

Student led undergraduate research: a guide for economics

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Economic models show **how people** make choices based on incentives, which are determined by production functions

Model for undergrad research

People

Incentives

Production Function

Economic models show **how people** make choices based on incentives, which are determined by production functions

Model for undergrad research

People [Students and Faculty]

Incentives

Production Function

Economic models show how people make choices based on **incentives**, which are determined by production functions

Model for undergrad research

People [Students and Faculty]

Incentives

Production Function

Student Incentives (Rewards)

- Deeply explore a subject
- Mentor
- Skills for graduate school or employment

Faculty Incentives (Rewards)

- Teaching is fulfilling
- Research production

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- Teaching is fulfilling
- Research production
- ~~Money~~

Economic models show how people make choices based on incentives, which are determined by **production functions**

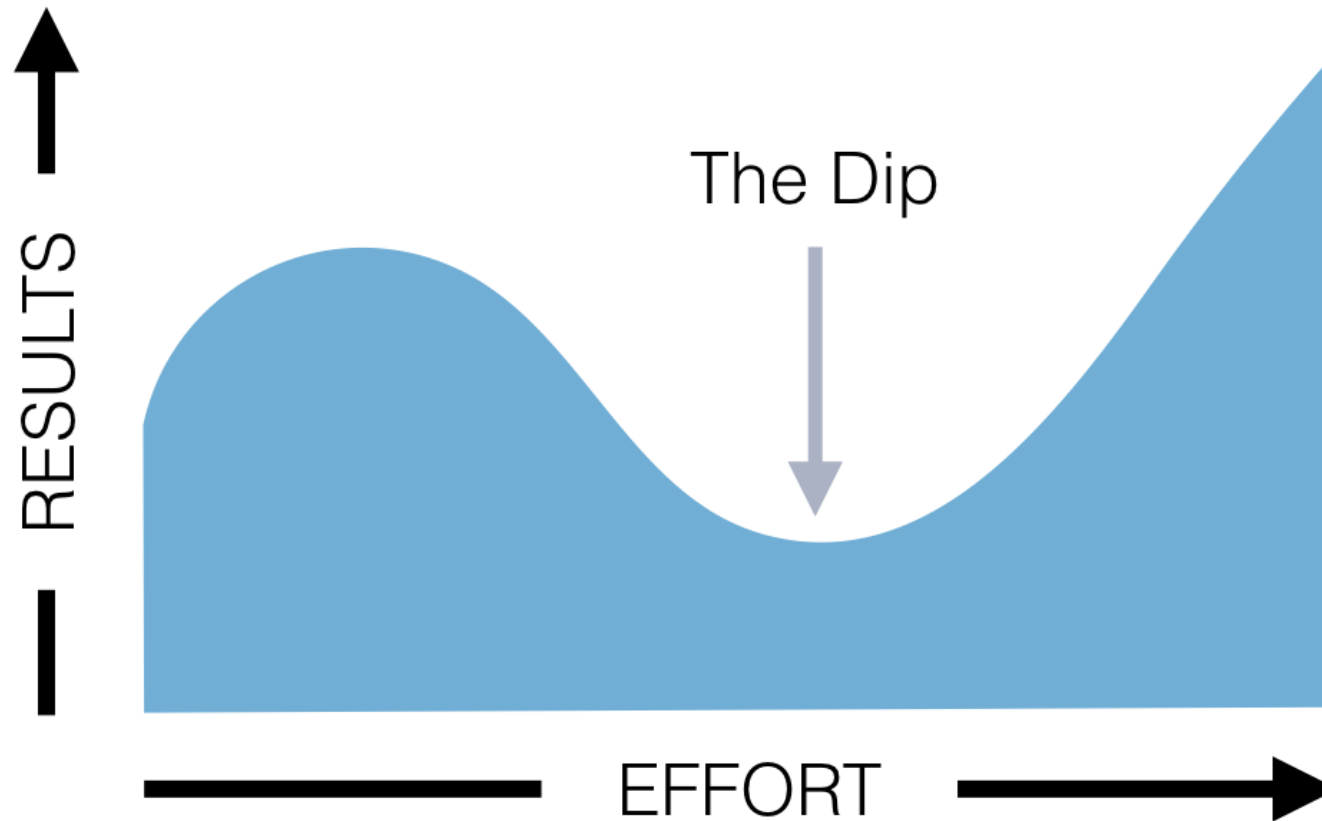
Model for undergrad research

People

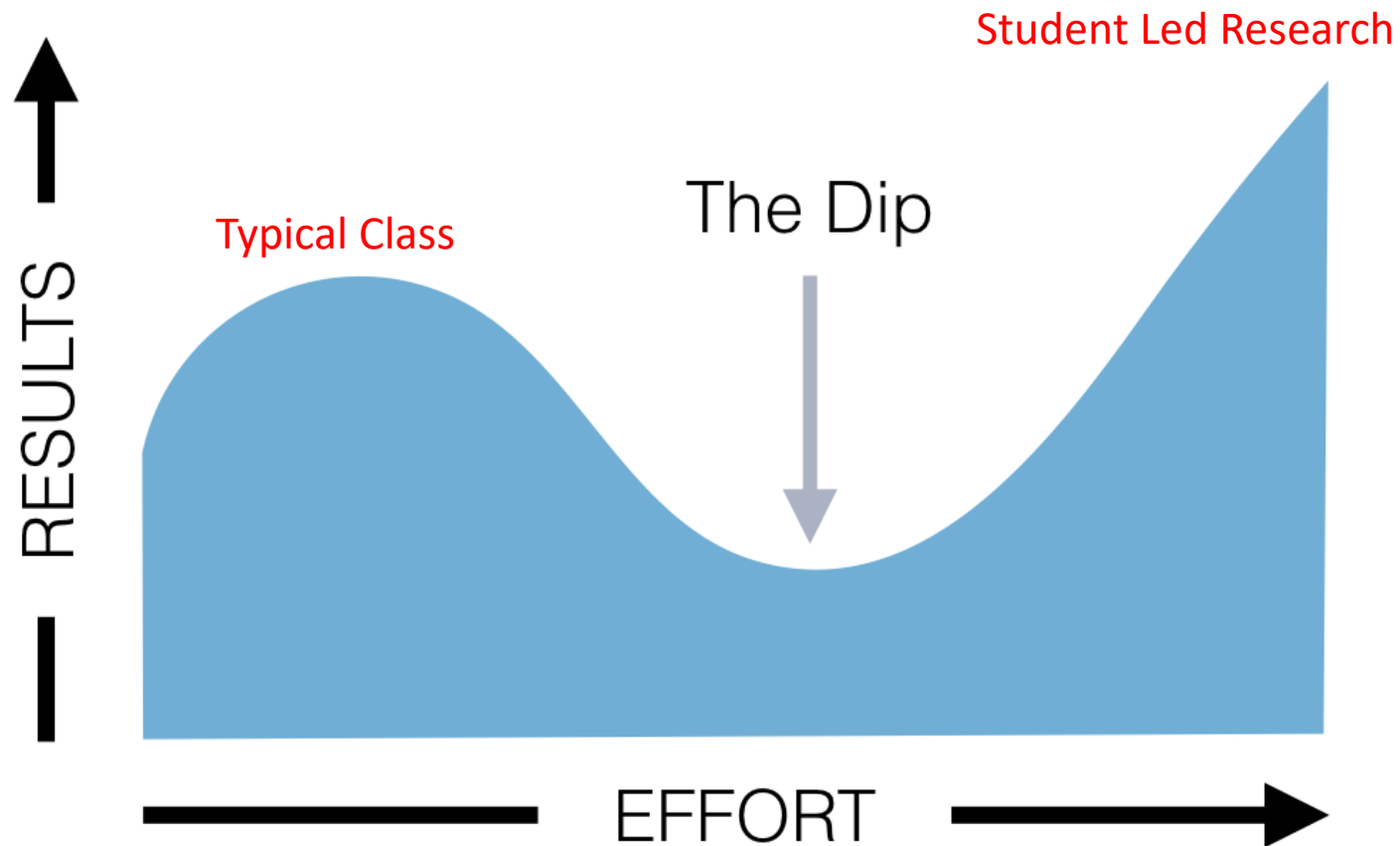
Incentives

Production Function

Undergraduate Research Production Function



Undergraduate Research Production Function



Student questions

- Relevant course work
- Future Plans
- Time constraints
- Research idea

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In economics: Stats/Metrics (Econ 253), Field Course

