1.12 | 1.72 | 0.51 | 0.21 | 0.48 | 0.04 | 2.04 | 0.02 | 0.01 | 0.03 | 0.08 |
| **XXII Confidential** | 4.78 \*\* | 2.49 | 5.11 \* | 5.12 \* | 0.003 | 1.63 | 0.8 | 1.68 | 2.94 \*\*\* | 9.86 \* | 0.82 | 0.8 | 0.01 | 0.33 | 0.0004 | 0.03 |
| **Total** | 4.44 \*\* | 4.21 \*\* | 5.20 \* | 4.04 \*\* | 0.17 | 0.77 | 0.6 | 0.008 | 0.58 | 1 | 1.86 | 0.84 | 0.39 | 0.32 | 5.56 \*\* | 5.49 \*\* |

Notes:

1. \*, \*\*, and \*\*\* show the significance at the 1%, 5% and 10% respectively.
2. LM is Lagrange Multiplier test of residual serial correlation. It is distributed as χ2 with one degree of freedom (first order). Its critical value at 1%, 5% and 10% level is 6.63, 3.84 and 2.71, respectively.
3. The F test due to Pesaran et al. (2001) is denoted by FPSS. At the 1%, 5% and 10% significance level when there are three exogenous variables (asymmetry in the long-run), its critical value is 4.68, 3.79 and 3.35. And for symmetric models aforementioned critical vales are 5.06, 4.01 and 3.52 respectively. This comes from Pesaran et al. (2001, Table CI-Case III, page 300)

Table A3– The impact of the sanctions on the exports of the EU28 to Iran (most fitted models)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sector** | **Model I: sanctioned entities** | | | | | | | | | | **Model II: sanctioned persons** | | | | | | | | | |
|  | **Lags on** | | | |  | **Lags on** | | | |  | **Lags on** | | | |  | **Lags on** | | | |
| **0** | **1** | **2** | **3** | **0** | **1** | **2** | **3** | **0** | **1** | **2** | **3** | **0** | **1** | **2** | **3** |
| **I Live Animals and Products** | 0.004 | 0.02\*\* |  |  |  | -0.04 | -0.10 |  |  |  | -0.02\* | 0.004 |  |  |  | -0.05 | -0.06 |  |  |  |
| **II Vegetable Products** | -0.002 | -0.05\* |  |  |  | 0.44\* | 0.19 | -0.35\*\* |  |  | 0.02\*\*\* | -0.06\*\* | -0.07\*\* | -0.07\*\*\* | -0.07\*\* | 0.30\* | 0.20 | -0.34\*\*\* |  |  |
| **III Animal or Vegetable Fats & Oils** | -0.002 | -0.005 |  |  |  | 0.13\*\* | 0.10 | -0.09 | -0.17\*\*\* | -0.24\* | 0.02 | -0.03\*\*\* | -0.04\*\*\* | -0.04\*\*\* | -0.05\*\* | 0.13\*\* | 0.05 | -0.15 | -0.10 | -0.20\*\* |
| **IV Beverages & Tobacco** | -0.009\* | 0.003 | 0.006 | 0.01\*\* | 0.008\*\*\* | -0.0006 | -0.03 |  |  |  | -0.02\* | -0.01\*\*\* |  |  |  | -0.08\* | -0.06 |  |  |  |
| **V Mineral Products** | -0.02\* | -0.01 |  |  |  | -0.10 | 0.02 |  |  |  | -0.12\* | -0.01 | 0.05\*\* | 0.06\*\* | 0.06\*\* | -0.64\* | -0.0008 | 0.31\*\* |  |  |
| **VI Chemical products** | -0.006\* | 0.004\*\*\* | -0.002 | 0.008\* | 0.003\*\*\* | 0.01 | -0.007 | 0.06\* | -0.03 |  | -0.009\* | -0.006\*\* |  |  |  | -0.06\* | -0.01 | 0.07\* |  |  |
| **VII Rubber and Plastics** | -0.006\* | 0.002 | 0.0008 | 0.006\*\* |  | -0.12\* | 0.002 |  |  |  | -0.02\* | -0.01\* |  |  |  | -0.22\* | -0.01 |  |  |  |
| **VIII Leather and Skins** | -0.004 | 0.009 |  |  |  | -0.02 | -0.06 |  |  |  | -0.23\* | 0.0009 | 0.02 | 0.04\* | 0.03\*\* | -0.43\* | -0.05 |  |  |  |
| **IX Wood** | -0.008\*\* | 0.007 | 0.004 | 0.01\*\*\* |  | 0.11 | 0.01 | -0.03 | -0.12\*\*\* |  | -0.03\* | -0.02\*\* |  |  |  | -0.03 | -0.02 |  |  |  |
| **X Paper & Pulp** | -0.005\* | 0.005\*\*\* | -0.003 | 0.008\* | 0.004 | -0.08\*\* | -0.02 |  |  |  | -0.02\* | -0.004 |  |  |  | -0.18\* | -0.06\*\*\* |  |  |  |
| **XI Textiles** | 0.0001 | 0.009\*\* | 0.0005 | 0.009\*\* |  | -0.03\*\* | 0.010 |  |  |  | -0.01\* | 0.005 | 0.007 | 0.01\*\* |  | -0.06\* | 0.02 | 0.02 | 0.07\*\*\* |  |
| **XII Footwear** | -0.02\*\* | -0.003 | 0.02\*\* | 0.006 | 0.02\*\* | 0.002 | 0.008 |  |  |  | -0.08\* | -0.01 | 0.02 | 0.04\* | 0.06\* | -0.23\* | 0.006 | 0.18\*\* |  |  |
| **XIII Glass & Stone** | -0.005\* | 0.006\*\* | 0.002 | 0.01\* |  | -0.03\*\*\* | -0.06\*\*\* |  |  |  | -0.01\* | -0.0003 | -0.003 | 0.008 |  | -0.08\* | -0.06\*\*\* |  |  |  |
