International wood pellet trade for heating in the EU

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Schipfer F., Kranzl L.
Introduction

International bioenergy trade exhibited strong growth, & wood pellets are top bioenergy carrier.

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Are 1) residential wood pellet prices 2) exchange rates and 3) seasonality determining bilateral trade? Are wood pellets a commodity and focus country markets co-integrated?
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Hypothesis: Seasonality in consumption and production is decisive for total imports and bilateral trade streams are triggered by price differences & exchange rates. Are 1) residential wood pellet prices 2) exchange rates and 3) seasonality determining bilateral trade? Are wood pellets a commodity and focus country markets co-integrated?
Looking for statistical significance in linear models:

International trade in goods statistics (ITGS) from Eurostat:
• Monthly bilateral trade since Jan.2012
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Exchange rates
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Source: Own illustration based on propellets (2016), DEPV, AIEL, Pelletsförbundet (2016), Beyond20/20 (2016)
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Temperature •
Exchange rates •
Residential wood pellet prices •

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Imports and arrivals quantities

Cumulated int. trade to and between the focus countries

Main receiving MS

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Imports and arrivals quantities

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Main receiving MS

Strongest bi-directoral trade

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Imports and arrivals quantities

Cumulated int. trade to and between the focus countries

Largest uni-directoral trade

Strongest bi-directorial trade

Source: Own illustration based on Eurostat (2016)
Bilateral trade analysis

Bilateral trade analysis

Only this one out of the ten bilateral trade relations exhibit statistical significant correlation with price differences.

Multilateral trade analysis

... but vanishes when trade shares are analysed. DE->AT
Significant! best correlations however against hypothesis
Seasonality, exchange rates & co-integration

Import maxima:
- Spring & early summer for AT, IT, DE
- Around December for SE

Significant correlation with temperature change
Seasonality, exchange rates & co-integration

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Co-integration tests of prices with Granger causality:
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Co-integration tests of prices with Granger causality:

Correlation with exchange rates:
- SE imports from RU: **X**
- IT imports from RU, CA & US: **✓**
Discussion

• Eurostat double-entry book keeping system
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• Price data from pellet associations and statistics
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• Eurostat double-entry book keeping system

• Price data from pellet associations and statistics

• Risk minimisation
  – Standardisation (EN and ISO)
  – Vertical integration important for larger consumers
  – Long term contracts are expected to account for most trade
  – The 2nd futures instrument in place since end of 2015
Take home messages – pellets for heating

- Total imports are expected to be seasonal but trade patterns can’t be explained by available price data – yet
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• we consider wood pellets a young commodity → main obstacle: Transparency/ search costs → ALL participants would profit
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• however markets at best semi-mature
Next steps

• Eurostat data → what`s the share of triangular trade and customs simplifications + analyse transport modi + share of total trade
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• Study on pellet prices paid for int. trade / pellet contracts & futures
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• Wood pellet trade model:
  – Include diversity of end users – e.g. using feed in tariffs instead of pellet prices for larger consumers
  – Higher spatial resolution - how to estimate national/ interregional trade?
  – Adjusting monthly trade to different pellet qualities – using specific eurostat prices
  – How to implement longer time frame (since 2006)?
Thank you for listening –
what do YOU think?

Further information:

Fabian Schipfer & Lukas Kranzl
TU-Wien, Energy Economics Group
email: lukas.kranzl@tuwien.ac.at
tel: +43 1 58801 370351
web: www.eeg.tuwien.ac.at

www.bioenergytrade.org
www.eeg.tuwien.ac.at