PRICE PEDIA

FORECAST Tool Guide

PricePedia: FORECAST Tool

Tools

Forecast

Build a model to predict the prices you are interested in

Should Cost

Compose your cost index starting from the series present in PricePedia

Report

Download the updated report and monitor the trend in material pricesprime

Build the price forecast of your interest

The Forecast tool allows you to build your own forecast model for the prices of products and semi-finished products in PricePedia through the following 4 steps:

1. Model definition
2. Model estimation
3. Constant Adjustment (CA) management
4. Forecast

Definition of the model

Forecast   Model   Esteem   Constant Adjustment   Forecast

Definition of a new model

Choice of variables

Dependent variable

Polyethylene (HDPE) - Euros → Forecast price

Exogenous variables

Brent - Euros ✕   Global Industrial Cycle Index ✕ → Exogenous variables of the PricePedia Scenario

Model type

Engle & Granger

Transform

Logarithmic

Name:

HDPE

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Definition of the model

Forecast   Model   Esteem   Constant Adjustment   Forecast

Definition of a new model

Dependent variable

Polyethylene (HDPE) - Euros

Exogenous variables

Global Industrial Cycle Index ×   Brent - Euros ×

Model type

Engle & Granger

Error Correction Model
Partial Adjustment
Engle & Granger

Name:

Selection of variables

Three models to choose from[1]

[1] For a brief description of the models, please refer to the In-depth section at the end of this guide.

Definition of the model

Definition of a new model

Dependent variable

Polyethylene (HDPE) - Euros

Selection of variables

Exogenous variables

Global Industrial Cycle Index ×   Brent - Euros ×

Model type

Select model type

Engle & Granger

Transform

Selection of transformations

None

None

Logarithmic

Moving averages 3 periods

Absolute Month/Month variation

Absolute Year/Year variation

Definition of the model

Definition of a new model

Dependent variable

Polyethylene (HDPE) - Euros

Exogenous variables

Global Industrial Cycle Index ×   Brent - Euros ×

Model type

Engle & Granger

Transform

Logarithmic

Name:

HDPE

Save

Selection of variables

Select model type

Scelta trasformate

Saving

Assign a title to my model

Model estimation: **Error Correction**

Step 2

Forecast   Model   **Esteem**   Constant Adjustment   Forecast

Choose the model and make the estimate

Saved templates

Choice from saved templates

Search for ...

Id:	Name:	Last edit:	Dependent variable:	Exogenous variables:	Model type:	Transformed:	Actions:
1621	HDPE	04/22/2022 09:12:08	Polyethylene (HDPE) - Level - Euros	Global Industrial Cycle Index - Level - Dollars	Error Correction Model	Logarithmic	▦ Esteem 🗑 Delete

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Model estimation: displaying the results table

Estimation coefficients and significance statistics

Measures to assess the goodness of the constructed model

Structural coefficients

Estimation method:		Error Correction Model		
Dependent variable:		Polyethylene (HDPE) (PLTPPO2)		
Exogenous variables:		Global Industrial Cycle Index (SC_ER_GICIND_LIV_USD)		
Variables	Coefficients	P-value	[0.025	0.975]
Intercept	-2.303	0.001	-3.667	-0.940
Lag(PLTPPO2_LIV_EUR, 1)	0.970	0.000	0.943	0.996
Lag(SC_ER_GICIND_LIV_USD, 1)	0.550	0.001	0.240	0.860
VarPer(SC_ER_GICIND_LIV_USD, 1)	1.788	0.000	0.978	2.598
Model goodness measures				
R^2	0.960		R^2-adjusted	0.959
Durbin-Watson	1.028		Curtosi	2.379
Structural Coefficients				
k1	0.099			
k2	0.030			
b_SC_ER_GICIND_LIV_USD	18.035			

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Model estimation

Model and variable legend

| Da: | novembre 2000 | | A: | marzo 2022 | | Apply | | Short period |

Estimation method:	Error Correction Model
Dependent variable:	Polyethylene (HDPE) (PLTPPO2)
Exogenous variables:	Global Industrial Cycle Index (SC_ER_GICIND_LIV_USD)

Variables	Coefficients	P-value	[0.025	0.975]
Intercept	-2.303	0.001	-3.667	-0.940
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Structural Coefficients				
k1	0.099			
k2	0.030			
b_SC_ER_GICIND_LIV_USD	18.035			

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Model estimation: **Engle-Granger**

Forecast   Model   Esteem   Constant Adjustment   Forecast

Choose the model and make the estimate

Choice from saved templates

Saved templates

Search for ...