| **XIV Precious Metal & Stones** | -0.01\* | -0.002 | 0.02 | 0.03\*\* |  | -0.07 | 0.08 |  |  |  | -0.04\* | -0.0007 | 0.06\*\* | 0.11\* | 0.08\* | -0.16\* | 0.07 |  |  |  |
| **XV Metal** | 0.004 | -0.005 | -0.007 |  |  | -0.15\* | -0.06 |  |  |  | -0.010\*\*\* | -0.01\*\*\* |  |  |  | -0.18\* | -0.05 | 0.09\*\*\* |  |  |
| **XVI Machinery** | -0.003\*\* | 0.003\*\*\* |  |  |  | -0.15\* | -0.03 |  |  |  | -0.008\*\* | -0.002 |  |  |  | -0.19\* | -0.03 |  |  |  |
| **XVII Transport Equipment** | -0.005 | 0.008 |  |  |  | -0.32\* | -0.04 |  |  |  | -0.02\*\* | 0.005 |  |  |  | -0.37\* | -0.04 |  |  |  |
| **XVIII Optical, Medical, Music Instruments** | -0.006 | 0.0003 | -0.003 | 0.003 | -0.003 | 0.04 | 0.003 | -0.03 | -0.03 |  | -0.04\* | -0.003 | 0.007\*\*\* | 0.007\*\*\* |  | -0.13\* | -0.006 |  |  |  |
| **XIX Arms & Ammunition** | -0.008 | 0.02 |  |  |  | -0.68\*\* | 0.02 |  |  |  | -0.03 | -0.05 |  |  |  | -0.80\* | 0.02 |  |  |  |
| **XX Furniture, Toys, Misc.** | -0.003 | 0.001 |  |  |  | 0.01 | -0.04 | -0.05 | -0.08\*\* | -0.11\* | -0.02\* | -0.01\* |  |  |  | -0.16\* | -0.05 |  |  |  |
| **XXI Art & Antiques** | 0.004\*\*\* | 0.008 |  |  |  | 0.06 | -0.22 |  |  |  | -0.01 | -0.02 |  |  |  | 0.05 | -0.16 |  |  |  |
| **XXII Confidential** | -0.007 | 0.01 |  |  |  | 0.03 | -0.18 | 0.12 | -0.17 | -0.24\*\*\* | -0.006 | -0.01 | -0.05\*\* | -0.01 | -0.10\* | 0.005 | -0.11 |  |  |  |
| **Total** | -0.003\*\* | 0.001 |  |  |  | -0.09\* | -0.02 |  |  |  | -0.009\* | -0.004\*\*\* |  |  |  | -0.13\* | -0.03 |  |  |  |

Notes: \*, \*\*, and \*\*\* show the significance at the 1%, 5% and 10% respectively. The critical values of standard t-distribution, i.e., 2.63, 1.99, and 1.66 are used to arrive at \*, \*\*, and \*\*\*, respectively. The long-run coefficients were normalised.

Table A4 – The impact of the sanctions on the imports of the EU28 from Iran (most fitted models)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sector** | **Model I: sanctioned entities** | | | | | | | | | | **Model II: sanctioned persons** | | | | | | | | | |
|  | **Lags on** | | | |  | **Lags on** | | | |  | **Lags on** | | | |  | **Lags on** | | | |
| **0** | **1** | **2** | **3** | **0** | **1** | **2** | **3** |  | **0** | **1** | **2** | **3** |  | **0** | **1** | **2** | **3** |
| **I Live Animals and Products** | 0.010\* | 0.003 | -0.005\*\*\* | -0.006\*\*\* |  | -0.07\* | -0.07\*\* | 0.05 | 0.010 | 0.05 | 0.01\*\* | -0.003 | -0.009\*\*\* |  |  | -0.007 | 0.004 | 0.05 | 0.01 | 0.07\*\* |
| **II Vegetable Products** | 0.0009\*\*\* | 0.0006 |  |  |  | -0.009 | -0.03 | -0.03\*\*\* | -0.03\*\*\* | -0.04\*\* | 0.002 | 0.0004 |  |  |  | 0.01 | -0.02 | -0.04\*\*\* | -0.04\*\*\* | -0.05\*\* |
| **III Animal or Vegetable Fats & Oils** | 0.003 | 0.010 | 0.0009 | -0.008 | -0.08\*\* | 0.35\*\*\* | -0.007 |  |  |  | 0.14\* | 0.08\*\*\* | -0.19\* | -0.15\*\* | -0.25\* | 0.55\* | -0.08 |  |  |  |
| **IV Beverages & Tobacco** | 0.02\* | 0.008 | -0.01\*\*\* | -0.009 |  | -0.10\*\* | -0.07 |  |  |  | 0.03\* | 0.01 | -0.04\*\* |  |  | 0.05 | 0.02 |  |  |  |
| **V Mineral Products** | 0.008 | 0.04\*\* |  |  |  | -0.37\* | -0.03 | 0.01 | -0.56\*\* |  | -0.06\*\* | -0.03 |  |  |  | -1.25\* | 0.17 |  |  |  |
| **VI Chemical products** | -0.01\* | 0.02\*\* |  |  |  | 0.08\*\*\* | -0.02 | 0.15 |  |  | -0.05\* | -0.004 |  |  |  | -0.12 | -0.03 | 0.17 |  |  |
| **VII Rubber and Plastics** | -0.02\* | 0.01 | 0.02\*\* | 0.02 |  | 0.01 | 0.05 |  |  |  | -0.04 | 0.01 |  |  |  | -0.22 | 0.06 |  |  |  |
| **VIII Leather and Skins** | 0.0010 | 0.006\*\*\* |  |  |  | 0.03\*\*\* | -0.006 | -0.09\*\* |  |  | -0.007 | 0.006 |  |  |  | 0.10\*\* | 0.009 | -0.08\*\* |  |  |
