PROMISE: Measuring From Inflation to Discrimination
June 2018

Roberto Rigobon
MIT, NBER, CNStat
## Dimensions of Social Wellbeing

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>P</strong></td>
<td>• Personal</td>
</tr>
<tr>
<td><strong>R</strong></td>
<td>• Relationships</td>
</tr>
<tr>
<td><strong>O</strong></td>
<td>• Organizations, Firms, and Jobs</td>
</tr>
<tr>
<td><strong>M</strong></td>
<td>• Markets and Economy</td>
</tr>
<tr>
<td><strong>I</strong></td>
<td>• Institutions</td>
</tr>
<tr>
<td><strong>S</strong></td>
<td>• Social and Political</td>
</tr>
<tr>
<td><strong>E</strong></td>
<td>• Environment</td>
</tr>
</tbody>
</table>
# Principles

<table>
<thead>
<tr>
<th>Principles</th>
<th>Balance</th>
<th>Trust</th>
<th>Future Value</th>
<th>BB-NN</th>
<th>Consistency</th>
<th>SP</th>
<th>EE</th>
</tr>
</thead>
</table>

- **Pollution Stock**
  - Pollution In
  - Expenditures

- **Debt (stock)**
  - Pollution Out
  - Taxes

- PROMISE
  - PR
  - RO
  - MI
  - S
  - E
Values

<table>
<thead>
<tr>
<th></th>
<th>P</th>
<th>R</th>
<th>O</th>
<th>M</th>
<th>I</th>
<th>S</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principles</td>
<td>Balance</td>
<td>Trust</td>
<td>Future Value</td>
<td>BB-NN</td>
<td>Consistency</td>
<td>SP</td>
<td>EE</td>
</tr>
<tr>
<td>Values</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Weights on each dimension</td>
<td></td>
</tr>
</tbody>
</table>

- How much do you care about each dimension?
## Measurement

<table>
<thead>
<tr>
<th></th>
<th>P</th>
<th>R</th>
<th>O</th>
<th>M</th>
<th>I</th>
<th>S</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principles</td>
<td>Balance</td>
<td>Trust</td>
<td>Future Value</td>
<td>BB-NN</td>
<td>Consistency</td>
<td>SP</td>
<td>EE</td>
</tr>
<tr>
<td>Values</td>
<td></td>
<td></td>
<td>Weights on each dimension</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measure</td>
<td></td>
<td></td>
<td>Quality of Measurement. How each “stock” is measured?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Measurement Quality

What you measure changes what you do!

- Incentives aligned with measurement
- Actions aligned with measurement
My Research

P R O M I S E

BPP  TBM

Attribution Problem
Incentive Networks
Contingent Financial Networks

PCI  ACP

Trust Networks
BPP: Countries covered
Our Approach to Daily Inflation Statistics

1. Use scraping technology
2. Connect to thousands of online retailers every day
3. Find individual items
4. Store and process key item information in a database
5. Develop daily inflation statistics for ~20 countries

- Date
- Item
- Price
- Description
Argentina
Thousand Big Mac’s Project

Online prices represent an effective tool to measure PPP fluctuations
- Identical items sold around the world
- Detailed descriptions to achieve a nearly perfect matching
- Daily Prices

PPP indices:
- More than 300 narrow product categories
- With thousands individually matched items
- In food, fuel, and electronics: we are missing clothing, personal care, household products.
- Cars we will never match

Compare prices for a bottle of soda across countries
Apply similar approach to hundreds of products on a daily basis
Relative Prices

Price: 49.90
Product: 4081762

Price: 29.99
Product: 4081762

\[
\frac{49.90}{29.99} = 1.664
\]
Relative Prices

Price: $49.99
Product: 70136

Price: £29.99
Product: 70136

\[
\frac{49.99}{29.99} = 1.667
\]
Aggregate Confusion
Solving the confusion of ESG ratings
Julian Koelbel, Florian Berg, Roberto Rigobon
July, 2017
Problem

- Inconsistency between rating agencies
  - Correlation across rating agencies is small (<15%)
  - At the individual measurement situation is worse (negatively correlated in some cases)
- What are the sources of discrepancies?
  - Measurement
  - Information
  - Aggregation
ESG Rating Agencies’ Scores diverge

Comparison of rating scores from agency A versus rating scores from agency B.
Sources of errors

1. Measurement Error
   From Attribute to Indicator

2. Information Set Error
   Different Indicators

3. Aggregation Error
   Different Procedures
New Measures

- How to measure?
  - Women empowerment
  - Household Stress
  - Manexplaining and Hidden Networks (Team Chemistry and Attribution problem)
  - Human Trafficking
  - Opioid Crises
  - Job Quality and Job Satisfaction
  - Water management practices
Pillars of the new measures

1. Continuous Measurement of process
   - Timely measures

2. Non-intrusive
   - Can’t rely on surveys - needs electronic forms of data collection

3. Open source
   - Many could adopt the methodologies

4. Privacy protecting
   - Violations of privacy can be significantly harmful, especially when estimating hidden behavior that is morally questionable

5. Imperfect Measurement
   - To guarantee the previous 4 characteristics the measures need to be noisy.
Women at Work
Language as part of Measurement

- “What do you mean?”
  - Same event reported by different people on Nov 29th 2017
Is it inappropriate behavior?
Is it sexual misconduct?