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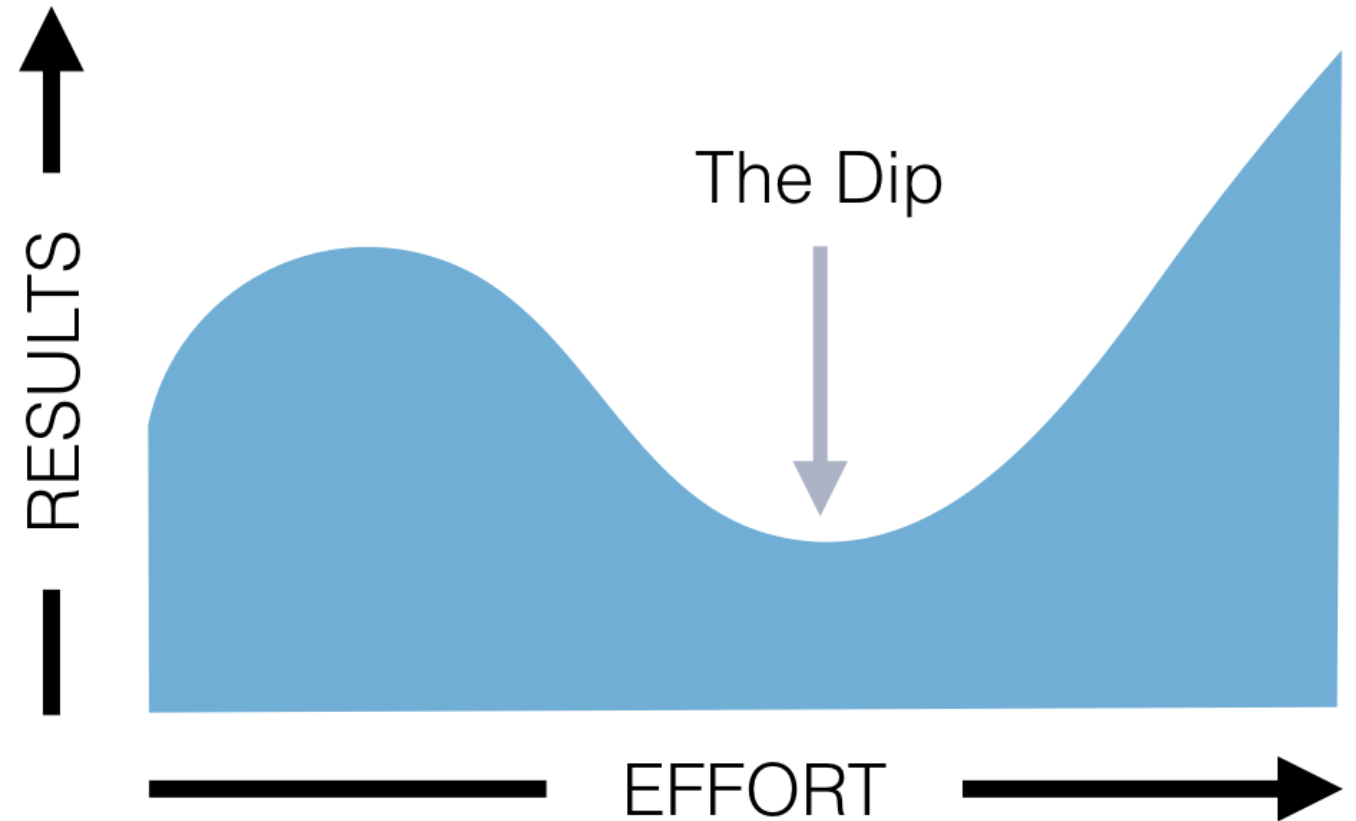
Graduate School???

Graduate School

Do You Want to Go to Graduate School?	Benefits to undergraduate research
Yes	Improve research and writing skills. Letter of recommendation
Maybe	See if you like doing the work and if you have the skills.
No	Is research related to your career plans

Student questions

- Relevant course work
- Future Plans
- Time constraints
- Research idea



Effort

- To avoid the dip it takes a lot of effort!
- Summer before senior year about 5-10 hours work per week.
- Over the semester meet 1-2 times per week usually 30 minutes to an hour.
- Work of 2-3 classes

Which students should **NOT** do independent research

- Lack prerequisite classes
- Would not help post graduation goals
- Not self motivated
- Not extremely interested in the topic
- Plan to graduate this semester

Faculty Incentives (Rewards)

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Faculty Incentives (Rewards)

- Teaching is fulfilling
- Research production (probably falls)
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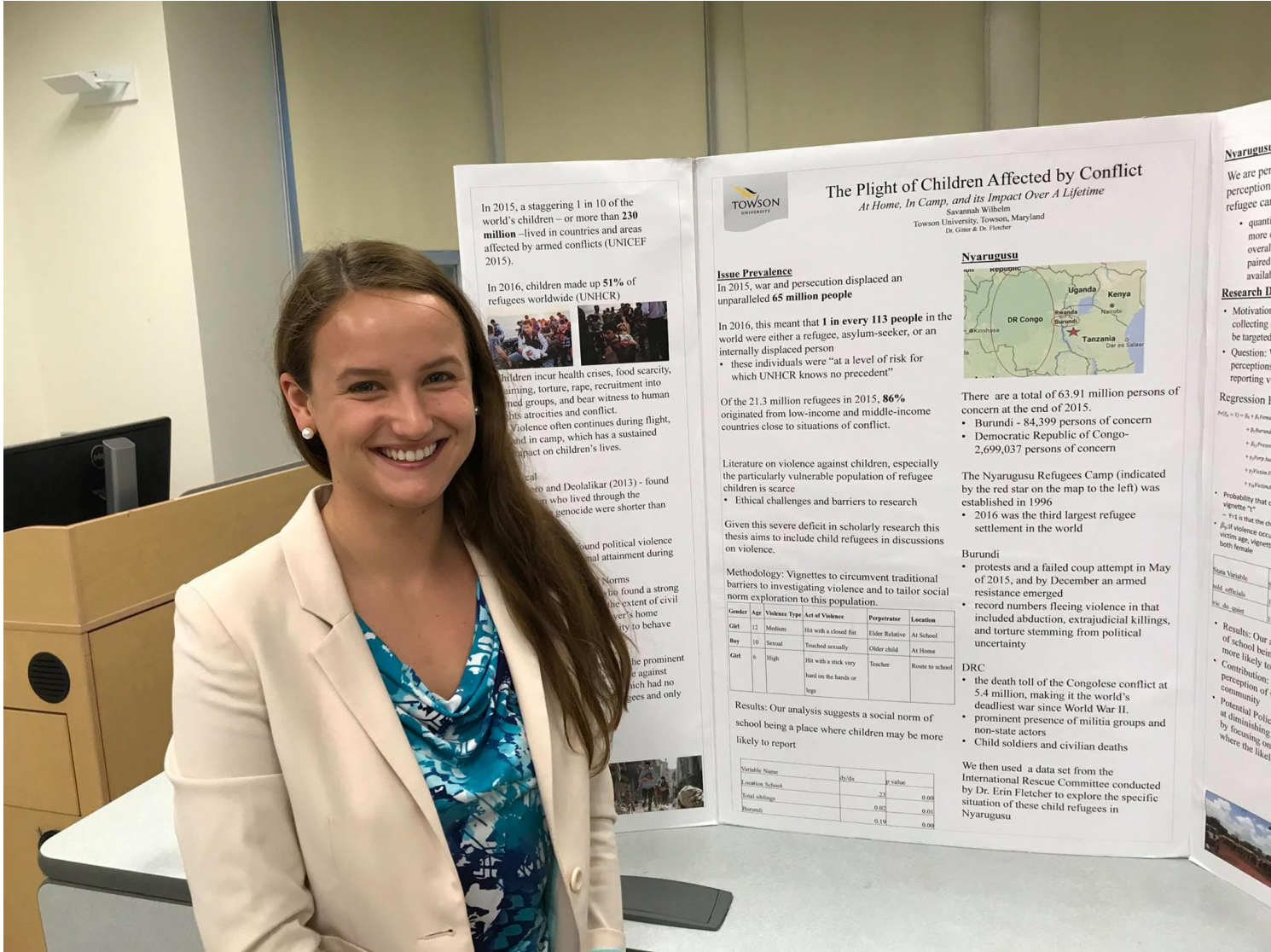
Faculty Incentives (Rewards)