| **IX Wood** | -0.005 | 0.008 |  |  |  | -0.14 | -0.23 | 0.49\*\*\* |  |  | -0.006 | -0.05 | 0.01 | -0.09\*\*\* | 0.08 | -0.18\*\* | -0.49\*\*\* | 0.73\*\* | -0.18 | 0.53\*\*\* |
| **X Paper & Pulp** | 0.01\*\* | -0.02 |  |  |  | -0.22\* | -0.08 |  |  |  | 0.006 | 0.03 | 0.06\*\* | 0.03 | 0.09\* | -0.26\* | -0.18 |  |  |  |
| **XI Textiles** | 0.001 | -0.004 | -0.0009 | -0.002 | -0.005\*\* | -0.06\* | -0.008 | 0.006 | 0.04\*\*\* | 0.03 | 0.01\*\* | 0.006\*\* |  |  |  | -0.11\* | -0.01 |  |  |  |
| **XII Footwear** | -0.002 | -0.02 |  |  |  | -0.12 | 0.20 | -0.36 | 0.46 | 0.63\*\* | 0.03 | 0.01 |  |  |  | -0.67 | 0.12 | -0.29 | 0.49 | 0.66\*\* |
| **XIII Glass & Stone** | 0.002 | -0.003 | -0.004 | -0.007 | -0.008\*\*\* | -0.16\* | 0.001 | 0.15\* | 0.12\*\* |  | 0.01\*\* | 0.02\*\* | 0.01 |  |  | -0.20\* | -0.02 | 0.08\*\*\* | 0.02 | -0.10\*\* |
| **XIV Precious Metal & Stones** | -0.01\*\*\* | -0.007 | 0.04 |  |  | -0.15 | 0.13 |  |  |  | 0.01 | 0.04 | 0.10\*\* |  |  | -0.17 | 0.07 |  |  |  |
| **XV Metal** | -0.010\* | -0.02\*\* |  |  |  | 0.15\* | 0.05 |  |  |  | -0.02\*\*\* | 0.003 |  |  |  | 0.04 | -0.05 |  |  |  |
| **XVI Machinery** | -0.003\* | -0.001 | 0.007 |  |  | -0.005 | 0.02 | -0.09 | -0.26\* |  | -0.03\* | -0.004 | 0.01\*\*\* |  |  | -0.11 | 0.003 | -0.07 | -0.27\* |  |
| **XVII Transport Equipment** | -0.008\* | -0.01 |  |  |  | -0.02 | 0.04 |  |  |  | 0.010 | -0.007 |  |  |  | -0.03 | -0.02 |  |  |  |
| **XVIII Optical, Medical, Music Instruments** | -0.01\*\* | -0.02\*\* | -0.002 | -0.00006 | -0.02\*\* | -0.17\* | -0.12 | 0.14 | 0.26\*\* | 0.29\* | 0.008 | -0.04\*\* | -0.009 | -0.03 | -0.06\*\* | -0.26\* | -0.25\*\* | 0.08 | 0.26\*\* | 0.23\*\*\* |
| **XIX Arms & Ammunition** | -0.07\*\* | -0.08 | 0.09 | -0.07 |  | -1.16\* | -0.84 | 1.08 | 1.42\*\* | 1.22\*\*\* | 0.03 | 0.06 | -0.30\*\* | -0.11 | -0.24\*\*\* | -1.25\* | -1.12 | 0.98 | 0.93 | 1.59\*\* |
| **XX Furniture, Toys, Misc.** | 0.009\*\* | 0.003 | -0.02\* | -0.01\*\*\* |  | -0.13\* | 0.04 | 0.28\* | -0.17\*\*\* |  | 0.007 | -0.03\*\* |  |  |  | -0.24\*\* | 0.06 | 0.21\*\* | -0.19\*\* |  |
| **XXI Art & Antiques** | -0.01\* | 0.03\*\* | 0.04\* | -0.004 | 0.03\*\* | 0.14\*\*\* | -0.10 |  |  |  | -0.08\* | -0.03 | 0.03 | 0.006 | 0.07\*\* | -0.06 | -0.05 |  |  |  |
| **XXII Confidential** | 0.0006 | -0.003 |  |  |  | -0.18\* | 0.01 |  |  |  | 0.008 | 0.0001 |  |  |  | -0.17\* | 0.02 |  |  |  |
| **Total** | -0.004\*\* | 0.02\* | 0.01 |  |  | -0.47\* | -0.007 | 0.15 | -0.14 |  | -0.04\* | 0.002 |  |  |  | -0.55\* | 0.04 | 0.12 | -0.17\*\*\* |  |

Notes: \*, \*\*, and \*\*\* show the significance at the 1%, 5% and 10% respectively. The critical values of standard t-distribution, i.e., 2.63, 1.99, and 1.66 are used to arrive at \*, \*\*, and \*\*\*, respectively. The long-run coefficients were normalised.

Table A5 – The gravity model of exports from member states of the EU to Iran during the period 1999Q2–2018Q4 – sanctioned entities

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Total** | **I** | **II** | **III** | **IV** | **V** | **VI** | **VII** | **VIII** | **IX** | **X** | **XI** | **XII** | **XIII** | **XIV** | **XV** | **XVI** | **XVII** | **XVIII** | **XIX** | **XX** | **XXI** | **XXII** |
|  | 1.22\*\*\* | 0.86\*\*\* | 0.71\*\*\* | 0.77\*\*\* | 0.86\*\*\* | 0.75\*\*\* | 0.99\*\*\* | 1.17\*\*\* | 1.52\*\*\* | 0.76\*\*\* | 0.75\*\*\* | 2.08\*\*\* | 1.72\*\*\* | 1.29\*\*\* | 2.11\*\*\* | 1.44\*\*\* | 1.44\*\*\* | 1.41\*\*\* | 1.14\*\*\* | 1.05\*\*\* | 1.30\*\*\* | 1.35\*\*\* | 0.46\*\*\* |
|  | (0.045) | (0.069) | (0.15) | (0.063) | (0.062) | (0.074) | (0.044) | (0.059) | (0.11) | -0.062 | (0.051) | (0.14) | (0.12) | (0.064) | (0.20) | (0.074) | (0.053) | (0.065) | (0.065) | -0.27 | (0.062) | (0.13) | (0.058) |
