



TRENDS IN FOREIGN TRADE OF THE PRIMARY AND SECONDARY WOOD PRODUCTS

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INTRODUCTION

The imminent entry of Croatia into the full membership of the European Union, leads us to the necessity of looking at the current market situation of the primary and secondary wood products, in order to predict the situation in the future.

Interpreting economic data and forecasting the future economic values are under the influence of environment and government policies, starting from the basic economic theories that operate in the market (Fair and Case, 1989).

This paper discuss a possibility to predict future export and import values of primary and secondary wood products on the basis of established values in the period 2000-2011.

Because of a turbulences in this market, as well as a length of the analyzed time series, prediction is limited to the year 2017.

MATERIAL AND METHODS

Analysis of Croatian wood processing foreign trade follows the time course of two key macroeconomic variables, export of primary and secondary wood products from Croatia and import to Croatia for period 2000-2011.

The data were gathered from database of *Croatian's State Bureau of Statistics* and *Ministry of Finance and Financial Agency*. The data are shown in Tables 1 and 2.

Table 1. Export of Croatian primary and secondary wood products

International State Code	Export (mil. EUR)											
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
AUT	20,9	16,8	17,1	17,3	17,6	18,8	22,5	31,1	29,2	28,2	32,3	39,8
BEL	6,1	6,5	4,9	5,2	6,9	7,4	5,1	7,6	6,3	5,0	5,8	7,0
BIH	6,4	5,8	8,0	8,2	9,4	12,1	13,0	21,6	24,7	17,4	19,0	19,5
CHN	0,8	0,9	0,8	0,4	0,3	0,4	1,2	1,0	1,7	0,7	1,5	6,6
CZE	0,8	1,0	1,0	1,5	1,3	1,5	1,5	2,0	1,8	2,1	2,8	3,2
EGY	6,7	6,9	7,9	8,5	8,0	11,2	18,2	22,5	34,7	32,5	34,1	34,1
ESP	5,5	8,6	8,8	8,3	7,6	7,6	9,7	9,2	7,1	4,8	3,6	2,4
FRA	3,1	3,6	4,2	5,3	4,2	3,6	5,3	4,3	5,1	4,0	5,1	6,7
GER	26,0	20,4	16,5	19,0	17,6	15,3	17,9	27,0	29,2	27,4	30,3	38,2
HUN	1,1	1,9	3,6	3,2	3,3	3,9	3,5	8,5	10,2	7,8	11,4	16,6
ITA	112,5	107,9	111,5	115,7	119,1	122,1	135,0	151,6	137,4	115,3	137,0	145,8
SLO	29,5	25,8	30,1	31,9	35,8	40,0	42,4	45,2	44,4	36,6	40,4	51,7
SRB						6,0	11,0	14,0	16,8	12,6	10,2	7,9
SUI	3,3	4,2	3,6	6,4	10,2	10,4	10,6	9,7	11,1	10,2	10,6	9,8
SWE	5,6	5,3	3,0	4,5	4,8	6,1	5,3	6,0	4,7	4,7	4,4	4,8
Others	17,0	14,5	14,4	18,5	25,1	25,7	30,6	41,6	36,9	24,6	28,3	45,7
Total	245,3	230,1	235,2	253,9	271,2	292,2	332,9	402,9	401,1	333,8	376,8	439,8