Id:	Name:	Last edit:	Dependent variable:	Exogenous variables:	Model type:	Transformed:	Actions:
1621	HDPE	04/22/2022 09:12:08	Polyethylene (HDPE) - Level - Euros	Global Industrial Cycle Index - Level - Dollars	Error Correction Model	Logarithmic	Esteem / Delete
1620	HDPE	04/22/2022 09:09:47	Polyethylene (HDPE) - Level - Euros	Global Industrial Cycle Index - Level - Dollars Brent - Level - Euros	Engle & Granger	Logarithmic	Esteem / Delete

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Engle-Granger: long-term estimation

| Da: | novembre 2000 📅 | A: | marzo 2022 📅 | Apply | Long period ⌄ |

Structural coefficients and significance statistics

beta

Estimation method:	Engle e Granger			
Dependent variable:	Polyethylene (HDPE) (PLTPPO2)			
Exogenous variables:	Global Industrial Cycle Index (SC_ER_GICIND_LIV_USD) Brent (SC_EM_ENPTBRF1_LIV_EUR)			
Variables	**Coefficients**	**P-value**	**[0.025**	**0.975]**
Intercept	-0.285	0.878	-3.937	3.367
SC_ER_GICIND_LIV_USD	1.220	0.003	0.412	2.027
SC_EM_ENPTBRF1_LIV_EUR	0.429	0.000	0.392	0.467
Model goodness measures				
R^2	0.708		R^2-adjusted	0.706
Durbin-Watson	0.222		Curtosi	0.374

The series considered are cointegrated

Measures to assess the goodness of the constructed model

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Engle-Granger: short-term estimation

Da:	novembre 2000 📅	A:	marzo 2022 📅	**Apply**	Short period ⌄	

Structural coefficients and significance statistics

Estimation method:	Engle e Granger
Dependent variable:	Polyethylene (HDPE) (PLTPPO2)
Exogenous variables:	Global Industrial Cycle Index (SC_ER_GICIND_LIV_USD) Brent (SC_EM_ENPTBRF1_LIV_EUR)

Variables	Coefficients	P-value	[0.025	0.975]
Intercept k1	0.002	0.548	-0.003	0.007
SHOCK k2	0.215	0.001	0.093	0.337
ECM_L1	-0.134	0.000	-0.178	-0.089

Measures to assess the goodness of the constructed model

Model goodness measures			
R^2	0.167	R^2-adjusted	0.160
Durbin-Watson	0.983	Curtosi	2.302

The series considered are cointegrated

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Model estimation: Saving

Assign a name to the estimate and click on Save

Name:

HDPE Estimation

Save

Constant Adjustment: choice of saved estimate

Forecast   Model   Esteem   Constant Adjustment   Forecast   Step 3

Associate a Constant Adjustment with a saved estimate

Estimates saved   ︿

Search for ...

Id:	Name:	Last edit:	Dependent variable:	Exogenous variables:	Model type:	Transformed:	Actions:
1622	HDPE Estimation	04/22/2022 09:38:01	Polyethylene (HDPE) - Level - Euros	Global Industrial Cycle Index - Level - Dollars Brent - Level - Euros	Engle & Granger	Logarithmic	🖩 Calculate 🗑 Delete
1618	HDPE - Estimate	04/22/2022 08:15:22	Polyethylene (HDPE) - Level - Euros	Brent - Level - Euros Global Industrial Cycle Index - Level - Dollars	Engle & Granger	None	🖩 Calculate 🗑 Delete

