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## Determinants of Foreign Currency Savings: Evidence from Google Search Data

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### Abstract

This empirical study investigates the economic and psychological factors influencing the households' saving preferences to savings currency focusing on the European Union (EU) countries outside the euro area with their own currencies. This paper focuses on basic macroeconomic shocks given by International Fisher Effect, capital account and remittances while a special attention is put on perception and sentiments of economic agents. The main contribution of the paper is based on the sentiment indicators received from Google search data. To estimate the model we applied Bayesian Model Averaging because we have not appropriate economic theory to select Google search keywords. The main findings of this empirical study suggest that foreign currency savings are not affected by earning motives but only by the risks related to depreciation of international remittances and perception of selected risks, e.g. political risks and economic activity.

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### 1. Introduction

Traditionally households' saving behaviour was investigated focusing on fundamental socio-economic and demographic determinants. And only recently economists Fidrmuc et al. (2013), Crespo Cuaresma et al. (2014) have begun to study the households' saving behaviour from behavioural economics perspective. As more and more daily

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activities take place online, data on internet behaviour is becoming a key information source explaining individuals' behaviour. The increasing role of internet in individuals' daily life shows the statistical data provided by Eurostat and WebCertain Group – a leading multilingual digital marketing agency. In 2015 more than 80 per cent of all individuals in EU used internet in the last 12 months and 67 per cent of all individuals used internet daily. The Webcertain Global Search & Social Report 2015 shows that in most of the EU countries internet penetration accounts for 80–90 per cent. The statistical data provided by Eurostat demonstrates that internet activities of individuals focus mainly on sending/receiving e-mails (in 2015 69 per cent of all individuals in EU used internet for this purpose), reading online news sites/newspapers/news magazines (54 per cent), and participating in social or professional networks (52 percent). Since 2007 the usage of internet for these activities has doubled in EU suggesting about a crucial role of internet in individuals' daily life. According to the Webcertain Global Search & Social Report 2015, in almost all EU countries internet users rely heavily on Google as a mean for looking up information and navigating around the web. Indeed, Google continues to account for more than 90 per cent searches carried out on the web in EU over the past year and despite having a marginal decline in market share over the past year Google continues its complete domination of the category. According to the Webcertain Global Search & Social Report 2015, the dominance of Google looks very unlikely to abate in the near future. For this reason this empirical study will apply a novel manner to investigate individuals' saving behaviour using weekly internet search volume time series drawn from the Google Trends database. The objective of this study is to identify the economic and psychological factors influencing the households' saving preferences to savings currency testing the usefulness of Google Trends data for explanation of households' saving behaviour.

## 2. Literature review

Traditionally, most of scientists focus on determinants of private and public saving rate and try to explain private saving behaviour during different stages of life cycle. Only a few empirical studies investigated the determinants of households' savings in domestic or foreign currency. Arifovic (2001) explored economic agents' decisions about the currency of their savings and investment portfolio. According to Arifovic (2001), the currency of the country with larger deficit becomes valueless and a flight away from the currency of this country is observed. Sharma et al. (2005) investigated the importance of the U.S. dollar to six Asian economies as a substitute or complement to domestic monetary assets. They found that the U.S. dollar and the domestic currency are Morishima substitutes and the demand for the U.S. dollar relative to the domestic currency appears to respond to the exchange rate depreciation than the domestic interest rate. Bresser-Pereira et al. (2014) investigated the relations between domestic savings, foreign savings, and the real exchange rate and in Brazil. The results of an econometric analysis of the Brazilian case study indicate a long-run relationship between the real exchange rate and domestic savings and confirm the presence of substitution of foreign for domestic savings. Bresser-Pereira et al. (2014) state that a positive and statistically significant effect of relative devaluation of the real exchange rate on domestic savings is observed.

Scientific literature provides substantial empirical evidence confirming the usefulness of internet search data in forecasting economic indicators. The usefulness of internet search data for economic indicators forecasting was demonstrated in Choi and Varian (2009a, 2009b, 2012). Choi and Varian (2009a, 2009b, 2012) showed how Google Trends data can improve short-term forecasts of economic indicators (e.g. travel destinations, home sales, retail sales, or car sales) and that unemployment, private consumption and house prices can be forecasted using internet search indices. Schmidt and Vosen (2009) showed that Google Trends can outperformed forecasting results of the two most common indicators of private consumption in the U.S. Pescyova (2011) used the unemployment data in Slovakia and showed that internet search data improved predictions substantially. McLaren and Shanbhogue (2011) also showed that unemployment forecasts in the UK can also be improved using internet search data. They also confirmed that prediction of house prices using internet search data can outperform some existing indicators. These empirical findings were also confirmed by Beracha and Wintoki (2013). D'Amuri and Marcucci (2012) proposed to use an index of internet job-search intensity as the best leading indicator to forecast the US unemployment rate. Fondeur and Karamé (2013) employed Google data in order to forecast French youth unemployment rate. Bangwayo-Skeete and Skeete (2015) introduced the indicator constructed from Google Trends' search query time series data and tested the forecasting performance of the indicator for tourism demand forecasts. The empirical results suggests that Google Trends information offers significant benefits to forecasters (particularly in tourism). Business practitioners and policy

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