



# Gender, context and competition: Experimental evidence from rural and urban Uganda<sup>☆</sup>



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## ABSTRACT

We analyze the willingness to compete among secondary school students in an urban and a rural context in Uganda. We find no significant gender bias in competitiveness in the urban context, while in the rural context females are significantly less competitive than males. The willingness to compete among males is not sensitive to location. These results hold when controlling for knowledge, confidence, attitude towards risk, and individual and household background variables. Our analysis suggests that context is an important determinant of willingness to compete, and we propose that attitudes towards gender equality may be an important factor in shaping these preferences for females.

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## 1. Introduction

Willingness to compete is generally viewed as important for success in the labor market. Indeed, competitiveness measured in the lab has been found to correlate with competitive choices and successful outcomes in the field (Berge et al., 2015; Buser, Niederle and Oosterbeek, 2014; Zhang, 2015, 2013). Many studies find that females are less competitive than males, and ascribe part of the observed gender gaps in labor market outcomes to differences in competitiveness (Andersen et al., 2013; Croson and Gneezy, 2009; Niederle and Vesterlund, 2007).

However, the gender gap in competitiveness does not appear to be biologically fixed. For instance, Gneezy, Leonard and List (2009) show that in a matrilineal community in India females are more competitive than males, and Zhang (2015) demonstrates that in China there is no gender difference in competitiveness among the Han population, which the author ascribes to their exposure

to communist ideology. Booth and Nolen (2012) demonstrate that girls from all-girls' schools in the UK are as competitive as boys from co-educational schools, and more competitive than girls from co-educational schools, a result they ascribe a greater pressure for girls to adhere to their gender identity in coed schools. In sum, the level of female empowerment appears to be an important determinant for women's willingness to compete.<sup>1</sup>

Our paper provides evidence on gender and competitiveness from a series of lab-experiments in rural and urban Uganda. There is ample evidence that gender discrimination in Uganda is particularly pronounced in the rural areas (and there is no reason to believe that Uganda is a special case in this respect); the gender gap in literacy rates is higher, females' control over own income is lower, and acceptance of gender-based violence is higher (UBOS, 2010, 2012). The hypothesis that attitudes to gender equality can be shaped by the environment finds support in Alesina, Giuliano and Nunn (2013), who demonstrate that norms of gender inequality develop in areas where the production technology

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<sup>1</sup> In a study among children aged 9–12, Cárdenas et al. (2012) find that females in Sweden are less competitive than males, while there is no gender gap in competitiveness in Columbia. This is a somewhat puzzling finding, given that gender equality is more advanced in Sweden than in Columbia, according to various macro indices. However, Andersen et al (2013) demonstrate that competitive preferences are shaped during puberty, and hence it is an open question whether the pattern of competitiveness observed by Cárdenas et al. also applies to the adult populations.

requires physical strength (plough agriculture), compared to areas where production can equally well be carried out by women (hoe agriculture).

In sum, contrasting the urban and rural setting should be a promising approach when investigating the importance of context for gender differences in willingness to compete. To the best of our knowledge, ours is the first experimental paper to investigate the topic of gender and competitiveness in an urban and a rural context.<sup>2</sup>

The rest of the article is organized as follows: Section 2 describes the participants, Section 3 introduces the lab experiment, Section 4 contains the analysis, and Section 5 concludes.

## 2. The participants

The participants consist of 780 secondary school students in Uganda, of which 381 were recruited from an urban setting (Kampala) and 399 from a rural setting (Tororo). Kampala is the capital with a population of 1.5 million, while Tororo is a rural district in eastern Uganda with a population of 450,000 of which approximately 90% live in rural sub-counties.<sup>3</sup>

We randomly selected schools to participate in the experiment. However, for practical reasons, in Kampala students with disabilities were recruited from schools in the vicinity of the lab-venue. The school administration was informed that this was a research project on youth and entrepreneurship and was asked to provide us with a representative sample of students for the experiment. Overall, students from 24 schools in the urban region and 34 schools in the rural region were recruited to participate in the lab. For the sample as a whole, the median number of participants from a school is 10, with a mean of 13.4. The largest number of participants from a particular school is 69 (a deaf school in Kampala called Wakiso).

Table 1 presents averages of background variables: gender, age, whether the participant was disabled, and a proxy for household wealth. Column (1) shows the numbers for all the participants. In columns (2) and (3) these variables are differentiated by location, and the difference between the urban and rural settings is shown in column (4). The sample is balanced on gender in the two locations, while the participants in rural setting are, on average, eight months older than those in the urban setting, and also five percentage points more likely to be disabled (the difference is not statistically significant). Household wealth is lower in the rural than in the urban setting, and rural participants more often live with both parents than the urban participants (who more often live with either one parent or someone else, like a relative).