- **Teaching is fulfilling**

What about the professor?

- You need the professor
 - No extra money
 - More work
-
- So why do I and other professors work with students?





The Plight of Children Affected by Conflict

At Home, In Camp, and its Impact Over A Lifetime

Savannah Wilheim
Towson University, Towson, Maryland
Dr. Ginter & Dr. Fletcher

Issue Prevalence

In 2015, war and persecution displaced an unparalleled **65 million people**

In 2016, this meant that **1 in every 113 people** in the world were either a refugee, asylum-seeker, or an internally displaced person

- these individuals were "at a level of risk for which UNHCR knows no precedent"

Of the 21.3 million refugees in 2015, **86%** originated from low-income and middle-income countries close to situations of conflict.

Literature on violence against children, especially the particularly vulnerable population of refugee children is scarce

- Ethical challenges and barriers to research

Given this severe deficit in scholarly research this thesis aims to include child refugees in discussions on violence.

Methodology: Vignettes to circumvent traditional barriers to investigating violence and to tailor social norm exploration to this population.

Gender	Age	Violence Type	Act of Violence	Perpetrator	Location
Girl	12	Medium	Hit with a closed fist	Elder Relative	At School
Boy	10	Severe	Touched sexually	Older child	At Home
Girl	4	High	Hit with a stick very hard on the hands or legs	Teacher	Route to school

Results: Our analysis suggests a social norm of school being a place where children may be more likely to report

Variable Name	β_2 (std)	t-value
Location: School	22	0.00
Final siblings	0.02	0.01
Burundi	0.19	0.00

Nyarugusu



There are a total of 63.91 million persons of concern at the end of 2015.

- Burundi - 84,399 persons of concern
- Democratic Republic of Congo - 2,699,037 persons of concern

The Nyarugusu Refugees Camp (indicated by the red star on the map to the left) was established in 1996

- 2016 was the third largest refugee settlement in the world

Burundi

- protests and a failed coup attempt in May of 2015, and by December an armed resistance emerged
- record numbers fleeing violence in that included abduction, extrajudicial killings, and torture stemming from political uncertainty

DRC

- the death toll of the Congolese conflict at 5.4 million, making it the world's deadliest war since World War II.
- prominent presence of militia groups and non-state actors
- Child soldiers and civilian deaths

We then used a data set from the International Rescue Committee conducted by Dr. Erin Fletcher to explore the specific situation of these child refugees in Nyarugusu

Nyarugusu

We are per perception refugee can

- quanti more i overall paired avail

Research D

- Motivation collecting be targeted
- Question: ' perception reporting v

Regression I

$$Pr(Y_i = 1) = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \dots + \beta_k X_{ik}$$

