

# Investigating the Liquefied Petroleum Gas Market and Price Dynamics

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## Abstract

Due to its significance as an ingredient for any economic activity, the academic research on energy prices has seen a tremendous growth in the last two decades. In the hydrocarbon market, most of this research has been directed towards the two main energy carriers crude oil and natural gas. This singular focus has neglected and opened up an academic research gap on smaller groups of petroleum products.

The focus of this seminar is to present a short summary of research conducted on the price characteristics of a subgroup of hydrocarbons called liquefied petroleum gases (LPGs). LPG originate from both the crude and the gas side of total production, and the two most prominent LPG products are propane and butane. There are previously done very little academic research on the price characteristics of these products.

The goal of the presentation is to provide an holistic picture of LPG price series between 2000 and 2017, partly globally but with most emphasis on the U.S. market. The data included in the research is primarily spot prices, but futures data is also applied to some degree.

The research presented is mainly divided into two areas where the first asks questions regarding market inter-linkages and price leading effects. The initial hypothesis is that these homogeneous products should hold a long term price relationship. Results from both bi- and multivariate cointegration models with and without the possibility of structural breaks are presented. Secondly, research results on the second order moment characteristics, co-movement and spillovers are presented. Applied methodical models are uni - and multivariate GARCH, also here with the possibility of structural breaks.