|  | 2.06\*\*\* | 2.57\*\*\* | -1.75 | 2.74\*\*\* | 2.92\*\*\* | 5.34\*\*\* | 1.53\*\*\* | 2.67\*\*\* | 4.73\*\*\* | 5.27\*\*\* | 1.77\*\*\* | 2.63\*\*\* | 3.30\*\*\* | 2.11\*\*\* | 2.11\*\*\* | 2.93\*\*\* | 2.02\*\*\* | 2.99\*\*\* | 1.75\*\*\* | 1.14 | 3.41\*\*\* | 3.64\*\*\* | 2.13\*\* |
|  | (0.34) | (0.72) | (1.13) | (0.93) | (0.60) | (0.82) | (0.37) | (0.37) | (0.99) | -0.8 | (0.43) | (0.69) | (0.91) | (0.39) | (0.62) | (0.45) | (0.37) | (0.45) | (0.51) | -0.79 | (0.44) | (1.07) | (0.94) |
|  | -1.72\*\*\* | 2.16\*\*\* | -1.93\*\*\* | 1.88 | 0.25 | 0.94\*\*\* | -0.20 | -1.01\*\*\* | -4.08\*\*\* | -0.88\*\*\* | -0.80\*\*\* | -3.11\*\*\* | -6.37\*\*\* | -2.88\*\*\* | -3.33\*\*\* | -1.23\*\*\* | -3.31\*\*\* | -0.55 | -0.80\*\*\* | 1.03 | -2.18\*\*\* | 2.16\*\*\* | 3.15\*\*\* |
|  | (0.24) | (0.29) | (0.31) | (1.39) | (0.31) | (0.32) | (0.22) | (0.26) | (0.83) | -0.31 | (0.22) | (0.44) | (0.75) | (0.29) | (0.56) | (0.34) | (0.33) | (0.61) | (0.27) | -2 | (0.37) | (0.62) | (0.34) |
|  | 0.079\*\* | 0.10 | 0.22\*\*\* | -0.015 | 0.24\*\*\* | 0.50\*\*\* | 0.15\*\*\* | 0.053 | 0.51\*\*\* | 0.73\*\*\* | 0.21\*\*\* | -0.038 | 0.49\*\*\* | -0.10\*\* | -0.22 | 0.074 | 0.046 | -0.27\*\*\* | 0.24\*\*\* | 0.24 | 0.0074 | -0.079 | 0.40\*\*\* |
|  | (0.040) | (0.080) | (0.068) | (0.097) | (0.048) | (0.12) | (0.040) | (0.046) | (0.094) | -0.056 | (0.048) | (0.12) | (0.093) | (0.045) | (0.18) | (0.058) | (0.048) | (0.071) | (0.061) | -0.4 | (0.065) | (0.19) | (0.11) |
|  | -0.058\* | 0.0093 | 0.20\*\*\* | 0.099 | -0.066 | -0.43\*\*\* | -0.044 | -0.043 | -0.076 | 0.14\*\*\* | -0.021 | 0.0052 | -0.077 | -0.054 | -0.050 | 0.0094 | -0.075\* | -0.21\*\*\* | -0.070 | -0.091 | -0.10\*\*\* | 0.15 | -0.080 |
|  | (0.034) | (0.048) | (0.077) | (0.080) | (0.043) | (0.15) | (0.034) | (0.039) | (0.059) | -0.048 | (0.043) | (0.057) | (0.060) | (0.041) | (0.097) | (0.049) | (0.040) | (0.062) | (0.044) | -0.11 | (0.039) | (0.10) | (0.11) |
|  | -0.0058\*\*\* | -0.0039\*\* | 0.011\*\*\* | 0.0033 | 0.0016 | -0.014\*\*\* | 0.00018 | -0.0082\*\*\* | -0.0029 | -0.0095\*\*\* | -0.0047\*\*\* | -0.0052\*\* | -0.00011 | -0.0058\*\*\* | -0.0094\*\*\* | -0.014\*\*\* | -0.0069\*\*\* | -0.012\*\*\* | 0.00041 | -0.0085\*\*\* | -0.0020 | -0.0067\* | -0.0045 |
|  | (0.0012) | (0.0020) | (0.0040) | (0.0030) | (0.0018) | (0.0035) | (0.0013) | (0.0013) | (0.0026) | -0.0022 | (0.0015) | (0.0023) | (0.0027) | (0.0014) | (0.0028) | (0.0017) | (0.0014) | (0.0016) | (0.0018) | -0.0024 | (0.0014) | (0.0037) | (0.0035) |
|  | 0.59\*\*\* | 0.59\* | 1.07\* | 7.86\*\*\* | -0.042 | -1.14\*\* | 0.65\*\*\* | 0.63\*\*\* | 0.52 | -0.57\* | 1.39\*\*\* | -0.30 | -0.80\*\* | 0.57\*\*\* | 3.13\*\*\* | -1.09\*\*\* | 1.04\*\*\* | 0.91\*\*\* | 1.30\*\*\* | 2.78\*\*\* | 1.32\*\*\* | 0.41 | 1.04\*\* |
|  | (0.15) | (0.32) | (0.60) | (0.59) | (0.32) | (0.48) | (0.18) | (0.24) | (0.66) | -0.33 | (0.21) | (0.31) | (0.34) | (0.22) | (0.63) | (0.23) | (0.21) | (0.32) | (0.21) | -1.03 | (0.21) | (0.77) | (0.49) |
| **Constant** | -5.75 | -45.0\*\*\* | 38.7\*\*\* | -51.4\*\*\* | -33.1\*\*\* | -65.9\*\*\* | -12.6\*\*\* | -21.0\*\*\* | -33.7\*\*\* | -55.6\*\*\* | -10.5\*\* | -14.1 | 1.05 | -0.066 | -11.4 | -22.9\*\*\* | 4.12 | -26.8\*\*\* | -14.6\*\* | -28.4 | -23.8\*\*\* | -65.9\*\*\* | -45.9\*\*\* |
|  | (4.24) | (8.62) | (12.6) | (13.3) | (7.57) | (10.5) | (4.55) | (4.81) | (11.4) | -9.52 | (5.32) | (8.62) | (10.2) | (4.82) | (7.84) | (5.86) | (4.76) | (7.69) | (6.04) | -21.2 | (5.52) | (13.4) | (10.2) |
| **Nr. Obs.** | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 |
| **Pseudo R-sq.** | 0.729 | 0.448 | 0.297 | 0.395 | 0.564 | 0.382 | 0.658 | 0.674 | 0.686 | 0.497 | 0.447 | 0.733 | 0.665 | 0.611 | 0.628 | 0.727 | 0.743 | 0.565 | 0.644 | 0.369 | 0.700 | 0.455 | 0.261 |