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$$+ \beta_{k+2} DRC$$

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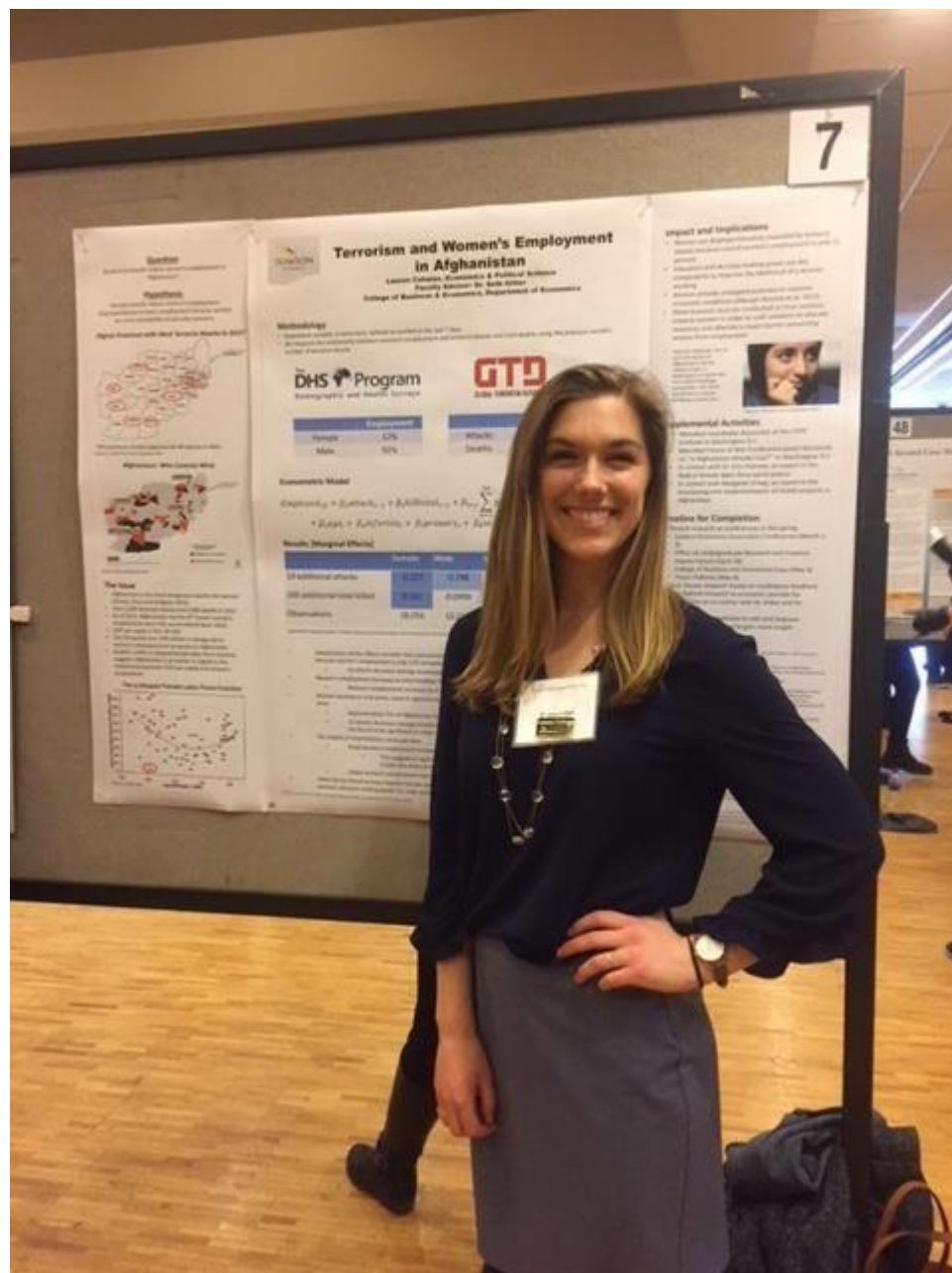
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