Graphic, Disturbing Details of Matt Lauer’s Alleged Sexual Misconduct

A bombshell Variety report alleges Lauer gave one female colleague a sex toy, and more.

by YOHANA DESTA
NOVEMBER 29, 2017 5:24 PM
Or is it sexual harassment?
Fitzgerald’s Classification

Legal Categories
- Sexual Harassment
  - Hostile Environment
  - Quid Pro Quo

Fitzgerald’s Categories
- Gender Hostility
- Unwanted Sexual Attention
- Sexual Coercion
  - Implicit
  - Explicit

Sexual Assault
- Sexual Assault
“What do you mean?”
- Sexual misconduct? “when it is not as bad as Sexual Harassment?”
  - Define “bad”

Fitzgerald:
- Sexual misconduct could mean anything between a rape and a bad date.
- Having the wrong language implies that a conversation that is necessary and extremely difficult to have, becomes even harder.
Example

- Women Empowerment
  - How we measure today?
    - Counting: only relevant at the extremes
    - Scandals: only relevant if media agrees
    - Wage gap: discrimination on regressors

Characteristics?
- Mostly about health
  - Too rare
  - Too frequent
  - Too short
  - Too based on perception

Measure interruptions
- How frequently men interrupt women and other men?
- Airtime: how long each one talks?
- Mansplaining: assertiveness and apologies

Culture, hierarchy, language, media matter - but why gender and minority status would?
Women in Management

The Industries With The Most Female Managers
Proportion of senior management roles held by women worldwide in 2015

- Education and social services: 41%
- Healthcare: 41%
- Hospitality: 33%
- Food and beverage: 27%
- Financial services: 25%
- Professional services: 24%
- Other business services: 22%
- Retail: 22%
- Agriculture, hunting, forestry and fishing: 20%
- Electricity, gas and watersupply/utilities: 20%
- Cleantech: 20%
- Technology: 19%
- Manufacturing: 19%
- Transport: 19%
- Construction and real estate: 18%
- Mining and quarrying: 12%

Source: Grant Thornton

Projected Global Percentage of Women on Boards

Cases of sex-based misconduct

<table>
<thead>
<tr>
<th>Year</th>
<th>Receipts</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY 2010</td>
<td>12,695</td>
</tr>
<tr>
<td>FY 2011</td>
<td>12,461</td>
</tr>
<tr>
<td>FY 2012</td>
<td>12,569</td>
</tr>
<tr>
<td>FY 2013</td>
<td>12,379</td>
</tr>
<tr>
<td>FY 2014</td>
<td>12,146</td>
</tr>
<tr>
<td>FY 2015</td>
<td>12,573</td>
</tr>
<tr>
<td>FY 2016</td>
<td>12,860</td>
</tr>
<tr>
<td>FY 2017</td>
<td>12,428</td>
</tr>
</tbody>
</table>
Gender Gap

- Lets measure wage differentials conditional on type of jobs
Wife earns more than Husband?
Proving wage discrimination....

Goldman faces class action over female pay discrimination

After eight-year legal fight, women win right to pursue compensation claim

Four former Goldman Sachs employees have won the right to lead a class-action lawsuit over sexual discrimination, more than seven years after two of them accused the Wall Street bank of “systematically” favouring men over women.
Example

- **Women Empowerment**
  - How we measure today?
    - Counting: Only relevant at the extremes
    - Scandals: Only relevant if media agrees
    - Wage gap: Discrimination on regressors
  - Characteristics?
    - Mostly about regret.
      - Too late (extreme events)
      - Too infrequent
      - Too based on perception (news outlets)
Example

- Women Empowerment
  - Measure interruptions
    - How frequently men interrupt women and other men?
    - Airtime: how long each one talks?
    - Mansplaining: assertiveness and apologies
  - Culture, hierarchy, language, media matter - but why gender and minority status would?

How much of the unconscious biases are unmeasured biases?
New Measures and MIT

- Actions are aligned with incentives and measurement: Very different from values.
  - Behavior is not Values
- Discrimination and Unconscious Biases
  - How much of the unconscious bias is actually unmeasured bias?
- Organizations of the future?
  - Firms with hard informational boundaries will disappear.
  - Big Data Revolution is about Small Firms tackling Big Questions
- MIT:
  - Multidisciplinary,
  - Important and
  - Thankless research:
    - Bad econ paper, bad CS paper, bad psychology paper...