| Robust standard errors in parentheses; \* p<0.1, \*\* p<0.05, \*\*\* p<0.01  Note: the first column is the estimation on total bilateral exports, and other columns are the estimated models on bilateral exports of each HS section. | | | | | | | | | | | | | | | | | | | | | | | |

Table A6 – The gravity model of exports from member states of the EU to Iran during the period 1999Q2–2018Q4 – sanctioned natural persons

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Total** | **I** | **II** | **III** | **IV** | **V** | **VI** | **VII** | **VIII** | **IX** | **X** | **XI** | **XII** | **XIII** | **XIV** | **XV** | **XVI** | **XVII** | **XVIII** | **XIX** | **XX** | **XXI** | **XXII** |
|  | 1.22\*\*\* | 0.86\*\*\* | 0.72\*\*\* | 0.77 | 0.86\*\*\* | 0.75\*\*\* | 0.99\*\*\* | 1.17\*\*\* | 1.53\*\*\* | 0.76\*\*\* | 0.75\*\*\* | 2.07\*\*\* | 1.73\*\*\* | 1.29\*\*\* | 2.09\*\*\* | 1.44\*\*\* | 1.44\*\*\* | 1.42\*\*\* | 1.15\*\*\* | 1.06\*\*\* | 1.31\*\*\* | 1.34\*\*\* | 0.46\*\*\* |
|  | (0.045) | (0.069) | (0.15) | (.) | (0.062) | (0.074) | (0.045) | (0.059) | (0.11) | -0.061 | (0.051) | (0.14) | (0.12) | (0.064) | (0.20) | (0.075) | (0.052) | (0.065) | (0.064) | -0.28 | (0.062) | (0.13) | (0.059) |
|  | 2.24\*\*\* | 3.02\*\*\* | -0.93 | 2.88 | 3.64\*\*\* | 5.87\*\*\* | 1.78\*\*\* | 2.94\*\*\* | 5.74\*\*\* | 5.94\*\*\* | 2.07\*\*\* | 2.75\*\*\* | 4.14\*\*\* | 2.30\*\*\* | 2.16\*\*\* | 3.34\*\*\* | 2.14\*\*\* | 3.51\*\*\* | 2.12\*\*\* | 1.75\*\* | 3.99\*\*\* | 3.85\*\*\* | 2.86\*\*\* |
|  | (0.37) | (0.77) | (0.93) | (.) | (0.67) | (0.91) | (0.40) | (0.42) | (0.95) | -0.82 | (0.45) | (0.74) | (0.96) | (0.43) | (0.81) | (0.50) | (0.43) | (0.49) | (0.54) | -0.85 | (0.51) | (1.09) | (1.02) |
|  | -1.73\*\*\* | 2.18\*\*\* | -1.91\*\*\* | 1.90 | 0.27 | 0.92\*\*\* | -0.18 | -1.02\*\*\* | -4.08\*\*\* | -0.89\*\*\* | -0.80\*\*\* | -3.12\*\*\* | -6.39\*\*\* | -2.89\*\*\* | -3.35\*\*\* | -1.24\*\*\* | -3.32\*\*\* | -0.54 | -0.78\*\*\* | 1.07 | -2.18\*\*\* | 2.14\*\*\* | 3.18\*\*\* |
|  | (0.24) | (0.29) | (0.31) | (.) | (0.31) | (0.32) | (0.22) | (0.26) | (0.82) | -0.31 | (0.22) | (0.44) | (0.75) | (0.29) | (0.56) | (0.34) | (0.32) | (0.61) | (0.27) | -2.02 | (0.37) | (0.62) | (0.34) |
|  | 0.082\*\* | 0.090 | 0.19\*\*\* | -0.023 | 0.22\*\*\* | 0.52\*\*\* | 0.14\*\*\* | 0.057 | 0.49\*\*\* | 0.75\*\*\* | 0.21\*\*\* | -0.024 | 0.45\*\*\* | -0.10\*\* | -0.19 | 0.080 | 0.055 | -0.28\*\*\* | 0.22\*\*\* | 0.2 | -0.0053 | -0.067 | 0.37\*\*\* |
|  | (0.040) | (0.079) | (0.065) | (.) | (0.047) | (0.13) | (0.040) | (0.047) | (0.097) | -0.057 | (0.048) | (0.12) | (0.094) | (0.046) | (0.18) | (0.057) | (0.049) | (0.070) | (0.059) | -0.39 | (0.063) | (0.18) | (0.11) |
|  | -0.13\*\*\* | -0.040 | 0.33\*\*\* | 0.14 | -0.055 | -0.57\*\*\* | -0.045 | -0.14\*\*\* | -0.12\*\* | 0.025 | -0.077\* | -0.056 | -0.090\* | -0.12\*\*\* | -0.16\* | -0.15\*\*\* | -0.15\*\*\* | -0.35\*\*\* | -0.070\* | -0.18\* | -0.13\*\*\* | 0.073 | -0.14 |
|  | (0.032) | (0.043) | (0.070) | (.) | (0.037) | (0.14) | (0.030) | (0.035) | (0.049) | -0.041 | (0.040) | (0.052) | (0.053) | (0.036) | (0.083) | (0.048) | (0.037) | (0.060) | (0.039) | -0.11 | (0.035) | (0.096) | (0.10) |
|  | -0.014\*\*\* | -0.012\*\* | 0.015\*\*\* | 0.0059 | -0.0014 | -0.032\*\*\* | -0.0016 | -0.020\*\*\* | -0.012\*\*\* | -0.025\*\*\* | -0.012\*\*\* | -0.012\*\* | -0.0058 | -0.014\*\*\* | -0.020\*\* | -0.034\*\*\* | -0.015\*\*\* | -0.030\*\*\* | -0.0019 | -0.024\*\*\* | -0.0082\*\*\* | -0.016\* | -0.015\*\* |
|  | (0.0030) | (0.0046) | (0.0050) | (.) | (0.0039) | (0.010) | (0.0029) | (0.0034) | (0.0047) | -0.0047 | (0.0033) | (0.0054) | (0.0054) | (0.0033) | (0.0092) | (0.0045) | (0.0038) | (0.0044) | (0.0037) | -0.0061 | (0.0031) | (0.0082) | (0.0071) |