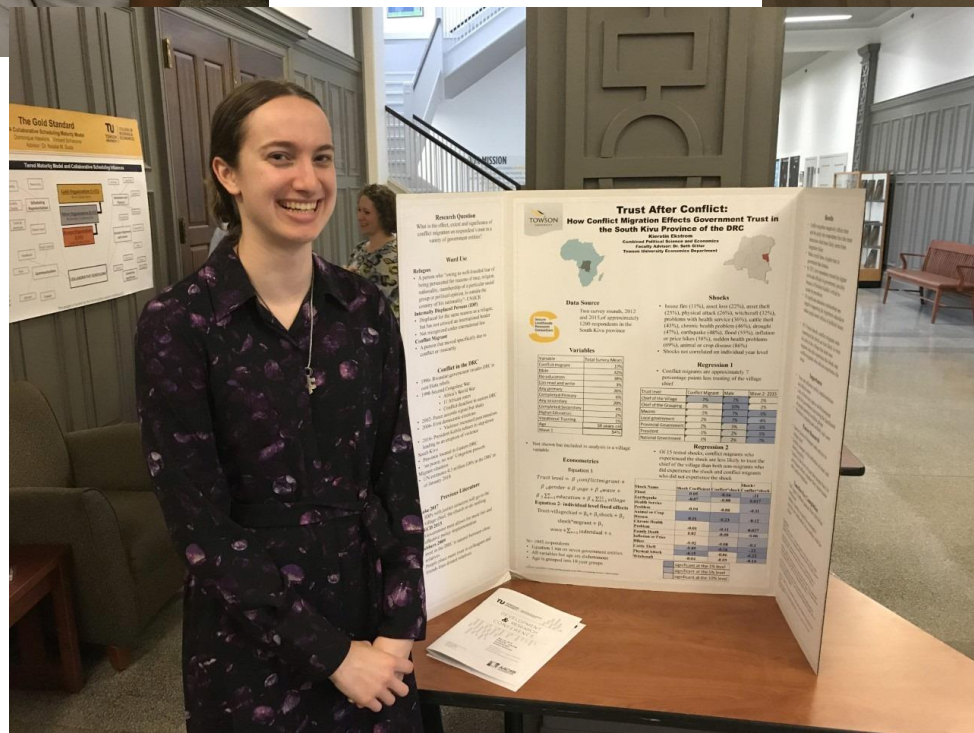
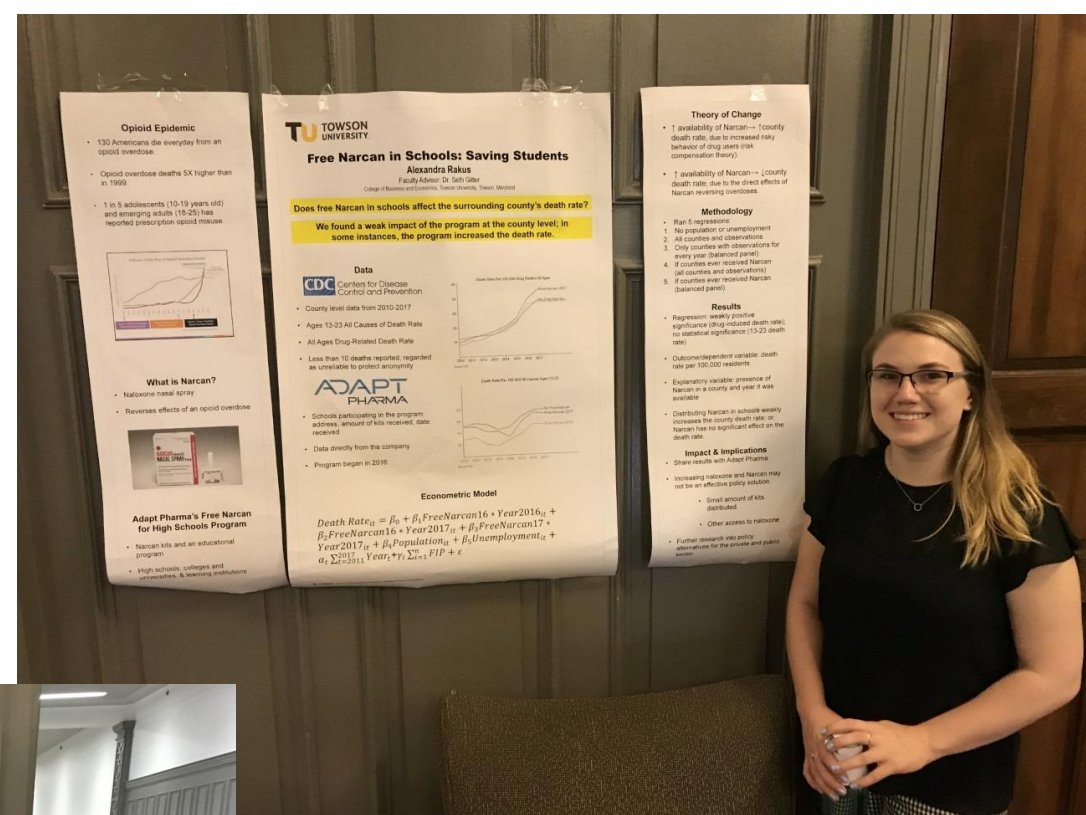
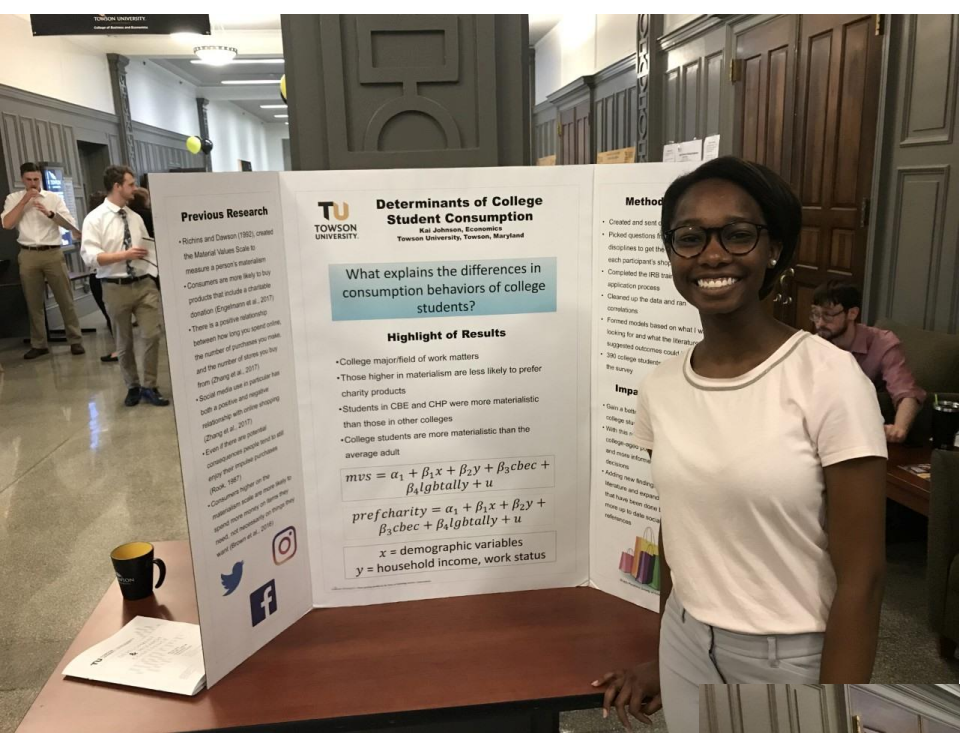
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Towson Undergraduate Research Club