Constant Adjustment

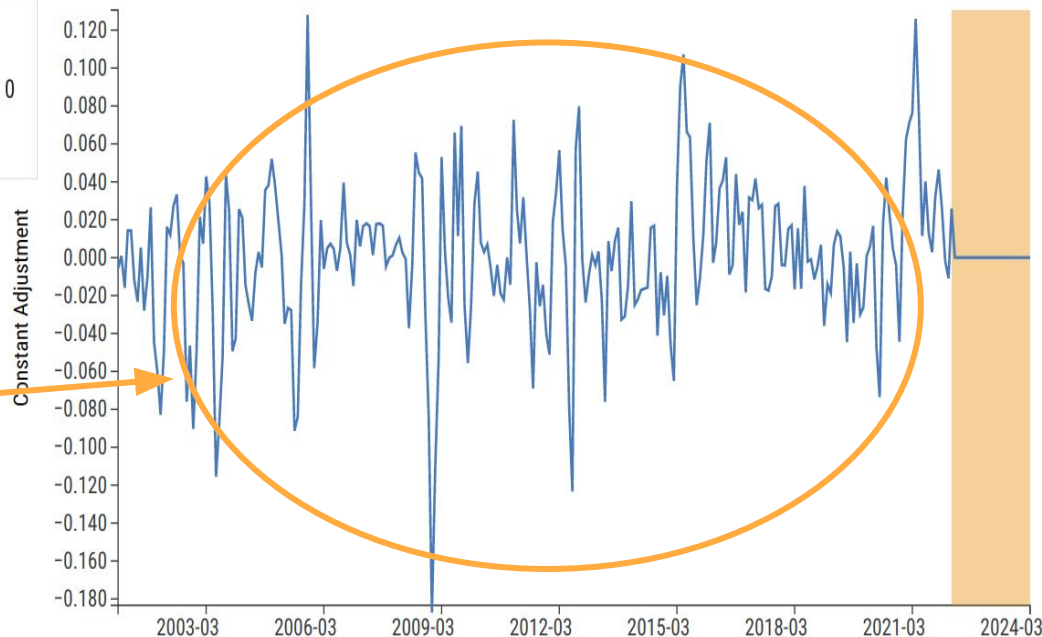Choice of CA

Constant Adjustment equal to 0 ▾

Constant Adjustment at time T

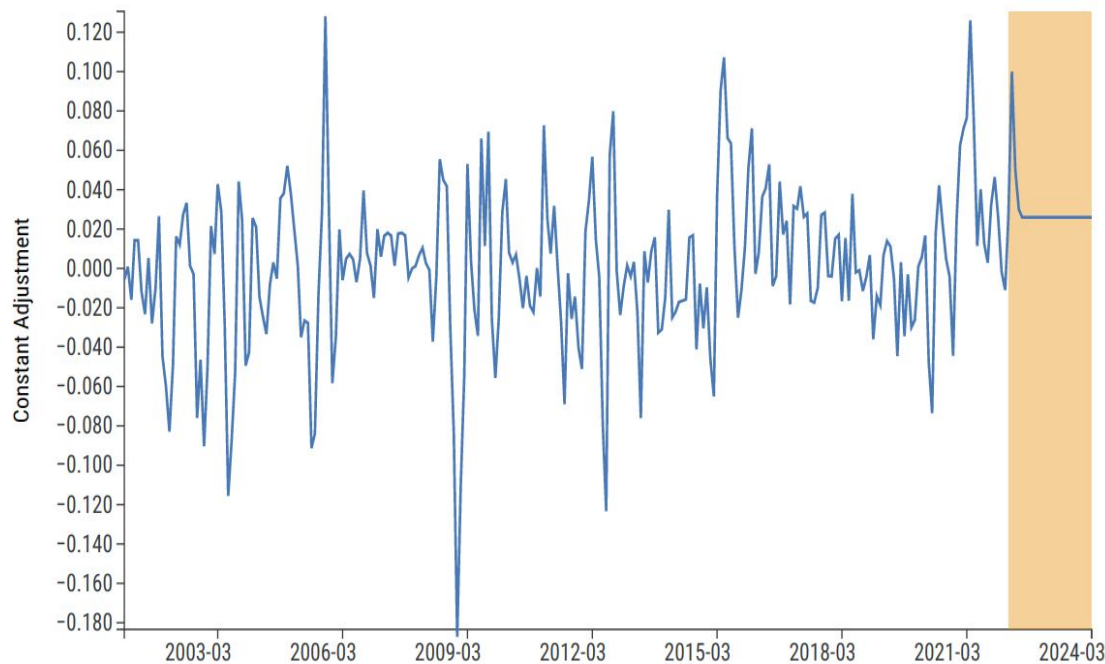Constant Adjustment at time T tending to 0