Table 2. Import of primary and secondary wood products in Croatia

International State Code	Import (mil. EUR)											
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
AUT	12,3	19,3	26,3	29,5	31,0	32,7	39,2	49,0	48,8	36,8	33,6	34,6
BEL	1,0	1,3	1,8	1,5	1,8	2,2	2,7	1,7	1,8	1,5	1,1	2,5
BIH	14,9	24,1	28,3	34,9	36,0	28,0	34,7	38,2	33,9	23,2	23,2	24,2
CHN	0,4	0,8	1,6	2,0	3,7	6,4	7,5	12,3	12,8	7,5	6,4	6,7
CZE	2,5	3,5	3,2	4,1	4,3	4,2	6,6	8,2	8,7	5,9	5,6	6,7
ESP	0,1	0,3	0,6	0,5	0,8	0,5	0,6	0,6	0,6	0,4	0,6	0,4
FRA	0,7	1,1	1,0	1,5	1,4	1,2	1,9	2,0	1,7	1,1	0,8	1,4
GER	12,2	14,3	16,7	19,4	21,4	18,9	22,7	24,8	25,0	24,9	20,2	22,3
HUN	7,1	6,4	7,1	7,3	8,3	8,6	7,3	7,2	7,9	6,0	6,2	6,3
ITA	8,4	9,1	12,1	13,4	14,6	17,2	20,2	22,4	25,9	19,6	15,4	16,4
POL	0,9	2,9	4,8	6,2	7,8	9,0	8,1	7,5	7,6	6,7	5,1	4,9
SLO	32,0	37,2	42,7	46,6	43,4	47,3	53,6	54,3	58,8	37,4	29,0	26,5
SRB						2,5	4,2	4,7	5,6	3,3	4,6	4,0
SUI	2,2	1,1	1,0	0,9	0,4	1,2	0,8	0,6	0,4	0,4	0,4	0,2
SWE	0,8	0,8	0,6	1,2	1,0	1,2	1,0	0,6	0,5	0,6	0,7	1,5
Others	10,6	12,8	14,1	18,9	19,7	18,7	20,3	25,9	24,4	17,0	14,0	12,9
Total	106,2	135,0	161,9	187,9	195,7	199,8	231,3	259,9	264,4	192,4	167,0	171,5

The analysis involved 16 countries that were included in both, export and import of primary and secondary wood products in period 2000-2011, and according to share of that trade in total amount.

Only exception are Poland where we analyzed only export and Egypt where we analyzed only import of primary and secondary wood products, because the values of import from Poland and export in Egypt were marginal.

RESULTS AND DISCUSSION

The main import-export markets of a primary and secondary wood products for period 2000-2011 according to share in total amount of export-import trade are **Italy** (28%), **Slovenia** (16%) and **Austria** (11%), while other states participated with less than 10% in total amount of export-import trade (**Germany** 8,7%, **Bosnia and Herzegovina** 8,4%, **Egypt** 3,7%, **Hungary** 2,6% etc.). Shares of export and import foreign trade are given in Figure 1.

