# Appendix A: Results of the unit root test and the cointegration test

Table A1. Augmented Dickey-Fuller test for prices in levels and first differences, Norway, France and Poland

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Price series | Determ. Component | Lags | Test statistic | Δ price series | Determ. Component | Lags | Test statistic |
| ***Norway*** | | | | | | | |
| Export price, whole 2017-2020 | Constant | 2 | -2.484 | Δ export price, whole 2017-2020 | None | 1 | -15.557\*\*\* |
| Export price, whole 2011-2020 | Const. & tr. | 2 | -3.369 | Δ export price, whole 2011-2020 | None | 2 | -14.979\*\*\* |
| ***France, 2011-2020*** | | | | | | | |
| Wholesale price, whole | Const. & tr. | 2 | -3.307\* | Δ wholesale price, whole | None | 1 | -15.959\*\*\* |
| Wholesale price, fillets | None | 1 | 0.025 | Δ wholesale price, fillets | None | 0 | -16.913\*\*\* |
| Retail price, whole | Const. & tr. | 4 | -3.246\* | Δ retail price, whole | None | 3 | -15.078\*\*\* |
| Retail price, fillets | Const. & tr. | 10 | -2.724 | Δ retail price, fillets | None | 9 | -9.945\*\*\* |
| ***Poland, 2017-2020*** | | | | | | | |
| Wholesale price, whole | None | 2 | -0.180 | Δ wholesale price, whole | None | 1 | -12.039\*\*\* |
| Wholesale price, fillets | Constant | 2 | -2.710\* | Δ wholesale price, fillets | None | 1 | -11.389\*\*\* |
| Retail price, fillets | Const. & tr. | 9 | -1.839 | Δ retail price, fillets | None | 8 | -4.702\*\*\* |

Note: Lag length selection is based on the Akaike information criterion. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Source: authors’ estimation.

Table A2. Multivariate Johansen test of linear cointegration

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Variables in the system | : rank = *P* | Trace test statistic | P-value |
| ***France – Norway, 2011-2020*** | | | | |
| Multivariate VECM  (lag=6) | Export price (whole),  wholesale price (whole),  wholesale price (fillets),  retail price (whole), and  retail price (fillets) | *P* ==0 | 153.772\*\*\* | 0.000 |
| *P* <=1 | 90.789\*\*\* | 0.000 |
| *P* <=2 | 48.561\*\*\* | 0.001 |
| *P* <=3 | 18.931\* | 0.075 |
| *P* <=4 | 5.123 | 0.270 |
| ***Poland – Norway, 2017-2020*** | | | | |
| Multivariate VECM  (lag=0) | Export price (whole),  wholesale price (whole),  wholesale price (fillets), and  retail price (fillets) | *P* ==0 | 122.83\*\*\* | 0.00 |
| *P* <=1 | 56.94\*\*\* | 0.00 |
| *P* <=2 | 30.02\*\*\* | 0.01 |
| *P* <=3 | 10.93\*\* | 0.02 |
| Multivariate VECM  (lag=1) | Export price (whole),  wholesale price (whole), and  wholesale price (fillets) | *P* ==0 | 65.82\*\*\* | 0.00 |
| *P* <=1 | 26.65\*\*\* | 0.00 |
| *P* <=2 | 7.80\* | 0.09 |
| Bivariate VECM (lag=1) | Export price (whole), and  retail price (fillets) | *P* ==0 | 29.16\*\*\* | 0.00 |
| *P* <=1 | 9.23\*\* | 0.04 |
| Bivariate VECM (lag=1) | Wholesale price (whole), and  retail price (fillets) | *P* ==0 | 27.32\*\*\* | 0.00 |
| *P* <=1 | 6.30\*\* | 0.01 |
| Bivariate VECM (lag=1) | Wholesale price (fillets), and  retail price (fillets) | *P* ==0 | 24.57\*\*\* | 0.00 |
| *P* <=1 | 6.83\*\*\* | 0.01 |

Note: Lag length selection is based on the sequential modified LR test statistic criterion. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Source: authors’ estimation.

# Appendix B: Salmon trade in France and Poland

Table B1. Trade statistics of primarily (whole salmon) and secondarily (salmon fillets, smoked salmon) processed salmon for Poland, 2018.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Indicator | Imports | | | | Exports | | |
| *Whole salmon* | Salmon fillets | Smoked salmon | *Fillet & smoked salmon* | Salmon fillets | Smoked salmon | *Fillet & smoked salmon* |
| Quantity (1,000 mt) | *150* | 173 | 1 | *174* | 87 | 46 | *133* |
| Value (million USD) | *1091* | 646 | 15 | *661* | 784 | 800 | *1584* |
| Norway (%) | *77%* | 28% | 12% | *28%* | 0% | 0% | *0%* |
| EU (%) \* | *23%* | 36% | 84% | *17%* | 87% | 98% | *93%* |

Note: \* EU includes the United Kingdom as it was a member state in 2018. Source: WITS (2022), authors’ elaboration.

Table B2. Trade statistics of primarily (whole salmon) and secondarily (salmon fillets, smoked salmon) processed salmon for France, 2018.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Indicator | Imports | | | | Exports | | |
| *Whole salmon* | Salmon fillet | Smoked salmon | *Fillet & smoked salmon* | Salmon fillet | Smoked salmon | *Fillet & smoked salmon* |
| Quantity (1,000 mt) | *113* | 221 | 9 | *231* | 23 | 4 | *28* |
| Value (million USD) | *970* | 1514 | 182 | *1695* | 227 | 77 | *303* |
| Norway (%) | *67%* | 13% | 7% | *13%* | 0% | 0% | *0%* |
| EU (%) \* | *32%* | 40% | 91% | *51%* | 86% | 75% | *83%* |

Note: \* EU includes the United Kingdom as it was a member state in 2018. Source: WITS (2022), authors’ elaboration.

# Appendix C. Impulse responses

Figure C1. Impulse response functions, France

Note: Shock is defined as a generalized one standard deviation innovations. Source: authors’ elaboration.

Figure C2. Impulse response functions, Poland

Note: Shock is defined as a generalized one standard deviation innovation. Source: authors’ elaboration.