|  | 0.61\*\*\* | 0.61\* | 1.05\* | 7.85 | -0.024 | -1.09\*\* | 0.66\*\*\* | 0.66\*\*\* | 0.52 | -0.53 | 1.41\*\*\* | -0.30 | -0.81\*\* | 0.59\*\*\* | 3.13\*\*\* | -1.05\*\*\* | 1.05\*\*\* | 0.93\*\*\* | 1.31\*\*\* | 2.83\*\*\* | 1.33\*\*\* | 0.42 | 1.09\*\* |
|  | (0.15) | (0.32) | (0.60) | (.) | (0.32) | (0.50) | (0.18) | (0.23) | (0.66) | -0.33 | (0.21) | (0.31) | (0.35) | (0.21) | (0.64) | (0.23) | (0.21) | (0.32) | (0.21) | -1.04 | (0.21) | (0.77) | (0.49) |
| **Constant** | -7.79\* | -50.2\*\*\* | 29.6\*\*\* | -53.1 | -41.2\*\*\* | -72.0\*\*\* | -15.4\*\*\* | -24.0\*\*\* | -45.1\*\*\* | -63.2\*\*\* | -13.8\*\* | -15.6\* | -7.99 | -2.11 | -11.9 | -27.5\*\*\* | 2.81 | -32.7\*\*\* | -18.7\*\*\* | -35.4\* | -30.3\*\*\* | -68.1\*\*\* | -54.2\*\*\* |
|  | (4.55) | (9.14) | (10.4) | (.) | (8.19) | (11.4) | (4.86) | (5.39) | (11.0) | -9.78 | (5.59) | (9.12) | (10.9) | (5.19) | (9.56) | (6.37) | (5.32) | (8.21) | (6.37) | -21.4 | (6.33) | (13.7) | (11.0) |
| **Nr. Obs.** | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 |
| **Pseudo R-sq.** | 0.732 | 0.453 | 0.289 | 0.395 | 0.563 | 0.387 | 0.658 | 0.678 | 0.693 | 0.509 | 0.451 | 0.735 | 0.667 | 0.613 | 0.626 | 0.728 | 0.743 | 0.573 | 0.645 | 0.376 | 0.704 | 0.457 | 0.267 |
| Robust standard errors in parentheses; \* p<0.1, \*\* p<0.05, \*\*\* p<0.01  Note: the first column is the estimation on total bilateral exports, and other columns are the estimated models on bilateral exports of each HS section. | | | | | | | | | | | | | | | | | | | | | | | |

Table A7 – The gravity model of imports from Iran to member states of the EU during the period 1999Q2–2018Q4 – sanctioned entities

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Total** | **I** | **II** | **III** | **IV** | **V** | **VI** | **VII** | **VIII** | **IX** | **X** | **XI** | **XII** | **XIII** | **XIV** | **XV** | **XVI** | **XVII** | **XVIII** | **XIX** | **XX** | **XXI** | **XXII** |
|  | 1.03\*\*\* | 2.15\*\*\* | 1.21\*\*\* | 1.08\*\*\* | 1.19\*\*\* | 1.04\*\*\* | 0.72\*\*\* | 0.25\*\*\* | 4.95\*\*\* | 0.74\*\*\* | 1.60\*\*\* | 1.90\*\*\* | 2.57\*\*\* | 0.77\*\*\* | 5.67\*\*\* | 0.89\*\*\* | 1.09\*\*\* | 1.36\*\*\* | 0.73\*\*\* | 5.08\*\*\* | 1.15\*\*\* | 1.47\*\*\* | 2.03\*\*\* |
|  | (0.047) | (0.17) | (0.064) | (0.15) | (0.074) | (0.053) | (0.052) | (0.031) | (0.69) | -0.18 | (0.16) | (0.14) | (0.30) | (0.071) | (1.02) | (0.079) | (0.065) | (0.13) | (0.057) | -1.11 | (0.084) | (0.21) | (0.63) |
|  | 2.99\*\*\* | -0.29 | 0.72\* | 2.46 | -1.38\*\*\* | 3.35\*\*\* | 6.40\*\*\* | 10.6\*\*\* | -0.70 | 1.4 | 2.18 | -1.12\*\* | -1.55 | 1.92\*\*\* | 4.11 | 2.54\*\*\* | 2.53\*\*\* | -0.085 | 0.25 | 0.58 | -0.32 | 1.73 | 3.66\*\*\* |
|  | (0.50) | (0.58) | (0.43) | (1.99) | (0.43) | (0.56) | (0.90) | (3.20) | (0.76) | -1.29 | (1.45) | (0.49) | (1.05) | (0.63) | (2.65) | (0.86) | (0.44) | (0.91) | (0.65) | -1.17 | (0.53) | (1.12) | (0.96) |
|  | 0.29 | 1.71 | 1.00\*\* | 1.82 | -0.85\*\* | 0.54 | -0.23 | 0.93\*\* | -25.0\*\*\* | -1.64 | -4.21\*\*\* | -4.09\*\*\* | 0.83 | -3.49\*\*\* | -7.46\*\*\* | -1.61\*\* | -0.30 | 0.36 | 0.88\*\*\* | -26.2\*\*\* | -2.71\*\*\* | -0.60 | -0.88 |
|  | (0.57) | (1.06) | (0.40) | (2.04) | (0.37) | (0.64) | (0.48) | (0.38) | (3.79) | -1.26 | (1.34) | (0.45) | (1.12) | (0.36) | (1.60) | (0.63) | (0.38) | (1.11) | (0.28) | -6.32 | (0.37) | (0.88) | (0.93) |
|  | 0.19\*\*\* | -0.38\*\* | -0.042 | -0.32\* | -0.012 | 0.18\*\* | 0.36\*\*\* | 0.55\*\*\* | -0.47 | 0.27\*\* | 0.16 | -0.23\* | -0.62\*\*\* | 0.061\* | -0.84\* | 0.87\*\*\* | 0.15\*\*\* | 0.13 | 0.32\*\*\* | 0.82\*\*\* | -0.25\*\*\* | -0.28 | -0.30 |