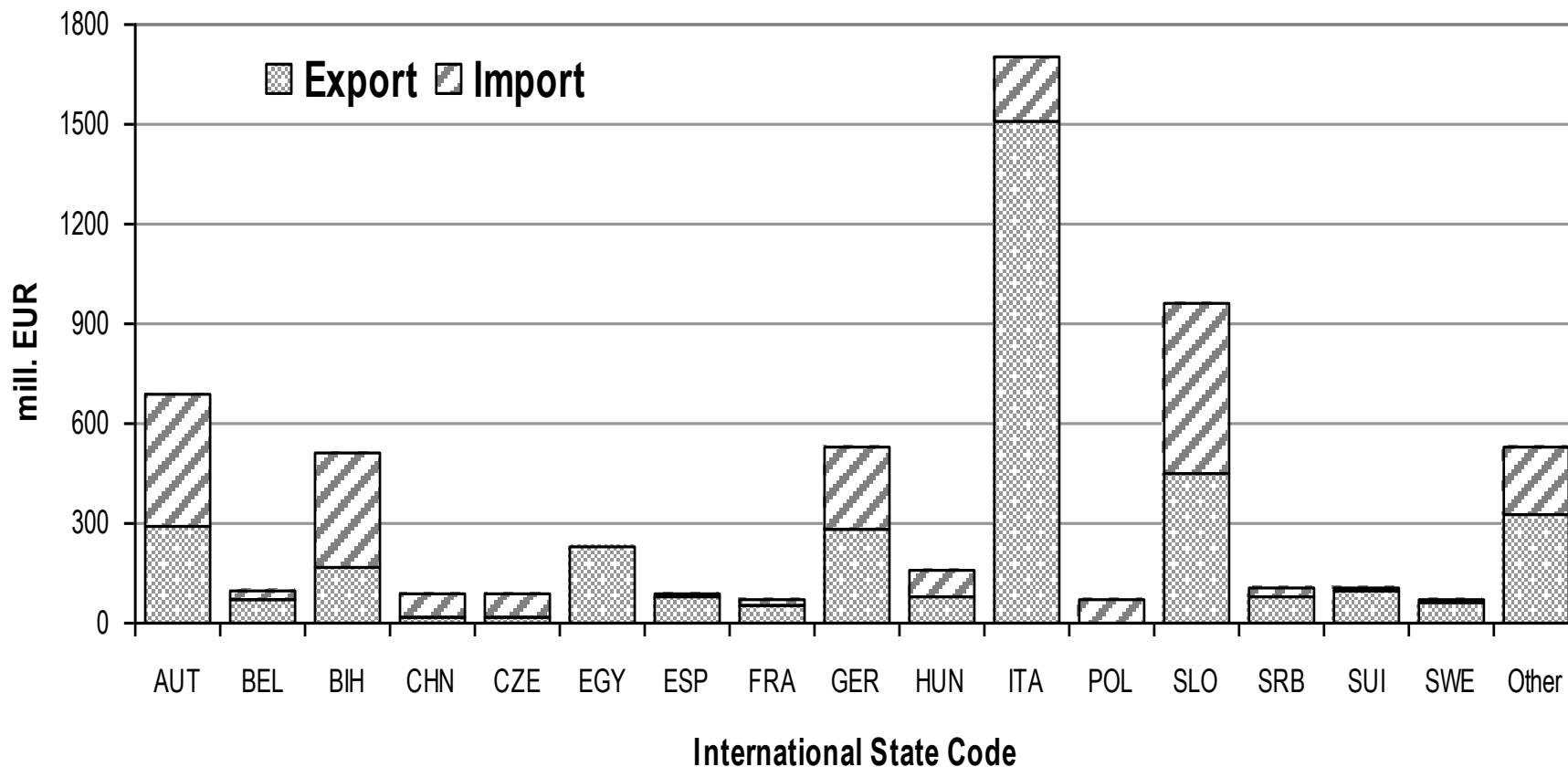


Figure 1. Share of import-export foreign trade according to countries

Nearly 40% of total value of **export** of Croatian wood processing is realized in the Italian market (Figure 2).

Over 50% of total **import** value makes wood products imported from Slovenia (22.4%), Austria (17.3%) and Bosnia and Herzegovina (15.1%). In Poland it was achieved 3.1% in total amount of import of a primary and secondary wood products in Croatia (Figure 3).

