

When tax-inclusive prices are posted, consumers are likely to optimize relative to the tax-inclusive price and set demand to $x((1 + \tau^s)p, 0)$.

- the demand function in this case can be written as:

$$\log x((1 + \tau^s)p, 0) = \alpha + \beta \log p + \beta \log(1 + \tau^s)$$

- hence, the effect of posting the tax-inclusive price on demand is:

$$\log x((1 + \tau^s)p, 0) - \log x(p, \tau^s) = (1 - \theta_\tau) \beta \log(1 + \tau^s)$$

- recalling that $\epsilon_{x,p} = -\beta$, we obtain the following estimator for θ_τ :

$$(1 - \theta_\tau) = - \frac{\log x((1 + \tau^s)p, 0) - \log x(p, \tau^s)}{\epsilon_{x,p} \log(1 + \tau^s)}.$$

- Remember: $\log(a) - \log(b) \approx \frac{a-b}{b}$ and $\log(1 + a) \approx a$

$$(1 - \theta_\tau) = - \frac{\log x((1 + \tau^s)p, 0) - \log x(p, \tau^s)}{\epsilon_{x,p} \log(1 + \tau^s)}$$

- RHS measures the effect of posting tax-inclusive prices on demand divided by the effect of a price increase corresponding to the size of the tax
- this ratio measures the degree of misperception of total prices when taxes are not included in posted prices
- note that if all consumers normally take the sales tax into account, posting q should have no effect on demand ($\theta_\tau = 1$), since it is redundant information
- if all consumers ignore the sales tax, posting q should reduce demand by $\epsilon_{x,p} \log(1 + \tau^s)$, implying $\theta_\tau = 0$

Study 1: sales tax of toiletries in department store

Design

- **DDD: triple difference estimator**
- compared the "within-treatment-store" DiD estimator DD(TS) to a "within-control-store" DiD estimator DD(C)
- Triple difference estimator: $DDD = DD(TS) - DD(C)$

- Rozin et al, 2001: more accessible healthier eating at school
- The Nudge Unit:
 - making public services more cost-effective and easier for citizens to use
 - improving outcomes by introducing a more realistic model of human behaviour to policy
 - enabling people to make 'better choices for themselves'

Criticism:

- "I am an adult. Stop nudging me"

Preview from Notesale.co.uk
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		colleges admit these students, 46% go to better college . Other 3: guidance and fee waive kinda effective, net costs (just info) ambiguous
Jensen (2010): info about earnings for poor 1 Perceived earnings and real education level (Present bias) 2 Info and education decision 3 Info on returns and better decision (bounded rationality)		

Bettinger et al, 2012:

3 groups:

- Control: info booklet
- Info only treatment : info + service estimation of eligibility and costs
- FAFSA treatment : info+service+assistance to complete FAFSA

2 smaller sub group

- Dependent Participants: Parents received info
- Independent Participants: Self-received

Results:

- Help students w/ FAFSA treatment, whether dependent or independent
- info only doesn't help, even negative but insig.

Summary: Results

- dependants whose parents received the FAFSA treatment were 15.7 percentage points more likely to file the FAFSA application and 8 percentage points more likely to attend college
- independent participants who received the FAFSA treatment were 27 percentage points more likely to file the FAFSA application and 1.5 percentage points more likely to attend college
- information-only treatment had no affect on filing of the form or on college attendance

⇒ The costs of applying can significantly deter students from applying to financial aid/university and simplifying the application process can significantly increase college attendance rates

- Yes
- RD\$1000 rise in perceived returns (what they expect = yni) increases
 - return school nxt yr 8%
 - finish school 9%
 - years of schooling 0.37 yr

	(1)	(2)	(3)	(4)	(5)	(6)
	Returned next year	Returned next year	Finished school	Finished school	Years of schooling	Years of schooling
Implied perceived returns	0.11*** (0.030)	0.083** (0.034)	0.14*** (0.036)	0.092** (0.038)	0.53*** (0.13)	0.37** (0.14)
Log (inc. per capita)		0.090 (0.062)		0.25*** (0.063)		0.76*** (0.24)
School performance		0.015 (0.014)		0.015 (0.011)		0.093** (0.045)
Father finished secondary		0.036 (0.041)		-0.014 (0.044)		0.045 (0.16)
Age		-0.017 (0.024)		0.006 (0.025)		-0.045 (0.093)
R ²	.008	.016	.017	.048	.016	.042
Observations	1,003	1,003	1,003	1,003	918	918