Constant Adjustment null

2022-06	0
2022-07	0
2022-08	0
2022-09	0
2022-10	0
2022-11	0

Viewing the CA graph in history

Customized Constant Adjustment

Chance to edit information manually

Constant Adjustment at time T ▾	
Date	**Values**
2022-04	0,1
2022-05	0,05
2022-06	0,03
2022-07	0,0259
2022-08	0,0259
2022-09	0,0259
2022-10	0,0259
2022-11	0,0259

Constant adjustment: saving
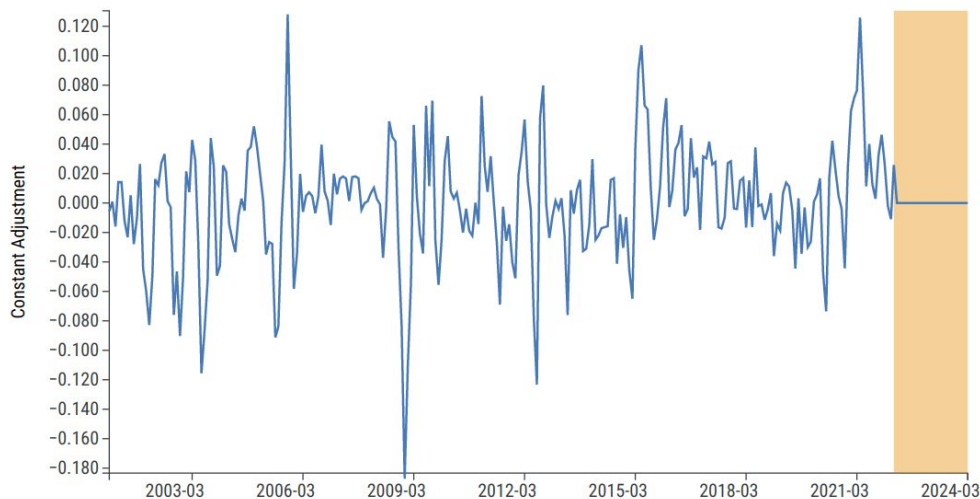
Save the CA for the selected estimate

Forecast

Step 4

Forecast Model Esteem Constant Adjustment Forecast

Choose an estimate and an associated constant adjustment and perform the forecast

Estimates saved

Search for ...

Id:	Name:	Last edit:	Dependent variable:	Exogenous variables:	Model type:	Transformed:	Actions:
1622	HDPE Estimation	04/22/2022 09:38:01	Polyethylene (HDPE) - Level - Euros	Global Industrial Cycle Index - Level - Dollars Brent - Level - Euros	Engle & Granger	Logarithmic	⬇ Load 🗑 Delete
1618	HDPE - Estimate	04/22/2022 08:15:22	Polyethylene (HDPE) - Level - Euros	Brent - Level - Euros Global Industrial Cycle Index - Level - Dollars	Engle & Granger	None	⬇ Load 🗑 Delete

Choice of estimate from saved ones

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Forecast

Choose an estimate and an associated constant adjustment and perform the forecast

Estimates saved

Constant Adjustment associated with the selected estimate

Search for ...

