

Edutainment for education: A field experiment in Tanzania

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Motivation

- Young people in developing countries typically have to create their own jobs.
 - 65% of Tanzanians are below 25 years, very few find a job in the formal sector.
 - Self-employment promoted in National Youth Development Policy (2007).
- In order to build successful businesses, people need both the right skills and entrepreneurial attitudes.
- Can these skills and attitudes be communicated through the media?
- To study this question, we have analyzed the impact of the edutainment show Ruka Juu (Jump Up), which was aired on national television in Tanzania during the spring of 2011.

Educating or Inspiring?

- **Core question:** Is the program educating/inspiring people?
- **Focus:** Consider the impact of the show on ambitions, knowledge, and entrepreneurial mind-set variables (risk-taking, patience, willingness to compete).

Edutainment and Development

- Similar entrepreneurship programs launched recently in other developing countries, including Uganda and Afghanistan.
- Extensive literature in media and communication on how edutainment may contribute to social change.
- First study in economics (to our knowledge) that looks at the impact of an edutainment intervention.

Related literatures

- How can we most efficiently organize (business) training?
- How is media shaping our decisions?
- How can we achieve female empowerment, the power of role models?

Ruka Juu - background

- Launched by the civil society media platform Femina HIP early 2011.
- A reality based TV entrepreneurship competition shown on national television (ITV, TBC1, Clouds).
- The overall aim of Ruka Juu was to *educate*, *inform* and *motivate* Tanzanian youth (age 15-30) on issues related to entrepreneurship, business skills and financial literacy in order to realise their potential and lift themselves out of poverty.
- Particular focus on female empowerment.
 - The overarching aim of Femina.
 - Important in the design of the program.
 - Example: What will it take to inspire more women to become entrepreneurs? (question of week 8)

Ruka Juu - structure

- 11 episodes, aired once per week from March to May 2011.
- 6 young Tanzanian entrepreneurs (3 females and 3 males) compete for "the opportunity of their life", to win a money prize of 5 million Tsh (around 3100 USD).
 - Contestants recruited from semi-urban settings throughout Tanzania.
 - They were all running their own micro-businesses.
 - Selected with the aim of establishing role models.
 - Example: Benitha had managed to establish her own business, after having had to drop out of secondary school due to pregnancy.
- The audience follows each entrepreneur through a number of challenges that make the entrepreneurs as well as the audience explore how they cope with money, with planning their businesses, success and failures and whether they have what it takes to make their businesses grow.
- Tanzanian All Media Product Survey: estimated that the program had 3.1 million viewers.

Ruka Juu - content

- Starting a business and market assessment.
- Customer care and marketing.
- Record keeping and planning.
- Savings, credit and capital.
- Risk and insurance.
- Health, reputation and appearance.

Methodological challenge

- How can we design a field experiment that can identify the impact of a nationally broadcasted program?
 - How can we establish a proper control group?

Design of the field experiment

- Randomly selected 43 secondary schools from Dar es Salaam to take part in the experiment, in total 2144 students, representing an important target group for the program.
- Randomly assigned 22 schools into the treatment group and 21 schools into the control group.
- The treatment group incentivized to watch Ruka Juu, the control group incentivized to watch a classical soap opera.

The watching conditions

- We wanted to look at the effect of a program that they watched in a natural environment: at home, with friends, etc.
- Could be challenging:
 - Power cuts.
 - Television not available.
 - "It's hard; you can't just leave home and go and watch at the neighbors. Sometimes you might find them having their own program that is of interest to them and you can't just put the channel you want. Most of the time you find them watching Super Sport, the football channel, and then you go in interrupting them, that won't work" (male student).
 - "You know, if I am sitting alone and grown-ups come and there are two of them and they are interested in soap operas. Then there are two of them against me, and they forcefully take away the freedom you have of watching...So I usually just let them be" (male student).

Timeline

- Baseline conducted in January 2011, where each student signed a contract.
- Mid-term quiz, to remind them of the contract.
- Lab experiment in June 2011.
- The research group also conducted focus group discussions with in-school and out of school youth, both before and after the program was launched.

Treatment-Control Balance

	Control	Treated	Δ	<i>p</i> -value
Knowledge	0.288 (0.030)	0.221 (0.025)	0.066 (0.038)	0.091
Ambitions	0.111 (0.012)	0.126 (0.019)	-0.015 (0.023)	0.384
Business stream	0.329 (0.100)	0.407 (0.102)	-0.077 (0.143)	0.590
TV at home	0.732 (0.029)	0.774 (0.036)	-0.043 (0.046)	0.360
Not with parents	0.233 (0.012)	0.261 (0.014)	-0.057 (0.019)	0.004
Share male	0.526 (0.041)	0.367 (0.033)	0.159 (0.053)	0.004

Note: Each school is treated as one observation.

