

## **Marina Della Giusta** *University of Reading*

# **Beliefs, exams and social media: a study of girls and boys in the UK**

### **Abstract**

Despite good performance in secondary school exams in science and maths by girls in the UK, there is a gender gap in the choice of science and maths subjects (Institute of Physics, 2013; Smith and Golding, 2015) that affects the selection of women out of both STEM (Science, Technology, Engineering and Maths) subjects at University and in the labour market, with important effects on pay gaps, career gaps and individual and household outcomes later on (Petrungolo and Olivetti, 2006; Ceci and Williams, 2010). The subject decision process is affected by a range of factors, including students' beliefs about labour markets and related choices (education, jobs, starting a family), which evolve over time depending also on parents, peers and the general information on exams. We build on literature addressing the factors influencing teen's expectations of going to university (Anders and Micklewright, 2015) and on the shaping of beliefs in social networks (Corazzini et al, 2010; Algan et al, 2015) and make use of two samples of boys and girls, on drawn from the UK household panel survey (Understanding Society) and the other from an evolving network of Twitter users, to study the evolution of beliefs about the labour market in teens that make intensive use of social media and the effect of moods around General Secondary Compulsory Education (GSCE) exams. The first sample covers all respondents that were surveyed both before and after they took GSCE exams in the period 2009 to 2014 and analyses the role of personal characteristics and various

influences (family -including parents' attitudes to gender roles-, friends, social media) on their beliefs about further education, job and family formation and, for those observed in the adult panel later on, their own attitudes to gender roles. The second sample is built from Twitter data of around 12k Twitter users exchanging around 28k messages containing words 'Maths, Science, English' during 29/05/2008 till 05/11/2014 period. A smaller subset of 413 individuals had explicitly 'GCSE' mentioned in their messages creating a subnetwork. Tweets were sent from 15/02/2012 to 05/11/2014. Twitter users often direct or address their public tweets to other users by using mentions with the @ symbol. Although mentions are used to address other users in a tweet, the tweet itself is still public and the messages may be read and commented on by other users. We created an evolving network with Twitter IDs as vertices and a timestamped edge in the network if a user mentioned another user. In this way if there is an edge in both directions, we can assume that two users have a more meaningful relationship and can focus on the at the structural and dynamic properties of this network and a subnetwork containing 'GCSE' as main topics of conversation in relation to gender of users and how the structure and topics changes over the time. We make use of both econometric modelling and social networks modelling to disentangle the various influences, and draw some preliminary policy implications.

**Thursday 15<sup>th</sup> December**  
**from 1 pm to 2 pm**  
**Campus Luigi Einaudi**

**Seminar room**  
**3<sup>rd</sup> floor - building D1**  
**Lungo Dora Siena 100/A, Turin**