Predicting Gender Equity

Team #, Hackathon October 2016

Today's Agenda

About Us

Introduction to our team

About Us

Conrado Brenna
3rd yr. ISyE

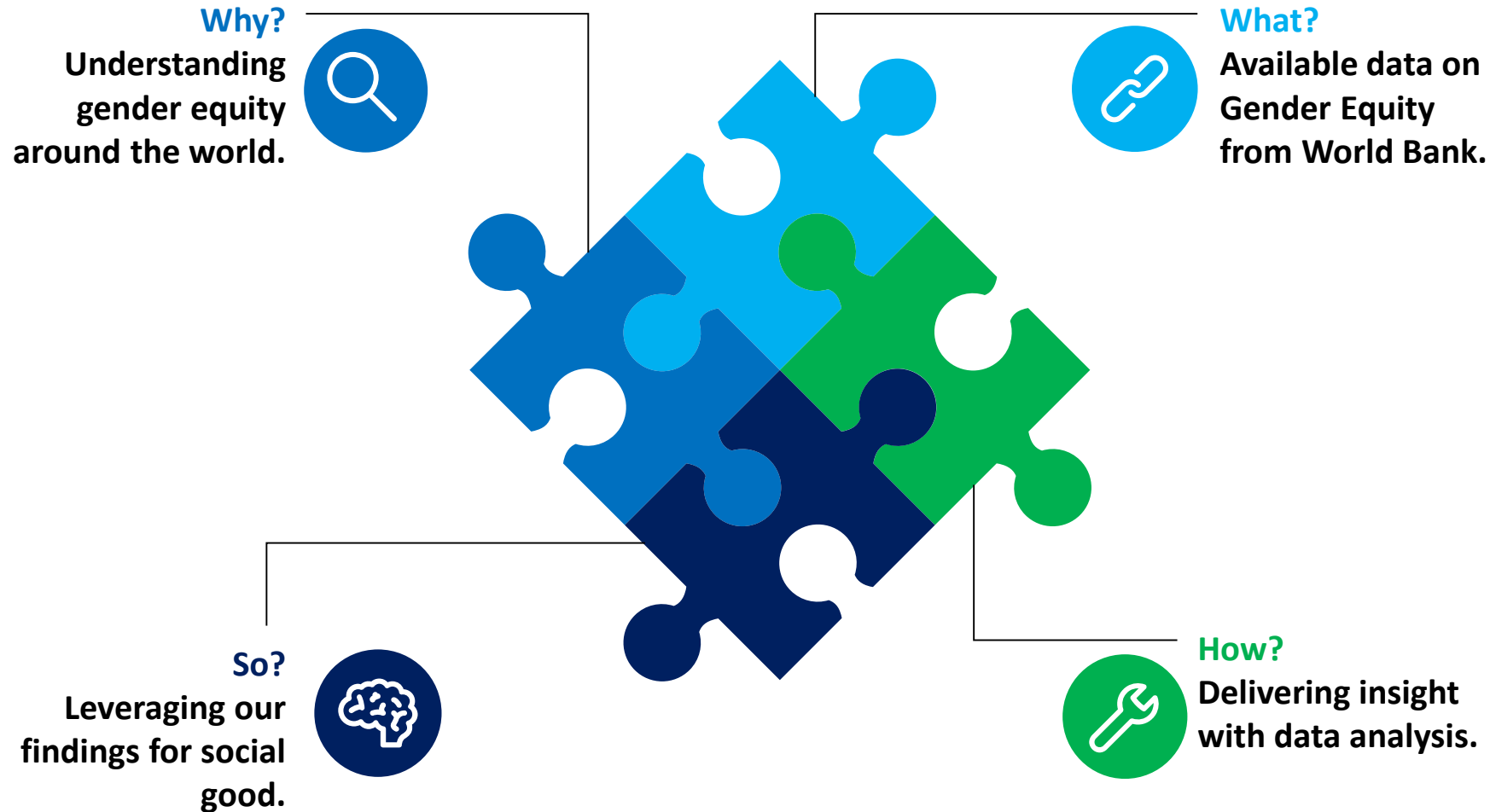**Rohan Manathkar**
2nd yr. ISyE

Sheena Ganju
3rd yr. ISyE

Ryan Reed
3rd yr. ISyE

Approach

Insight into our thought process

Approach
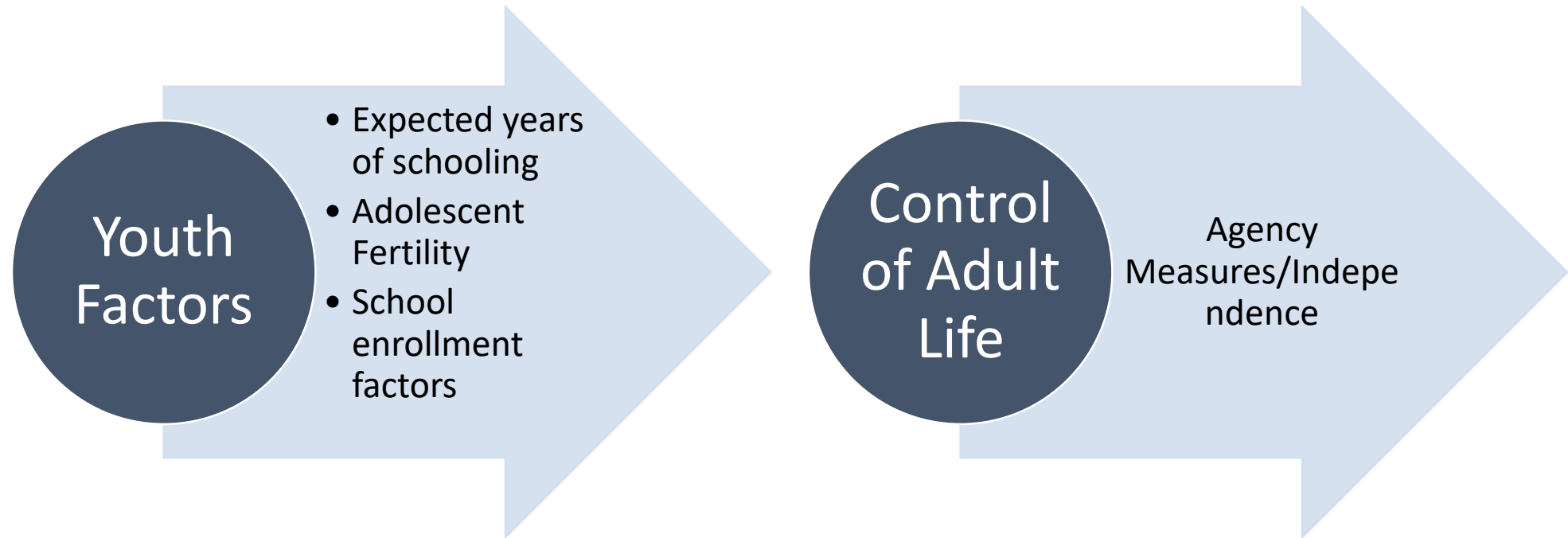
Why?
Understanding gender equity around the world.

What?
Available data on Gender Equity from World Bank.

So?
Leveraging our findings for social good.

How?
Delivering insight with data analysis.

Why?

Understanding Gender Equity around the World.

Why? – Understanding Gender Equity

Youth Factors

- Expected years of schooling
- Adolescent Fertility
- School enrollment factors

Control of Adult Life

Agency Measures/Independence

Analyzing where girls have different agency factors than men under the assumption that education is the best predictor of future agency.