Empirical approach

- **Causality:** Our design allows us to identify the *causal* effect of, in short, watching Ruka Juu.
 - Implicit assumption: no impact at the margin of watching a classical soap opera.
 - Clustering of standard errors at the school level.
 - Control variables from baseline: initial knowledge, ambitions, education stream, access to tv, family background.
- **Focus:** Gender specific treatment effects.

What are we measuring?

- Lower bound: only capture the marginal effect.
- Upper bound: incentivized.
- Other issues: target group, composition.
- Working assumption: qualitative effects are representative.

Focus of the lab experiment

- Have they watched the program?
- Does Ruka Juu cause an increase in business knowledge?
- Does Ruka Juu change their mind-set.
- Does Ruka Juu make them more interested in entrepreneurship?

The lab experiment



Lab experiment - main structure

- Incentivized knowledge test
 - On program content.
 - On business knowledge.
- Lab tests of willingness to compete, risk, time, and social preferences.
- Offered the opportunity to take entrepreneurship courses.
- Questions on ambitions, rating of program etc.

Did the intervention work

- **Incentivized:** tested on the content of the two programs, where they were given 100 Tsh for each correct answer (ten questions).
- **Nonincentivized:** reported how many episodes they had watched of Ruka Juu and the soap opera.

Did the intervention work? (insentivized)

	c-RJ	c-RJ	c-S	c-S	r-c	r-c
Treated	1.71*** (0.18)	1.70*** (0.18)	-1.41*** (0.15)	-1.42*** (0.14)	0.61*** (0.047)	0.61** (0.048)
Treated \times male	0.17 (0.20)	0.16 (0.20)	-0.021 (0.20)	0.015 (0.19)	0.14 (0.089)	0.13 (0.088)
Male	-0.36*** (0.13)	-0.34** (0.14)	-0.51*** (0.16)	-0.50*** (0.14)	0.030 (0.034)	0.026 (0.032)
Background vars	no	yes	no	yes	no	yes
Treatment male	1.88*** (0.17)	1.85*** (0.17)	-1.43*** (0.23)	-1.41*** (0.22)	0.75*** (0.073)	0.74** (0.072)
Observations	1915	1905	1915	1905	1908	1898
R^2	0.206	0.213	0.134	0.150	0.190	0.193

Standard errors in parentheses (clustered on schools)

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Did the intervention work? (noninsentivized)

	e-RJ	e-RJ	e-S	e-S	r-e	r-e
Treated	3.36*** (0.31)	3.34*** (0.30)	-1.54*** (0.27)	-1.56*** (0.27)	2.03*** (0.19)	2.02*** (0.20)
Treated × male	0.33 (0.31)	0.28 (0.32)	-0.11 (0.30)	-0.10 (0.30)	-0.12* (0.23)	-0.13** (0.22)
Male	-0.42** (0.20)	-0.34* (0.19)	-0.15* (0.25)	-0.16 (0.25)	-0.10 (0.07)	-0.09 (0.07)
Background vars	no	yes	no	yes	no	yes
Treatment male	3.69*** (0.33)	3.62*** (0.33)	-1.64*** (0.38)	-1.67*** (0.25)	1.91*** (0.18)	1.88*** (0.18)
Observations	1867	1857	1860	1850	1799	1790
R^2	0.298	0.307	0.152	0.064	0.385	0.389

Standard errors in parentheses, clustered on school.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Learning

- In focus group discussions, a number of participants responded having learned a lot from the program.
 - "I learnt to be attentive to the customers and listen to their needs, and not to shout at the customers but have a good language and general cleanliness in the business environment."
 - "It has thought me to have good customer care. Sometimes it happens there is a power cut right in the middle of the movie, so a customer rightfully demands to be reimbursed. Instead of fighting with him/her, I just kindly offer him/her to pay half the prize for the next movie that will be shown" (male out-of-school running a local movie theater).
 - "I learnt how to use polite language in dealing with people, good communication and being trustworthy."
- Do we find any evidence of learning in our data?

Incentivized business knowledge test

- Developed a business knowledge test in collaboration with the program team and local experts on entrepreneurship at the University of Dar es Salaam Entrepreneurship Center.
- Incentivized multiple choice questions in different categories (100 Tsh per correct answer).
 - Macroeconomic facts.
 - Business facts.
 - Business concepts.
 - Business practices.