Selecting a Professor

- Best option is a professor who taught you already
- If not ask other professors
- Look at professor's webpage, CV and google scholar.
 - Are they publishing research?
 - Is it in topics you care about
- Professor at other schools

Tenure and academic ranks

- Note in the previous slide the effort it takes for faculty to work with you.
- Tenure is a reward (job security) granted to some professors
- Tenured faculty are more likely motivated by non-monetary rewards like the joy of working with individual students
- Associate Professors and (Full) Professors have tenure
- Assistant Professors are trying to get tenure.
 - Working with you may take time away from research to get tenure
 - Assistant Professors are more recent Ph.D.'s so have sharper skills
- Lecturers and Visiting Professors
 - Are underpaid and overworked.

How to approach a professor

- If you currently have the professor in class
 - Talking to them after class with a 1 minute elevator pitch
- Be prepared to meet with them after class if you are both available.

A short e-mail to a professor

Always error on the side of Dr

Dear Dr. Gitter,

In the first sentence I know you are at TU and what you want

I'm a junior Economics major at Towson and I wanted to meet with you about potentially working with you on an independent research project. I'm interested in working on women's labor force participation in Afghanistan.

3rd sentence I know your experience

2nd sentence I know a topic you are interest in

I studied related topics in my development and labor classes. My hope is to use this independent study as preparation for graduate school

4th sentence I know why

Would you be available during your office hour 1-2 on Monday or Thursday afternoon?

Telling me your availability and during my office hour is the best!

Regards,
Chris Smith

Meeting with the professor for the first time

- Be prepared to talk about
 - Why you are interested in the topic
 - Your course work and programming ability
 - Post graduation plans
- Ask the professor
 - Their experience with past projects
 - Their availability and sabbaticals

Choosing a topic

- The best topics are
 - Ones you care about
 - Know something about
 - Doable
- The student sets up the topics and the professor comes up with the specific research idea

Screening device

- As the professor we want to identify if a student is an independent worker and can meet deadlines
- To create a screening device I recommend having students write a one-page proposal

Writing an agreement

- You are committing to dozens of hours of work
 - Set expectations for the student and professor
- Build in a trial period (summer)
- Have a written MOU

To have an agreement you need a plan

Here is a typical plan:

- Spring Semester: Recruit Students
- Summer Semester: Prep Project
 - Set up success for the fall semester by doing the prep work during the summer. By the first day of fall semester have:
 - a cleaned data set
 - descriptive statistics
 - regressions ready to run
- Fall Semester: Conduct Independent Study Project
- What semester will the student take an independent study?

Typical Timeline for a 1 year program

June	July	August	September	October	November
Finalize Topic and data set Summarize 5 Papers	Clean Data Summarize 5 more papers	Descriptive Stats Summarize 5 more papers	Create Tables and Regression Model 5 more papers	Outline paper draft	Draft the paper
December	January	February	March	April	May
Revise the paper	Professor revise with line edits, recruit thesis committee	Present Paper and revise	Present Paper and revise	Defend thesis and submit to journal	Graduate

How to have a good meeting

- Regularly scheduled time
- Student e-mails agenda and their work
- End of meeting should have action items for student and professor

Software

- File syncing (dropbox, onedrive)
- Have a second backup (backblaze, carbonit)
- Stats software (R, Stata, SPSS?)
- Slack/communications

How to do a literature search with a student?

- Let the student try first.
 - Student selects 5-10 articles
 - Professor checks abstracts for relevance
 - Student writes half page summaries
 - Faculty does search
- Raul Pacheco-Vega has great tips for annotated bibliographies

Economic models show **how people** make choices based on incentives, which are determined by production functions

Model for your undergrad research

Who decides?