Id:	Name:	Last edit:	Constant Adjustment type	Actions:
1623	CA HDPE	04/22/2022 10:14:27	Constant Adjustment equal to 0 (modificato)	⬇ Load 🗑 Delete

Choice of CA from those associated with the selected estimate

Selected forecast:

Dependent variable: Polyethylene (HDPE) - Level - Euros

Exogenous:
Global Industrial Cycle Index - Level - Dollars
Brent - Level - Euros

Model Type: Engle & Granger

Transformed: Logarithmic

Forecast

Ability to view previous steps

Selected forecast:

|	
Dependent variable: Polyethylene (HDPE) - Level - Euros	
Exogenous: Global Industrial Cycle Index - Level - Dollars Brent - Level - Euros	
Model Type: Engle & Granger	
Transformed: Logarithmic	
Constant Adjustment: Constant Adjustment equal to 0 (modificato)	

Calculate Forecast

Forecast: displaying the result
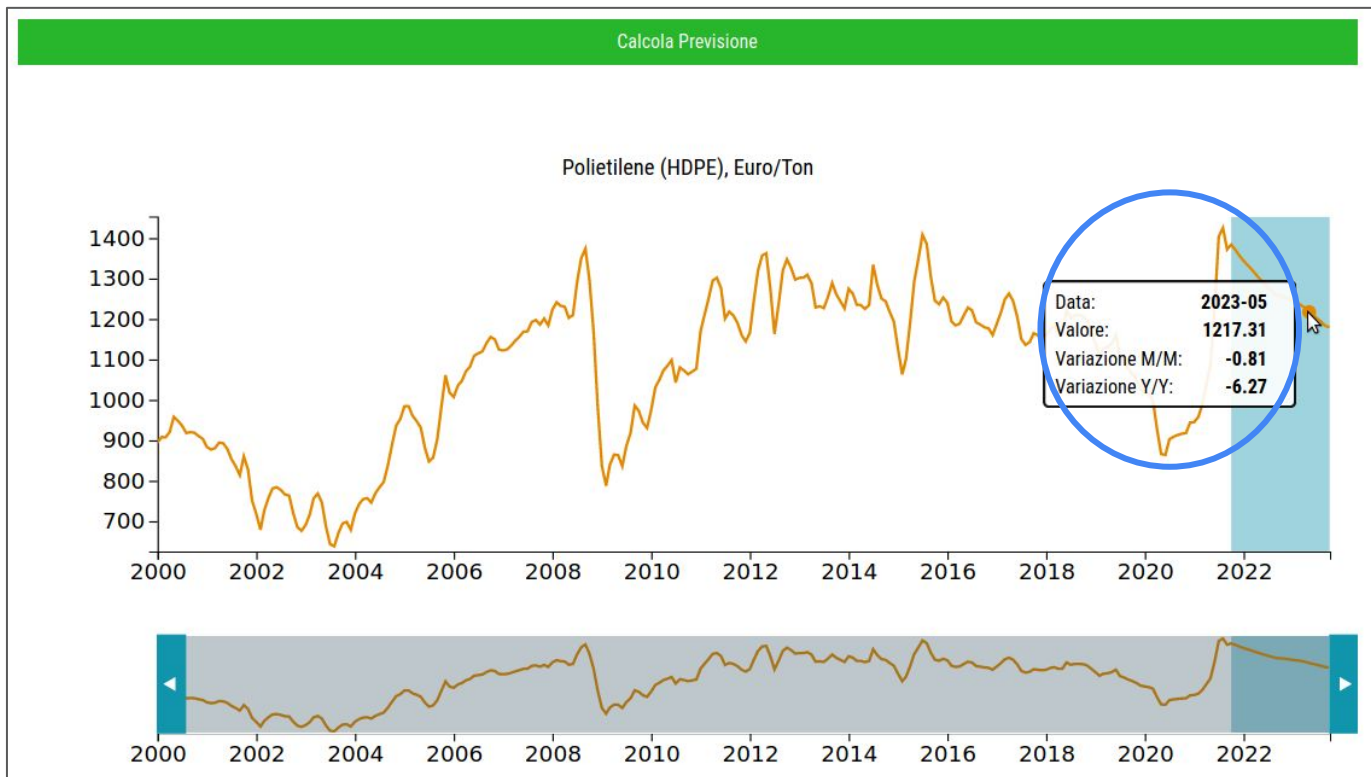

Polyethylene (HDPE), Euros per Ton

Forecast: displaying the result

Polyethylene (HDPE), Euros per Ton

Historical series
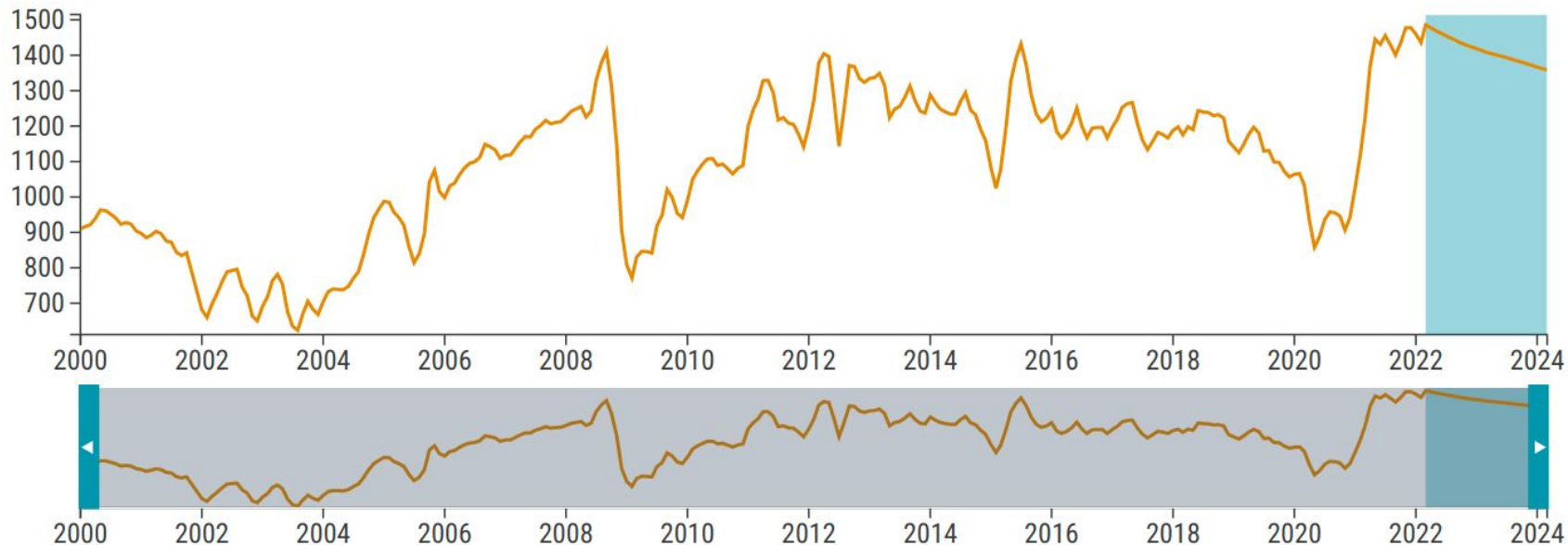
24-month forecast
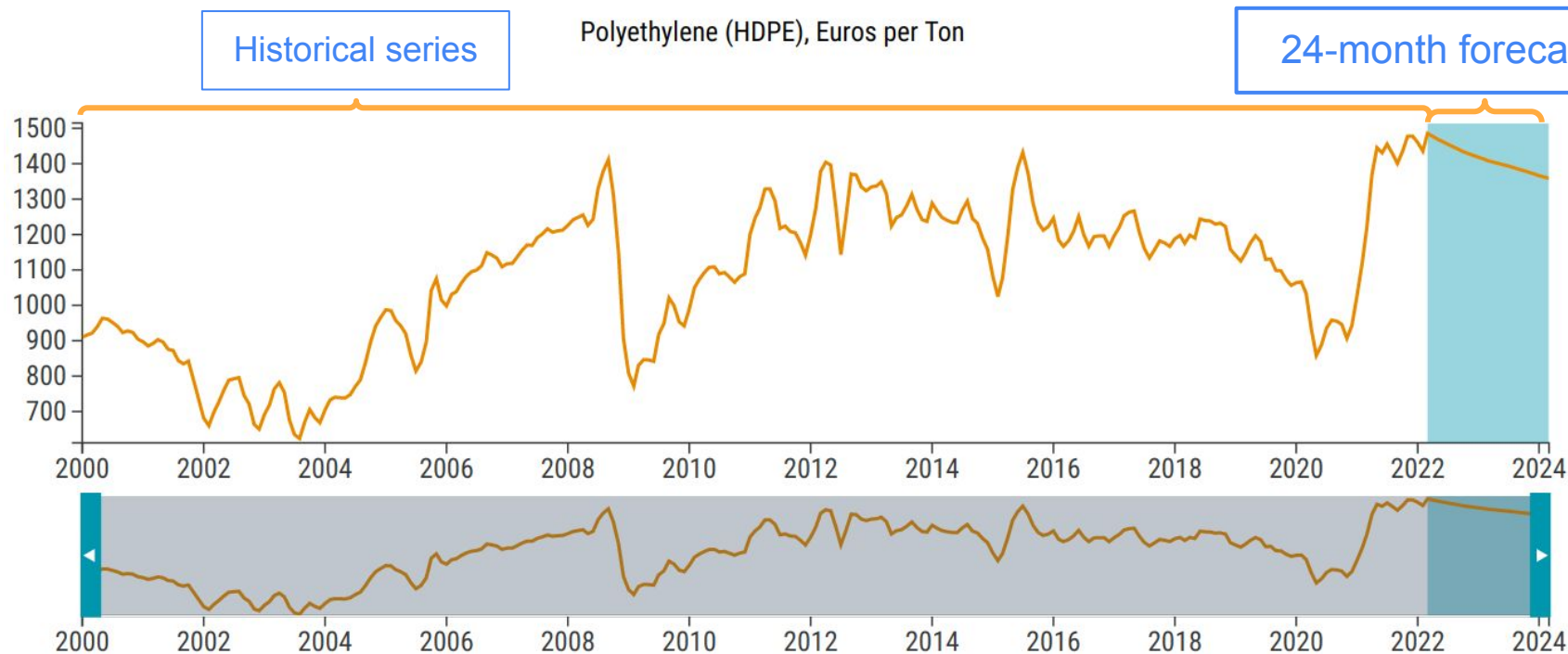
Forecast: interactive graph