|  | (0.065) | (0.16) | (0.046) | (0.18) | (0.058) | (0.075) | (0.059) | (0.066) | (0.30) | -0.11 | (0.15) | (0.13) | (0.18) | (0.035) | (0.44) | (0.11) | (0.058) | (0.18) | (0.13) | -0.32 | (0.073) | (0.18) | (0.30) |
|  | -0.094 | -0.0084 | -0.059 | 0.14 | -0.055 | -0.11 | 0.15\*\*\* | 0.24\* | 0.12 | 0.29\*\*\* | -0.61\*\*\* | -0.075 | 0.19\*\* | -0.30\*\*\* | -0.10 | -0.082 | -0.051 | -0.014 | -0.13\* | -0.31\*\* | -0.22\*\*\* | -0.016 | -0.15 |
|  | (0.058) | (0.075) | (0.048) | (0.15) | (0.055) | (0.070) | (0.052) | (0.14) | (0.087) | -0.1 | (0.11) | (0.052) | (0.091) | (0.048) | (0.15) | (0.073) | (0.045) | (0.066) | (0.067) | -0.15 | (0.083) | (0.094) | (0.089) |
|  | -0.0096\*\*\* | -0.0013 | 0.00053 | 0.0043 | -0.0014 | -0.011\*\*\* | -0.017\*\*\* | -0.012\* | -0.0082\*\*\* | -0.0090\*\*\* | -0.0013 | -0.0075\*\*\* | -0.010\*\*\* | -0.0029 | -0.011 | -0.0033 | -0.0078\*\*\* | -0.0084\*\*\* | -0.0086\*\*\* | -0.0019 | -0.00072 | -0.0032 | -0.010\*\*\* |
|  | (0.0017) | (0.0024) | (0.0017) | (0.0087) | (0.0018) | (0.0019) | (0.0025) | (0.0061) | (0.0032) | -0.0035 | (0.0067) | (0.0018) | (0.0036) | (0.0022) | (0.0092) | (0.0031) | (0.0016) | (0.0026) | (0.0024) | -0.0046 | (0.0020) | (0.0040) | (0.0034) |
|  | 0.83\*\*\* | 0.46 | -1.34\*\*\* | -3.18\*\*\* | -0.75\*\*\* | 1.38\*\*\* | -0.54\* | 0.55\* | 1.07\*\* | 0.49 | -1.24\*\*\* | 1.13\*\*\* | -3.00\*\*\* | 0.55 | -3.29 | 1.87\*\*\* | -0.82\*\*\* | -2.67\*\*\* | 1.53\*\*\* | 4.86\*\*\* | 0.17 | 0.12 | 0.98 |
|  | (0.28) | (0.48) | (0.17) | (1.16) | (0.21) | (0.52) | (0.31) | (0.28) | (0.43) | -0.42 | (0.36) | (0.23) | (0.54) | (0.34) | (2.26) | (0.25) | (0.18) | (1.01) | (0.28) | -1.09 | (0.26) | (0.94) | (0.78) |
| **Constant** | -32.0\*\*\* | -19.9\*\* | -13.5\*\* | -44.7 | 23.0\*\*\* | -38.8\*\*\* | -67.1\*\*\* | -124.0\*\*\* | 168.1\*\*\* | -5.2 | 0.71 | 40.0\*\*\* | -2.27 | 9.22 | -33.8 | -21.3\*\* | -26.0\*\*\* | -3.55 | -11.0 | 139.0\*\*\* | 25.1\*\*\* | -19.6 | -44.5\*\*\* |
|  | (7.34) | (9.41) | (5.76) | (28.1) | (5.52) | (8.28) | (11.4) | (38.7) | (23.0) | -22.3 | (23.1) | (6.62) | (17.3) | (6.72) | (31.3) | (10.1) | (5.78) | (10.3) | (7.92) | -40.4 | (7.22) | (14.4) | (13.0) |
| **Nr. Obs.** | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 |
| **Pseudo R-sq.** | 0.576 | 0.630 | 0.613 | 0.229 | 0.537 | 0.531 | 0.410 | 0.247 | 0.724 | 0.202 | 0.462 | 0.730 | 0.517 | 0.347 | 0.668 | 0.459 | 0.589 | 0.429 | 0.385 | 0.684 | 0.389 | 0.404 | 0.549 |
| Robust standard errors in parentheses; \* p<0.1, \*\* p<0.05, \*\*\* p<0.01  Note: the first column is the estimation on total bilateral imports, and other columns are the estimated models on bilateral imports of each HS section. | | | | | | | | | | | | | | | | | | | | | | | |

Table A8 – The gravity model of imports from Iran to member states of the EU during the period 1999Q2–2018Q4 – sanctioned natural persons

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Total** | **I** | **II** | **III** | **IV** | **V** | **VI** | **VII** | **VIII** | **IX** | **X** | **XI** | **XII** | **XIII** | **XIV** | **XV** | **XVI** | **XVII** | **XVIII** | **XIX** | **XX** | **XXI** | **XXII** |
|  | 1.03\*\*\* | 2.17\*\*\* | 1.22\*\*\* | 1.06\*\*\* | 1.19\*\*\* | 1.04\*\*\* | 0.71\*\*\* | 0.25\*\*\* | 4.96\*\*\* | 0.74\*\*\* | 1.54\*\*\* | 1.91\*\*\* | 2.60\*\*\* | 0.76\*\*\* | 5.27\*\*\* | 0.89\*\*\* | 1.09\*\*\* | 1.36\*\*\* | 0.73\*\*\* | 5.09\*\*\* | 1.15\*\*\* | 1.45\*\*\* | 1.95\*\*\* |
|  | (0.047) | (0.17) | (0.065) | (0.15) | (0.074) | (0.053) | (0.051) | (0.031) | (0.68) | -0.18 | (0.15) | (0.14) | (0.31) | (0.070) | (0.91) | (0.079) | (0.064) | (0.13) | (0.057) | -1.12 | (0.085) | (0.20) | (0.59) |
|  | 3.21\*\*\* | -0.021 | 0.97\*\* | 1.41 | -1.24\*\*\* | 3.60\*\*\* | 6.18\*\*\* | 10.8\*\*\* | -0.31 | 2.28 | -0.19 | -0.88\* | -0.94 | 1.04 | 1.03 | 2.89\*\*\* | 2.62\*\*\* | -0.096 | 0.44 | 0.39 | -0.37 | 1.36 | 2.77\*\* |