Impact on knowledge

	Total	Total	Fact-M	Fact-B	Bus-C	Bus-P
Treated	-0.19 (0.29)	-0.22 (0.26)	0.029 (0.095)	0.044 (0.055)	-0.16 (0.10)	-0.11 (0.16)
Treated \times male	0.45 (0.30)	0.40 (0.28)	0.17 (0.11)	0.0075 (0.068)	0.059 (0.11)	0.14 (0.17)
Male	0.22 (0.19)	0.37* (0.18)	0.24*** (0.076)	-0.073 (0.051)	0.14* (0.071)	0.042 (0.11)
Background vars	no	yes	yes	yes	yes	yes
Treatment male	0.25 (0.27)	0.19 (0.27)	0.20** (0.095)	0.051 (0.048)	-0.10 (0.092)	0.024 (0.15)
Observations	1915	1915	1905	1905	1905	1905
R^2	0.007	0.028	0.018	0.007	0.036	0.008

Standard errors in parentheses (clustered on schools)

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$




Knowledge: mixed evidence

- On the topics covered in most depth in the program, we find some evidence of learning.
 - Customer service.
 - The importance of trustworthiness.
 - How to present your business to funders.
- Possible challenge: aimed at covering too many and too complex topics?

An entrepreneurial mind-set?

- In focus group discussions, the female beauty shop contestant Saumu was admired for displaying the entrepreneurial character of being risk-taker.
 - Is such a risk-taking mind-set adopted by the viewers?
- Focus group participants were also impressed by the saving behavior of some of the contestants.
 - Is this reflected in the viewers' time preferences?

Measuring risk preferences

	The safe alternative		The risky alternative	
Case 1	2000 Tsh guaranteed <input type="text"/>	or	4000 Tsh with 25% probability <input type="text"/>	
Case 2	2000 Tsh guaranteed <input type="text"/>	or	4000 Tsh with 50% probability <input type="text"/>	
Case 3	2000 Tsh guaranteed <input type="text"/>	or	4000 Tsh with 75% probability <input type="text"/>	

Gender risk perceptions

- We also asked them what they considered a common characteristic of business women
 - Fast in decision making.
 - Good at collaborating.
 - Never give up.
 - Risk takers.

Measuring time preferences

Today

Eight weeks from now

Case 1

1000 Tsh

OR

1500 Tsh

Case 2

1000 Tsh

OR

3000 Tsh

Case 3

1000 Tsh

OR

5000 Tsh

Measuring competition

- Used a tournament design, where they could choose to compete or work for a fixed wage (300 Tsh versus 100 Tsh).
- Initial round where they worked for a fixed wage, elicited beliefs.

Mindset (risk, competition, patience)

	Risk		Compete?	Patient?
	n-choice	perception		
Treated	0.15** (0.070)	0.072*** (0.023)	-0.032 (0.11)	0.079* (0.045)
Treated × male	-0.15* (0.076)	-0.0081 (0.026)	0.078 (0.078)	-0.073 (0.048)
Male	0.086* (0.049)	0.011 (0.017)	0.011 (0.059)	0.013 (0.018)
Background vars	yes	yes	yes	yes
Treatment male	-0.0021 (0.076)	0.064*** (0.021)	0.046 (0.092)	0.0060 (0.041)
Observations	1905	1905	1900	1905
R^2	0.014	0.014	0.032	0.017

Standard errors in parentheses (clustered on schools)

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Did the program also change the viewers' social preferences

- Even though the program did not explicitly aim at changing the social preferences of the viewers, one might think that a focus on an entrepreneurial mind-set could make people *more selfish* and *less egalitarian*.
- Did we see this?

Test of social preferences

- **Dictator game:** Divide 2000 Tsh.
- **Spectator choice:** Divide a bonus of 2000 Tsh equally or proportionally to earnings (500 Tsh vs. 1500 Tsh).

Social preferences

	Y-self	Y-self	Proportional?	Proportional?
Treated	38.9 (42.4)	44.9 (42.8)	0.034 (0.040)	0.033 (0.039)
Treated \times male	-82.2* (44.0)	-71.0* (42.1)	-0.036 (0.043)	-0.042 (0.045)
Male	61.3* (32.5)	59.4* (32.7)	0.044 (0.028)	0.055* (0.029)
Background vars	no	yes	no	yes
Treatment male	-43.3 (35.5)	-26.1 (37.5)	-0.0014 (0.045)	-0.0088 (0.047)
Observations	1915	1905	1915	1905
R^2	0.003	0.014	0.002	0.004

Standard errors in parentheses (clustered on schools)

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Was the show inspiring?

- In focus group discussions, a number of participants appeared to be inspired by the program.
 - "I can say that Ruka Juu has inspired me to be more determined to succeed and expand my business. I was thinking if there was a school about business and how to manage it, I would have joined so that I can broaden my knowledge" (male, out-of school).
 - "I have learned that even us women can do it, not only men but also women when given an opportunity" (female student).
 - "I have been motivated to believe that I can do anything although I am a girl. I just need to be focused" (female student).
- Do we find any evidence of these views in our data?