Possibility to move within the graph and view for each observation:
- Value
- % change month-on-month²
- % change year-on-year³

²Month-on-month: compared to the previous month
³Year-on-year: compared to the same month in the previous year

Forecast: download
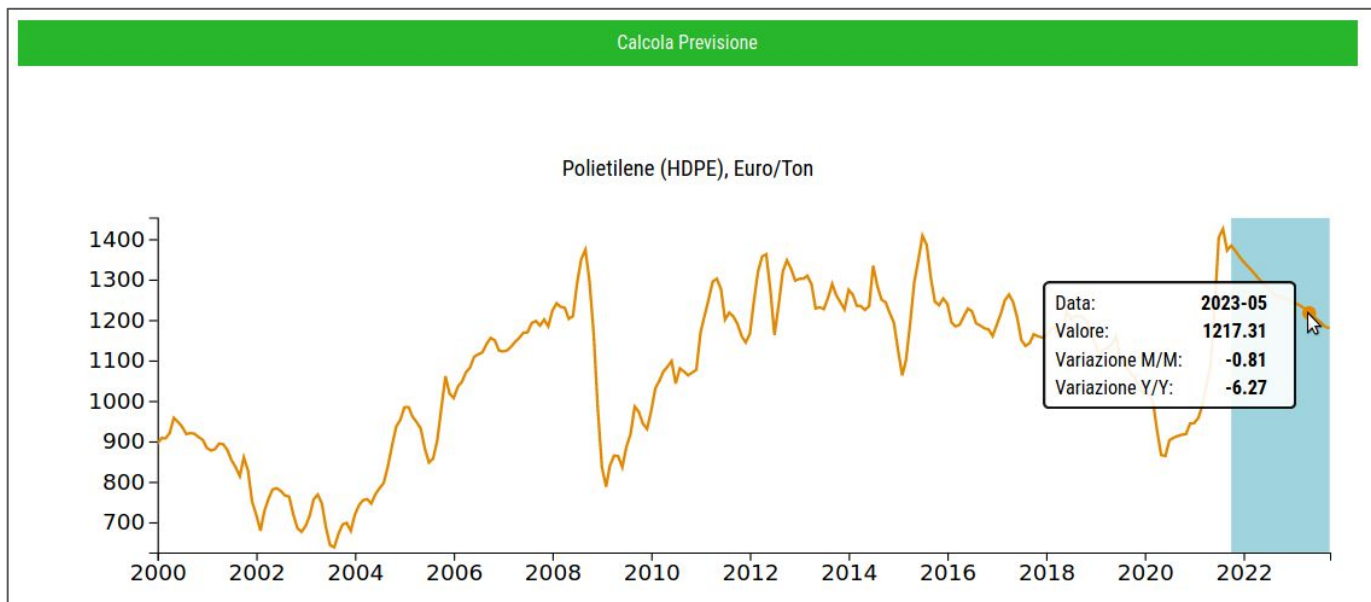
Saving data in spreadsheet or graph form