|  | (0.59) | (0.61) | (0.45) | (1.98) | (0.42) | (0.66) | (0.91) | (3.27) | (0.77) | -1.66 | (1.93) | (0.53) | (1.18) | (0.65) | (1.88) | (0.92) | (0.46) | (0.94) | (0.66) | -1.1 | (0.57) | (1.30) | (1.26) |
|  | 0.27 | 1.75 | 1.02\*\* | 1.77 | -0.84\*\* | 0.52 | -0.27 | 0.89\*\* | -25.0\*\*\* | -1.64 | -4.18\*\*\* | -4.10\*\*\* | 0.86 | -3.47\*\*\* | -7.03\*\*\* | -1.61\*\* | -0.31 | 0.36 | 0.88\*\*\* | -26.3\*\*\* | -2.71\*\*\* | -0.64 | -1.00 |
|  | (0.56) | (1.07) | (0.41) | (2.02) | (0.37) | (0.64) | (0.49) | (0.37) | (3.76) | -1.26 | (1.24) | (0.45) | (1.13) | (0.36) | (1.40) | (0.63) | (0.38) | (1.11) | (0.28) | -6.37 | (0.37) | (0.88) | (0.90) |
|  | 0.20\*\*\* | -0.40\*\* | -0.057 | -0.30\* | -0.018 | 0.19\*\* | 0.40\*\*\* | 0.58\*\*\* | -0.50\* | 0.25\*\* | 0.32\* | -0.24\* | -0.65\*\*\* | 0.081\*\* | -0.18 | 0.86\*\*\* | 0.17\*\*\* | 0.14 | 0.33\*\*\* | 0.87\*\*\* | -0.25\*\*\* | -0.26 | -0.16 |
|  | (0.067) | (0.16) | (0.047) | (0.17) | (0.058) | (0.078) | (0.065) | (0.081) | (0.29) | -0.1 | (0.18) | (0.12) | (0.18) | (0.036) | (0.42) | (0.11) | (0.058) | (0.18) | (0.12) | -0.31 | (0.073) | (0.19) | (0.29) |
|  | -0.20\*\*\* | -0.025 | -0.056 | 0.21 | -0.069 | -0.23\*\*\* | -0.045 | 0.096 | 0.037 | 0.23\* | -0.51\*\*\* | -0.15\*\*\* | 0.15 | -0.31\*\*\* | -0.15 | -0.12\* | -0.14\*\*\* | -0.11\* | -0.22\*\*\* | -0.32\*\* | -0.22\*\*\* | -0.050 | -0.24\*\*\* |
|  | (0.053) | (0.073) | (0.044) | (0.14) | (0.053) | (0.064) | (0.039) | (0.089) | (0.085) | -0.13 | (0.093) | (0.052) | (0.12) | (0.034) | (0.11) | (0.067) | (0.039) | (0.059) | (0.063) | -0.15 | (0.077) | (0.069) | (0.063) |
|  | -0.022\*\*\* | -0.0053 | -0.0011 | 0.018 | -0.0045 | -0.025\*\*\* | -0.034\*\*\* | -0.027\* | -0.022\*\*\* | -0.030\*\*\* | 0.015 | -0.018\*\*\* | -0.035\*\*\* | 0.00089 | 0.00015 | -0.0094 | -0.017\*\*\* | -0.017\*\*\* | -0.020\*\*\* | -0.0023 | -0.00095 | -0.0034 | -0.014 |
|  | (0.0047) | (0.0052) | (0.0034) | (0.016) | (0.0035) | (0.0053) | (0.0061) | (0.015) | (0.0070) | -0.011 | (0.017) | (0.0045) | (0.0099) | (0.0048) | (0.015) | (0.0066) | (0.0036) | (0.0060) | (0.0054) | -0.0082 | (0.0048) | (0.010) | (0.011) |
|  | 0.85\*\*\* | 0.49 | -1.33\*\*\* | -3.22\*\*\* | -0.75\*\*\* | 1.41\*\*\* | -0.47 | 0.65\*\* | 1.13\*\*\* | 0.54 | -1.34\*\*\* | 1.14\*\*\* | -3.00\*\*\* | 0.56 | -3.46 | 1.88\*\*\* | -0.80\*\*\* | -2.67\*\*\* | 1.55\*\*\* | 4.87\*\*\* | 0.17 | 0.12 | 0.94 |
|  | (0.28) | (0.48) | (0.17) | (1.20) | (0.21) | (0.52) | (0.31) | (0.31) | (0.42) | -0.41 | (0.37) | (0.23) | (0.54) | (0.35) | (2.17) | (0.25) | (0.18) | (1.01) | (0.29) | -1.09 | (0.26) | (0.94) | (0.82) |
| **Constant** | -34.4\*\*\* | -23.2\*\* | -16.5\*\*\* | -32.6 | 21.5\*\*\* | -41.6\*\*\* | -64.5\*\*\* | -125.8\*\*\* | 164.2\*\*\* | -14.9 | 26.1 | 37.4\*\*\* | -9.40 | 18.8\*\*\* | -4.28 | -25.3\*\* | -26.9\*\*\* | -3.47 | -13.0 | 141.2\*\*\* | 25.7\*\*\* | -15.1 | -33.7\*\* |
|  | (8.17) | (9.64) | (6.03) | (30.4) | (5.41) | (9.28) | (11.5) | (39.6) | (22.6) | -26.8 | (28.3) | (6.99) | (19.1) | (7.06) | (26.3) | (10.6) | (5.95) | (11.1) | (8.09) | -40.3 | (7.57) | (16.8) | (15.8) |
| **Nr. Obs.** | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 | 1996 |
| **Pseudo R-sq.** | 0.576 | 0.631 | 0.613 | 0.238 | 0.538 | 0.531 | 0.393 | 0.255 | 0.727 | 0.215 | 0.473 | 0.732 | 0.524 | 0.344 | 0.655 | 0.461 | 0.588 | 0.426 | 0.385 | 0.683 | 0.389 | 0.402 | 0.536 |
| Robust standard errors in parentheses; \* p<0.1, \*\* p<0.05, \*\*\* p<0.01  Note: the first column is the estimation on total bilateral imports, and other columns are the estimated models on bilateral imports of each HS section. | | | | | | | | | | | | | | | | | | | | | | | |