## 3. The lab

The lab consisted of 20 sessions, 10 in the urban and 10 in the rural location. The average number of participants was 39 (minimum of 33, maximum 42, standard deviation 2.27). Each session

<sup>2</sup> Dougouih (2011) studies competitiveness in a rural and urban context in Ghana. Around 30% of the participants in her experiment chose to compete, and more so in the urban than in the rural context. She does not, however, discuss gender differences, probably due to her small sample size of 101 participants, of which only 30% are female. Dougouih has, however, been kind enough to share her data with us, and it can be shown that there is no significant difference in willingness to compete between females in the urban and rural area (22% in the urban area ( $N=18$ ) and 29% in the rural area ( $N=14$ ),  $t$ -test of equality,  $p=0.69$ ); for males, willingness to compete is somewhat higher in the urban area, although the difference is not significant (40% in the urban area ( $N=35$ ) and 24% in the rural area ( $N=34$ ),  $t$ -test of equality,  $p=0.15$ ).

<sup>3</sup> Numbers from Uganda Bureau of Statistics at <http://www.ubos.org/onlinefiles/uploads/ubos/pdf%20documents/TP52010.pdf> (accessed 18.04.12) and the Tororo District Data Base: <http://tororodistrict.blogspot.no/> (accessed 20.04.12).

**Table 1**  
Summary background statistics, by region.

	(1) All	(2) Urban	(3) Rural	(4) Difference
Female	0.51 (0.50)	0.52 (0.50)	0.50 (0.50)	0.02 (0.04)
Age	16.8 (2.16)	16.5 (1.88)	17.1 (2.36)	-0.69*** (0.15)
Disability	0.37 (0.48)	0.34 (0.47)	0.39 (0.49)	-0.05 (0.03)
Wealth	1.58 (1.15)	1.87 (1.12)	1.31 (1.11)	0.56*** (0.08)
Live with both parents	0.45 (0.50)	0.35 (0.48)	0.54 (0.50)	-0.19*** (0.04)
Number of observations	780	381	399	780

Note: Columns (1)–(3) report average values for different background variables, with standard deviations in parenthesis. Female is an indicator variable that takes the value one if the participant is a female. Age shows the participant's age in number of years. Disability takes the value one if the participant has a disability. Wealth is an index of wealth (0–4), consisting of (i) whether the household has a TV; (ii) a computer; (iii) whether the household head reads a newspaper regularly; and (iv) whether the household eats meat more than once per week (which is the median number of meals containing meat per week in the sample). Live with both parents is an index taking the value one if the participant lives with both parents. Column (4) shows the differences between the urban and the rural setting with a  $t$ -test for equality and standard errors in parenthesis \* $p<0.10$ , \*\* $p<0.05$ , \*\*\* $p<0.01$ .

was broadly balanced across gender (minimum 37% females, maximum 63%, standard deviation 0.06).<sup>4</sup>

The lab included a number of exercises, but here we focus on those relevant for competition choice (see Bjorvatn and Tungodden, 2015, for more details about the lab).<sup>5</sup> All tasks were incentivized to ensure that the participants' answers reflected their abilities, beliefs and preferences.<sup>6</sup> Willingness to compete was measured by giving the participants a choice between a fixed and a competitive rate on a set of multiple-choice questions on general topics and mathematics; all topics, as well as this form of testing, were familiar to the secondary school students in our experiment. For each question, there were four possible answers, of which one was correct. An example of a general topic question is the following: "Which country has the largest population?", with the four possible answers being India, USA, China, or Brazil. An example of mathematical question was: "Multiply 34 by 238", with possible answers of 8082, 8032, 8092, or 7992.

There were three rounds of multiple-choice questions. In the first round, all of the participants were offered a fixed rate of 200 Ugandan Shillings (Ush), which corresponds to around 0.1 USD, for each correct answer. Prior to the second round, the participants were asked whether they wanted a fixed rate, similar to that of the previous round, or a competitive rate. The competitive rate would ensure a 500 Ush payment for each correct answer, given that the participant got at least as many correct answers as the entire session average in the first round, and zero if the participant got less

<sup>4</sup> Identical procedures were ensured by using the same written and oral instructions, the same local coordinator and administrator, and the same language in the rural and urban locations.

<sup>5</sup> The present study is part of a project focusing on psychological barriers to entrepreneurship amongst disabled, described in Bjorvatn and Tungodden (2015). Hence, there were 25–30% participants with a physical impairment in the sessions, including reduced hearing and problems of movement. We control for disability in our regressions and in the Appendix also show that the key results hold also for the sample of only non-disabled.

<sup>6</sup> The participants were informed of their earnings and paid in cash in sealed envelopes at the end of their session. The participants were informed of this procedure at the beginning of the session. The instructions from the lab are included in Appendix B. The lab exercises relevant for the present paper are 4.3 Beliefs and competition choice, 4.1 Objective questions: Round 1, and 3.2 Risk.

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