Export
- Data
- Chart

Calcola Previsione

Polietilene (HDPE), Euro/Ton

Data:	2023-05
Valore:	1217.31
Variazione M/M:	-0.81
Variazione Y/Y:	-6.27

Insight: Model types

Model types: Dynamic specification models

It is possible to choose between 3 types of models to estimate the link between the price of the product of interest and the exogenous variables in the PricePedia Scenario. The models allow to account for both the long-run relationship between the variables and the short-run price changes due to changes in the exogenous variables.

The **Engle-Granger** model estimates the coefficients of the long-run relationship and the short-run coefficients separately. The essential condition is that the variables are co-integrated, i.e. there is an underlying co-movement in the time series under analysis.

The **Error Correction** model estimates the short-run and long-run structural coefficients simultaneously. This type of model can only be used if there is only one exogenous variable.

The **Partial Adjustment** model is a variant of the Error Correction model, which makes it possible to estimate the relationship between the price of the product of interest and one or more exogenous variables. To do this, constraints are placed on the short-run coefficients during estimation.

Model types: Dynamic specification models

The three models provide an estimate of the short-run and long-run structural coefficients:

$b_i \rightarrow$ long-run coefficient: indicates how much the price of the interest product varies in the long run in relation to changes in the exogenous variable i to which it refers.

$k_1 \rightarrow$ short-run impact coefficient: indicates how much of the change in the exogenous variables is transferred to the price of the interest product in one month.

$k_2 \rightarrow$ speed of adjustment: indicates how quickly any imbalances between the observed price and the long-run price (resulting from the relationship with the exogenous variables) are reabsorbed. The higher the speed, the shorter the adjustment time.

Guide to using models

Guide to using models

It is possible to choose between the different model types depending on the number of exogenous variables considered.

If only one exogenous variable is considered, it is advisable to select between **Error Correction** and **Engle-Granger**.

If the number of exogenous variables increases, it is advisable to select between **Partial Adjustment** and **Engle-Granger**.

If the variables are co-integrated, the optimal model is Engle-Granger.

# variabili esogene	Modelli selezionabili	Modello ottimale in caso di cointegrazione
1	Error Correction, Engle-Granger	Engle-Granger
2+	Partial Adjustment, Engle-Granger	Engle-Granger

Guide to using models: comparing different types

Below is a comparison of the coefficients of the same model estimated across the different types:

Coefficienti	Engle-Granger	Partial Adjustment	Error Correction (Brent)	Error Correction (Ciclo industriale globale)
k1	0.122	0.12	0.10	0.08
k2	0.119		0.117	0.029
b (Brent)	0.403	0.486	0.529	-
b (Ciclo industriale globale)	1.364	3.394	-	15.73

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