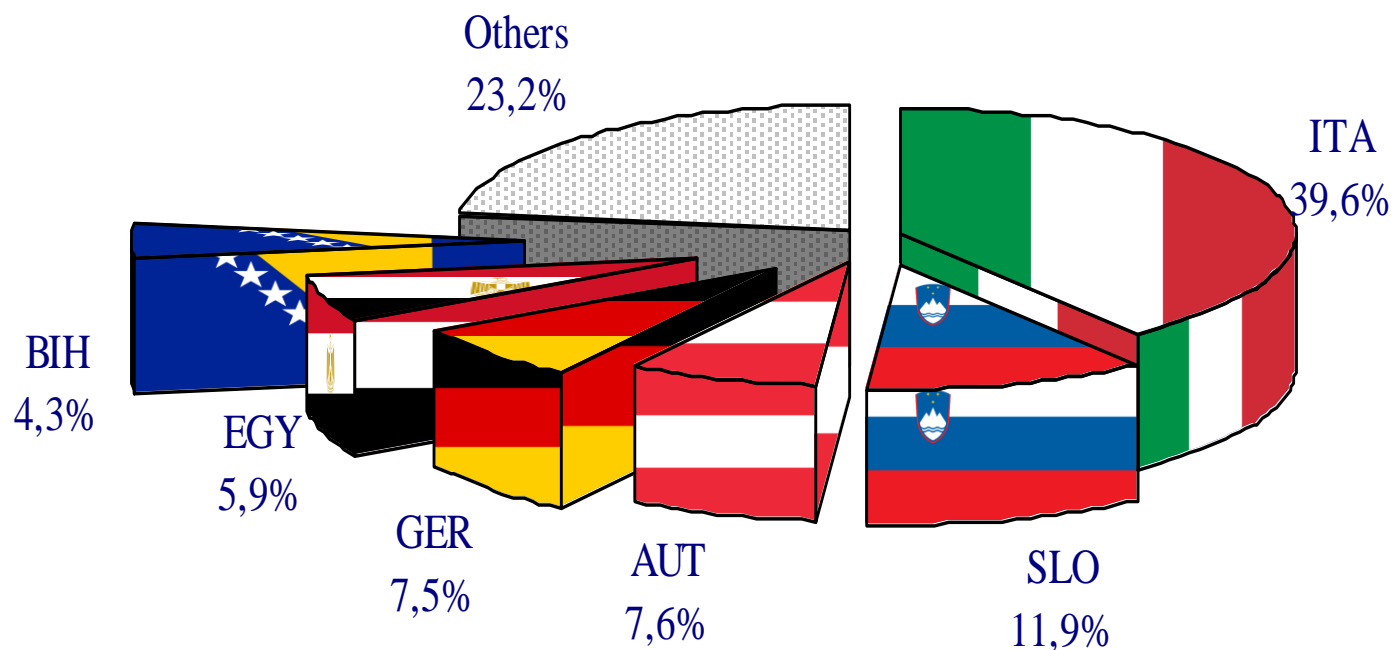


Figure 2. Distribution of export from Croatia for period 2000-2011

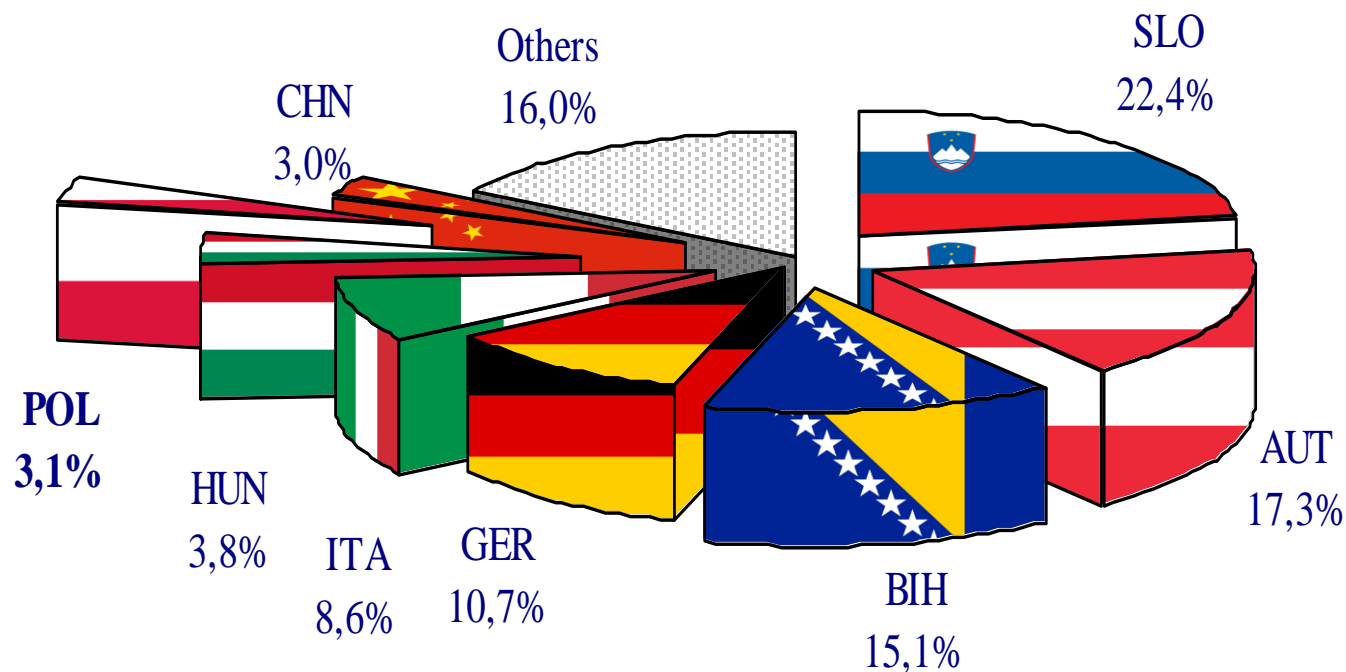


Figure 2. Distribution of import in Croatia for period 2000-2011

Based on the average rates of change for **export (5,45%)** and **import (4,45%)** of a primary and secondary wood products in the observed period **models A** for prediction of future values of exports and imports were developed.

Correlation analysis to determine the degree of correlation between the values of export and import as dependent variables and time (t) as independent variable was used.

We found that the direction and strength of the correlation relationship was positive and high in both cases, so we developed linear trend models (**models B**) and logarithmic trend models (**models C**) for prediction of future values of exports and imports.

In all models, t is mark for the time, where $t=1$ compared to year 2000, $t=2$ for year 2001; ... , $t=14$ to year 2013, etc. Units for predict values of import and export are one million € (Table 3).