- A RD\$1,000 rise in perceived returns predicts an increase in the probability of returning to school by 8 percentage points, an increase in the likelihood of completing secondary school by 9 percentage points and an increase in years of education by 0.37 years

2 Students do perceive wrongly

- overestimate earnings with primary school by 11% and underestimate earnings with secondary school by 14% -> bounded rationality, kinda different weights (present bias)

TABLE III
MEASURED AND PERCEIVED MONTHLY EARNINGS, MALES AGED 30-40

	(1) Measured mean	(2) Perceived (self)	(3) Perceived (others)
Primary	3,180 [1,400]	3,516 [884]	3,478 [863]
Secondary	4,479 [1,432]	3,845 [1,044]	3,765 [997]
Tertiary	9,681 [3,107]	5,127 [1,629]	5,099 [1,588]
Secondary – primary	1,299	329 [403]	287 [373]
Tertiary – secondary	5,202	1,282 [1,341]	1,334 [1,272]

- Students overestimate earnings with primary school by around RD\$330 (11%) and underestimate earnings with secondary education by around RD\$700 (14%)

Falk, A., Becker, A., Dohmen, T., Enke, B., Human, D., Sunde, U., Global Evidence on Economic Preferences, Working Paper (2017)

Preferences shape by countries, characteristics of individuals

Types of preferences: (RST !!!)

- Time preferences: wait
- Risk preferences : take risk
- Social preferences
 - Positive reciprocity: return a favor
 - Negative reciprocity: revenge
 - Altruism: give good causes
 - Trust: belief ab intentions

Tools:

a. Preference Module - Falk et al 2015a

What is it? combined survey and experiments

- First comprehensive **experimentally-validated preference survey** module
- Idea: select those survey items (quantitative and qualitative) that **(jointly) predict behavior in incentivized choice experiments best**
 - do the experiments with the small group of ppl in order to select the best survey items that can capture behaviour on the **incentivized choice experiments**
- Strengths from **both survey and experimental approaches** (no room for interpretation)
- Both **quantitative and qualitative** questions for preferences
 - Qualitative: hypothetical ->
 - Quantitative: number -- scale of 1-10, how
 - **Staircase method**
 - don't preset all questions but instead asking the direction that best find the answer: finding the switching point -> ask higher or lower values depend on last answer

What is its scale : Global Preference Survey

- Data represent **90% of both world population and world income**
- Geographical and cultural representativeness
 - 76 countries, all continents, development levels
 - N = 80000
- Languages (translate back n forth), professional interviewers - 100 languages
- Data accuracy:
 - Money values adjusted along median household income of the countries
 - Pretests in 21 countries
 - t-test for all possible pairwise (country with country) comparisons for each preferences, 1%

What is the items in the survey? mixture between self assessment, quantitative and qualitative questions

- Trust only have 1 item -> self assessment
- Risk taking: Do you want to get \$5 for sure of u wanna gamble with .. -> use staircase to see switch point as well
- Trying to capture the incentivized experiments by doing survey

- This is the nice way to test the meaningfulness of the survey: how can it predict behaviours in real world

5. Do we see that countries in which people are more patient are more wealthy? patience -> accumulation -> GDP

- Consistency between theoretical work and empirical facts (Falk et al 2015)
- Raw correlation: **Patience - Contemp. Income 0.63 (R squared 40%)**
- Yes, in fact correlation between patience and development (GDP is one factor of development)
- Correlation: Patience vs GDP ---> very strong
 - Holds between groups : continents, (non)-OECD, (not) colonized
 - Extend to other measurement: Patience vs HDI, life satisfaction, GDP/worker
 - Robust to: inflation, interest rates, credit constraints, income level
- Yes, also **correlation between Patience and accumulation** (human cap, physical cap and knowledge) -> can we use these proxies for patience?
 - Relationship b/w patience and proximate determinants extends to many other proxies for human and physical capital as well as factor productivity
 - Holds for both stocks (years of schooling, capital stocks,...) and flows (savings, education expenditure as % of GDP,...)
 - **Correlations very strong: hold conditional on full set of covariates and sometimes even conditional on GDP (not a third factor causing both patience and accumulation to increase)**

5a. How can you check robustness (the quality of condition of being strong and in good condition)

- Control for inflation & interest rates
- Proxies for constraints of borrowing
- Restricting sample to top income countries (least diverse)
- ***: very significant

6. What are the origins of the between-country variation in preferences

Reason 1: differences in preferences across countries have deep historical roots that go back thousands of years, through variety of channel -> because of separation early/late but through WHICH CHANNELS?