What?
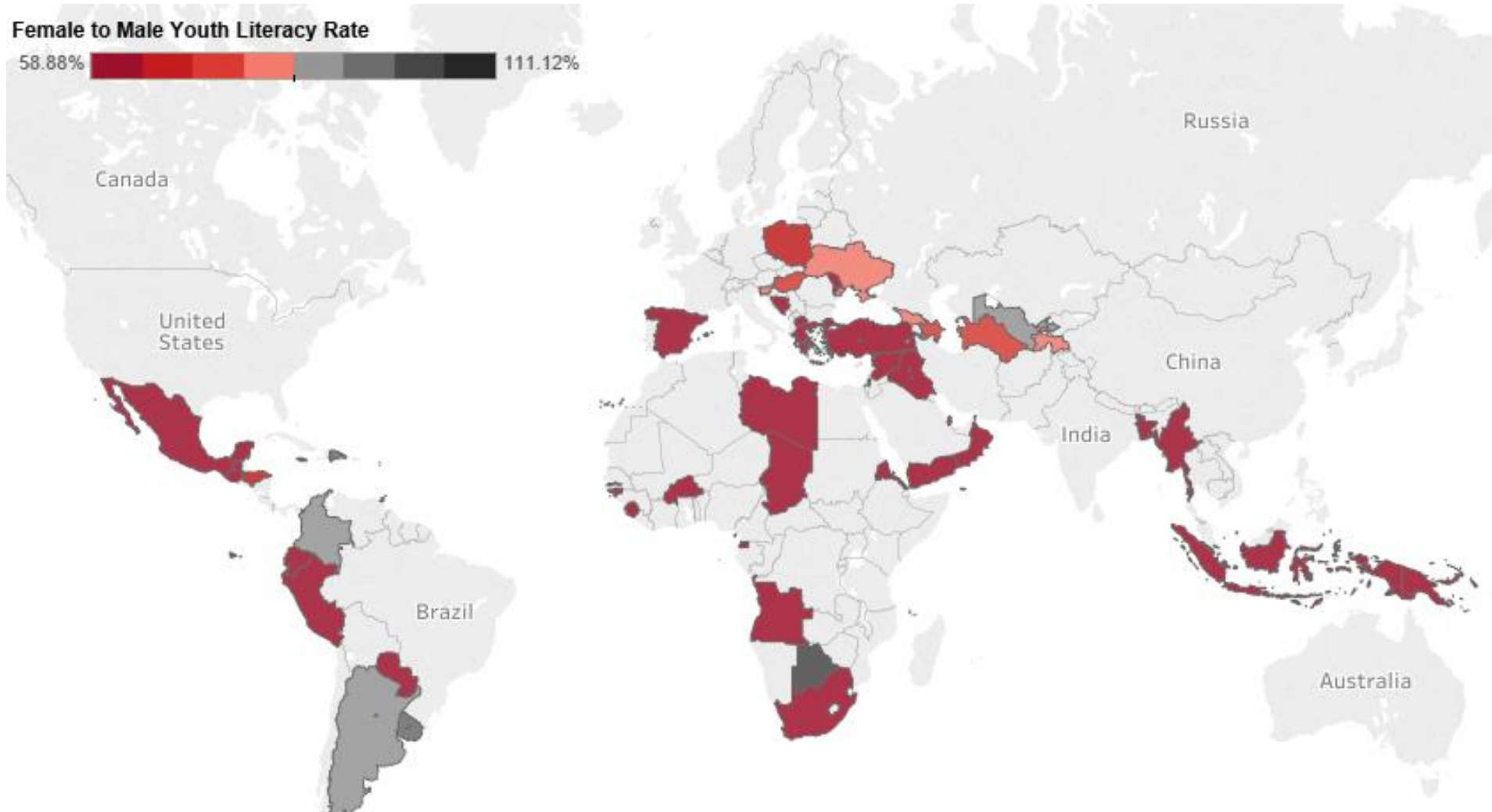
Exploring data sets from the World Bank.

What? – Looking at available data

Areas where Female/Male literacy rate is less than 85%

Female to Male Youth Literacy Rate
58.88% ▮▮▮▮▮▮▮▮ 111.12%

How?

Leveraging data to deliver insight.

How? – Leveraging our data

- Gathered data on problem factors in youths that could impact adult gender equality
  - Adolescent fertility
  - School enrollment, primary, female
  - GDP
- Used a multivariable linear regression model to draw a connection between these youth risk factors and adult gender equality
  - Adult gender equality measured through participation by females in the labor force
- R^2 coefficient of 97% with 5 contributing variables, p-value < 0.1

MODEL SUMMARY

After backwards stepwise

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Model Summary

      S    R-sq  R-sq(adj)  R-sq(pred)
4.05768  97.27%     97.21%      97.16%


Coefficients

Term                          Coef   SE Coef  T-Value  P-Value   VIF
Constant                     0.609     0.768     0.79    0.429
NY.GNP.PCAP.CD           -0.000035  0.000019    -1.86    0.064  1.68
SL.EMP.TOTL.SP.FE.NE.ZS    1.0428    0.0188    55.46    0.000  2.29
SL.SRV.EMPL.FE.ZS          0.0300    0.0118     2.54    0.012  2.16
SL.TLF.ACTI.MA.ZS          0.0229    0.0123     1.86    0.064  1.62
SP.DYN.CBRT.IN            -0.0585    0.0322    -1.82    0.071  1.78


Regression Equation

SL.TLF.CACT.FE.NE.ZS = 0.609 - 0.000035 NY.GNP.PCAP.CD + 1.0428 SL.EMP.TOTL.SP.FE.NE.ZS
                  + 0.0300 SL.SRV.EMPL.FE.ZS + 0.0229 SL.TLF.ACTI.MA.ZS
                  - 0.0585 SP.DYN.CBRT.IN
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So?

Using insights to deliver social good.

So? – Driving Social Good

- Directly correlating factors
    - GNI per capita
    - Employment to population ratio for females
    - Life Expectancy at Birth

This study encourages programs that fight for the empowerment of women to empower them at young ages, particularly these variables, as we proved that they correlate with autonomy later in life.

Our model demonstrates this

Problem: Variability in reported data. Falsification/misrepresentation in data, different sampling techniques.

Q&A