Table 3. Models A, B and C for calculating the future export and import values of a primary and secondary wood products

Models	Export (mil. €)	Import (mil. €)
model A	$\hat{E}_A(t) = E_1 \cdot 1,0545^{t-1}$	$\hat{I}_A(t) = U_1 \cdot 1,0445^{t-1}$
model B	$\hat{E}_B(t) = 18,61 \cdot t + 196,99$	$\hat{I}_B(t) = 6,38 \cdot t + 147,93$
model C	$\hat{E}_C(t) = 80,71 \cdot \ln(t) + 97,03$	$\hat{I}_C(t) = 41,37 \cdot \ln(t) + 120,51$

Comparison of existing and calculated predicted values by models A, B and C for export of Croatian primary and secondary wood products is shown in Figure 4, while the comparison of existing and calculated predicted import values is shown in Figure 5.

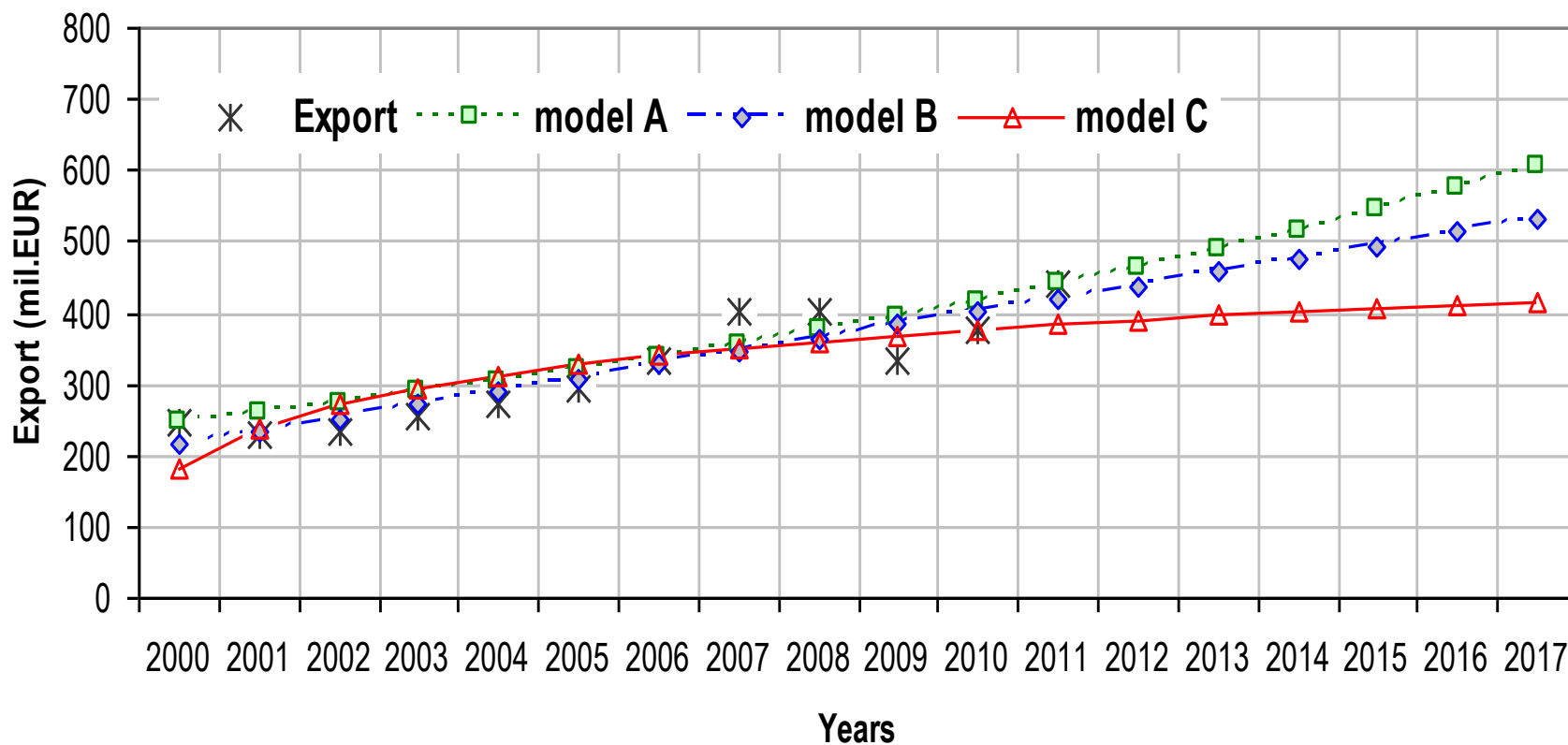


Figure 4. Existing and projected export values of a primary and secondary wood products till 2017