- **genetic**
- **experiences**
- **shocks**

Test 1: According to Falk et al: historical events caused differences in preferences (Becker/Enke/Falk, 2016)

Hypo: migration pattern " Out of Africa"

- **The idea:**
 - Expected difference in preference endowment between 2 populations at a specific point in time would increase in the number of period that 2 pop were separated
 - **$E(x_iT - x_jT)$ increase with no of separations**

Separations -> source of channels:

Test 2: 3 class of proxies for **temporal distance**

- **Genetic distance**
- **Linguistic distance**
- **Predicted migratory distance measures: WALKING TIME along the optimal route between 2 locations**

Framework:

Ancient Origins of the Global Variation in Economic Preferences

- Dyadic regression framework, with each possible pair of countries as unit of observation, regressed on *temporal distance* between respective populations (adjusted for post-Columbian migration)

$$|\text{pref}_i - \text{pref}_j| = \alpha + \beta \times \text{temporal distance}_{i,j} + \gamma_i \times d_i + \gamma_j \times d_j + \epsilon_{i,j}$$

- d_i and d_j country fixed effects, and $\epsilon_{i,j}$ a country pair specific disturbance term
- Fixed effects for each of the two countries that appears in a country pair observation to take out country-specific unobservables

- dyadic regression
- difference between preferences regressed on temporal distance between 2 populations
- Control for country fixed effects to take out country specific unobservables, include disturbance term

Results:

- **the larger the temporal distance between two countries, the larger their (absolute) difference in risk aversion, altruism, trust, positive recip, (patience), (negative recip)**
- **R-squared is very high: lots of variation in pref between countries can be explained by temporal distance**
- Holds for different proxies for temporal distance
- Conditional on country FE, large vector of geographic, economic,
- institutional controls

. within > between

. systematic preference between preferences and background char: age, gender, ability

. preferences -> action

. patient -> higher accumulation -> higher GDP

Malleability: can be shaped by environmental, pressures etc

- Types of preferences: social preferences & time preferences
- How can it be shaped: home, school (environments)

Mostly papers of social preferences: altruism (nhân đạo), reciprocity (nhân quả) etc

	Background	Data and variation	Experimental Design	Results:
Rao paper - 2013: social preferences - school environment Question: What effect do peers from poor households have on students from relatively wealthy families? . Generosity and prosocial . Behaviour with the poor . Classroom behavior	Test the effect on social preferences by mixing poor and rich students in Delhi, India 2007, Delhi gov required almost 400 private schools to keep 20% of places for poor children (family who earned <100k rupee per year): free, treated equally, but they only applied to new admits (control and treatment effect)	3 categories: Treatment, Control - 4%, Delayed Treatment-6% (1 year later) Grades: 2-5 Variation sources: . Within schools: treated, control, delayed treatment . Within cohorts: Only new entrants are treated (year 1 & 2 in treatment, grade 2 in delayed treatment) . Within classroom: Some small groups have poor kids	. Within school/cohort variation: control for school fixed effect, grade fixed effect -> DID . Idiosyncratic variation classroom use as an instrument for variation in Alpha_{it} = Alpha_{it} + Alpha_{it} * Alpha_{it} as an instrument for PoorPartner (proof of relevant) -> 2SLS	. Generosity: +increased for the treatment cohorts in the treatment schools (by 10%) +increased the amount shared for both poor (12%) and rich (6%) -> less discriminated, fairer . Discriminating: treated students discriminate less, stakes increase -> no more discriminate . Play-date: having poor classmates or poor study partner increase willingness to go on playdate (lower price) . Academic outcomes: not significant between subjects . Discipline slightly worse in the case of cursing in treated classroom
Kose et al (2015):	Germany - Bonn	3 groups:	.Use Wave 2 means	. High SES and low