Measuring ambitions

- **Incentivized:** Offered them the opportunity to use the participation fee of 4000 Tsh on a course in entrepreneurship.
- **Nonincentivised:** Asked them:
 - If you were offered a one-week, full time training course for free, what would you choose (training in office work, entrepreneurship, health issues, vocational training).
 - Assume that you can choose between the following job opportunities and that the income and job hours were exactly the same in all of them. How would you rank them (private sector employee, government employee, own business, farmer).

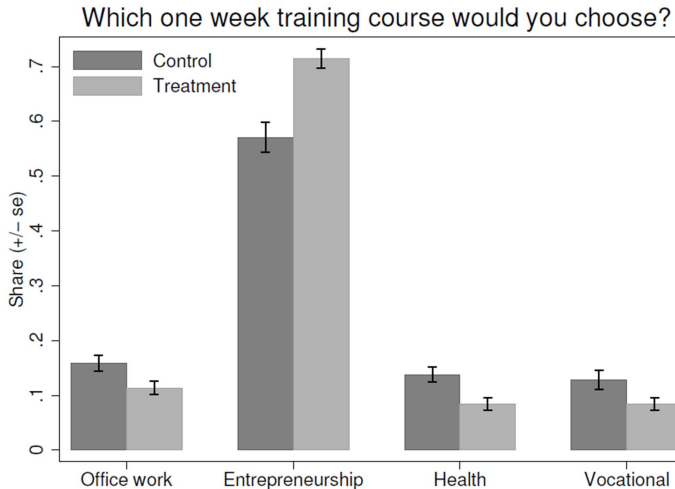
Ambitions

	amb	amb	weekc	weekc	ownb	ownb
Treated	0.060* (0.033)	0.058* (0.032)	0.12*** (0.040)	0.11*** (0.040)	0.12 (0.085)	0.12 (0.084)
Treated \times male	-0.049* (0.027)	-0.046* (0.026)	0.039 (0.046)	0.028 (0.047)	0.070 (0.10)	0.068 (0.10)
Male	0.025 (0.016)	0.021 (0.017)	-0.075* (0.039)	-0.063 (0.040)	-0.050 (0.071)	-0.042 (0.067)
Background vars	no	yes	no	yes	no	yes
Treatment male	0.010 (0.027)	0.012 (0.028)	0.16*** (0.039)	0.14*** (0.038)	0.19** (0.073)	0.19** (0.073)
Observations	1915	1905	1910	1900	1863	1853
R^2	0.006	0.007	0.026	0.036	0.007	0.013

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

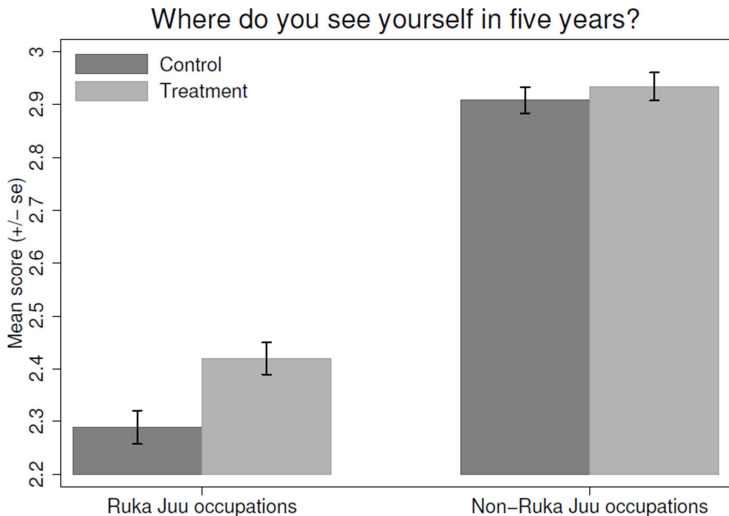
Increased interest in Entrepreneurship



Ambitions: Additional evidence

- We also asked them "Where do you see yourself five years from now?", where they ranked 31 different career paths from very unlikely to very likely.
- We observe the most significant differences for females related to the businesses of the female contestants (and the male winner!)

Increased interest in Ruka Juu occupations



Concluding remarks

- We find strong evidence for the edutainment show inspiring the viewers, both with respect to entrepreneurial mind-set variables and ambitions.
 - Particularly strong effects on female viewers.
 - Potentially of great importance for a show that is broadcasted nationally
- More mixed evidence on the entrepreneurship program educating the viewers.
- Methodological contribution: We have illustrated one approach that enables us to identify causal effects of a nationally broadcasted television program on a wide range of outcome variables.