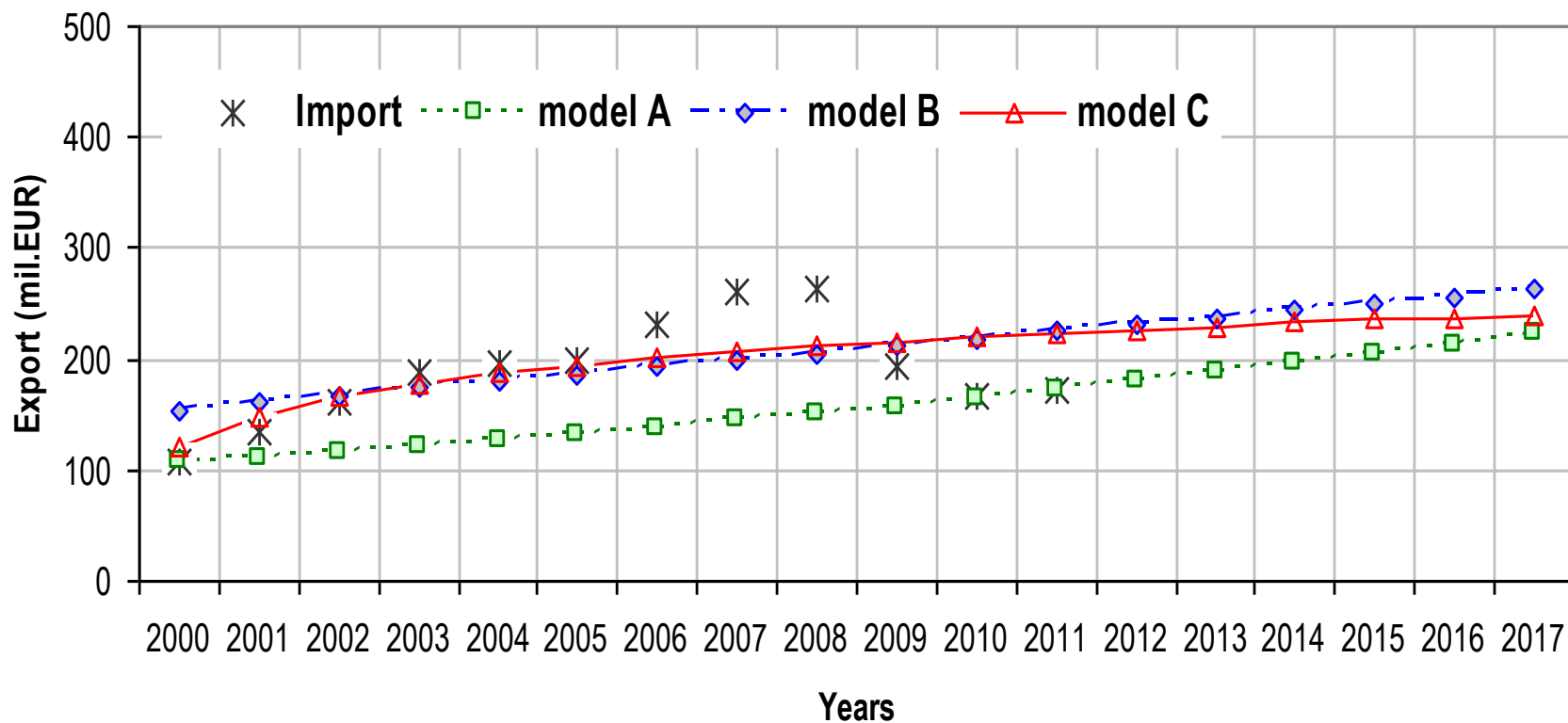


Figure 5. Existing and projected import values of a primary and secondary wood products till 2017

CONCLUSION

Assuming that the macroeconomic policies will not be altered, and assuming that the models for predicting future values of export and import of a primary and secondary wood products satisfy all statistical and theoretical terms, constructed models A, B and C could become a great help for a future actions.

By applying models companies that deals with a primary and secondary wood products will be able to define the future business strategy.



THANK YOU ALL FOR YOUR ATTENTION

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