What are the results of their decisions

Model will guide you to the choice of variables and data

Types of data in order of ease

- Public Access
 - 1,000s of data sets out there you can download and start working immediately
- Restricted Access
 - Data is never as easy to get as it seems
- Running your own survey or experiments
 - IRB

Cleaning Data: Teach Students Good Habits

- Make a copy of the original file. Only use the copy
- Create a replicable command file with lots of comments
- Give variables easy to use names with labels
- Check for missing values and outliers
- Check the sample size when all variables are included
- Professors check or even replicate your students work

Econometric Analysis

- Woolley (2014) great blog post on “Why do beginner econometricians get worked up about the wrong things?”
- The right things to get worked up about
 - Dealing with missing values
 - Defining the Sample
 - Variables to Include
 - Spotting Endogenous Variables
- Do not get worked up about complicated econometric methods
- OLS might be all you need

Writing the paper

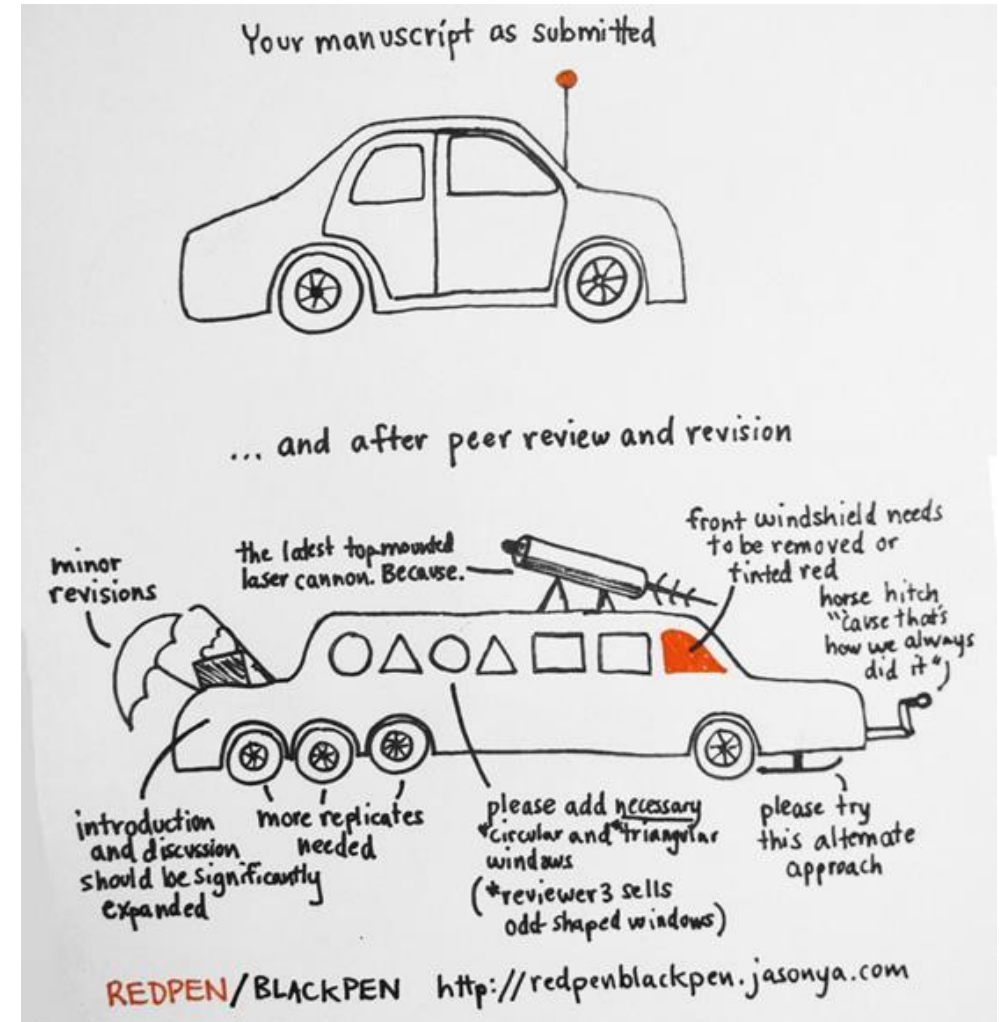
- Make an outline
- Introduction
 - Hook + ? + b4 + Value Add + Road Map [Keith Head Formula]
- Conceptual Framework [see Bellemare Middle Bits formula]
- Descriptive Stats
- Model
- Results
- Conclusion [Bellemare Conclusion Formula]
 - Summary + Limitations + Policy + Next Paper

Apply to academic conferences

- Creates a deadline
- It may require your student to write an abstract for submission
 - Most conferences request abstracts months in advance
- Incentive finish the paper they get to travel to the conference
- Best time for a conference is late spring
- Money?

Publishing

- Publishing takes at least a year from submission to acceptance in Economics.
 - What are the student's plans post graduation
- Undergraduate journals
 - Less developed projects
- Faculty are motivated by publications



Thesis versus co-authored paper

- An undergraduate thesis is usually authored by the student. They may receive feedback to help with revisions but the professor does not make line edits
- A co-authored paper the professor will often do a major rewrite of the paper based on their experience writing for academic journals.
- One solution is to not make line edits until the spring.
- The thesis can include a longer literature review, while co-authored paper will be more streamline

Reaping the Benefits for Faculty

- Include students research in grant applications
- List on your CV papers co-authored with students
- Talk to university communications people.
- Keep in touch with your former students
 - Create a yearly newsletter or e-mail
 - Make sure to connect on linkedin

Student Rewards

- Become an expert on a topic
- Gain data analysis and writing skills
- Decide grad school or job?
- Have a good story for grad school or jobs