The role of teachers' expectation on the human capital formation technology

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Outline

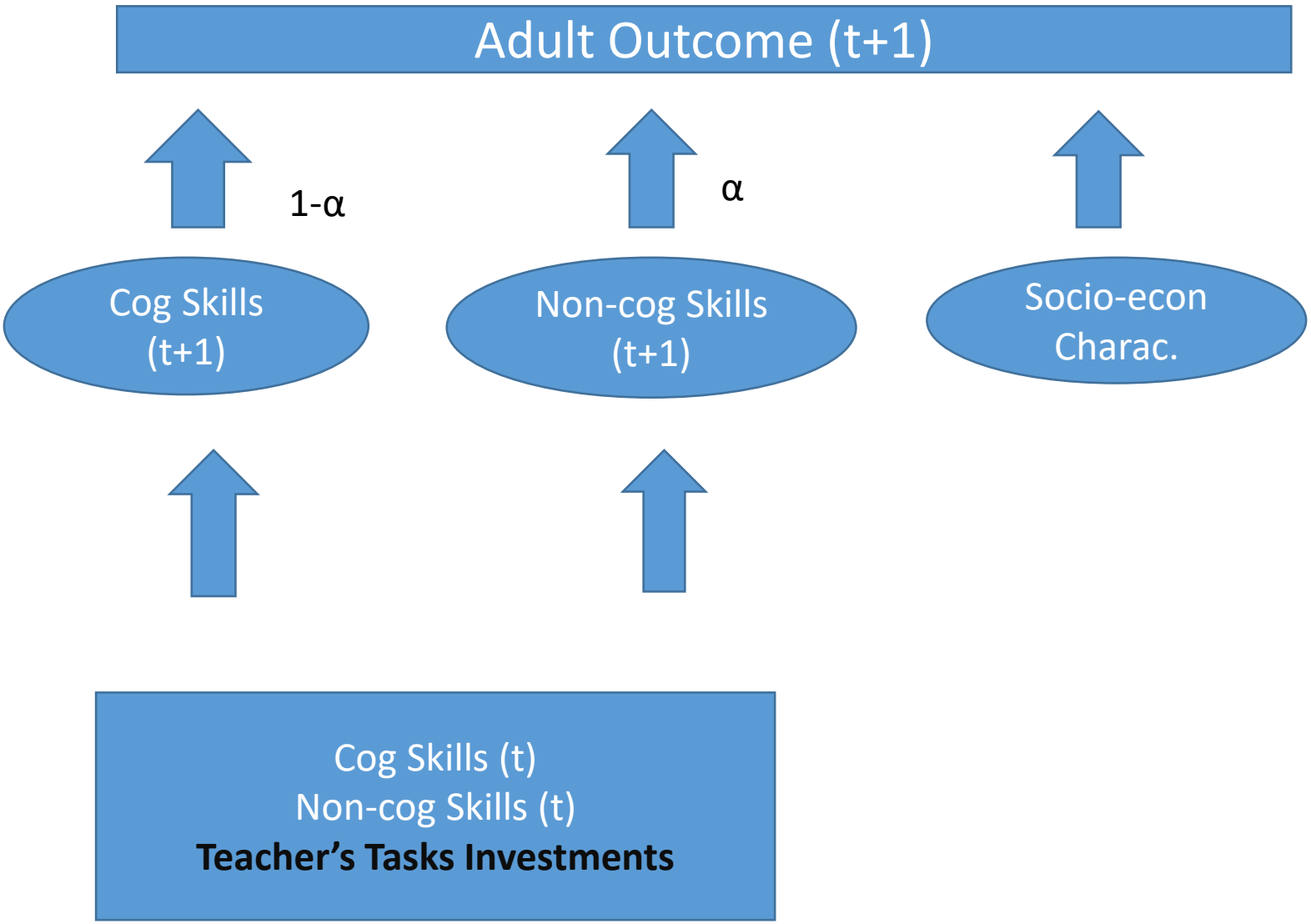
Introduction

- The role of subjective expectations about returns is well documented in the education literature.
  - Psychology: Hunt (1961), Vygostky (1978), Nespor (1987), Mutua (2012).
  - Economics of education: Jensen (2010), Lee et al (2012), Cunha et al (2016), Boneva and Rauh (2018).
- Most of the literature focused on parental beliefs (Dizon-Ross (2019)).
- However, it is also well documented that teachers play a fundamental role on children formation.
  - Cognitive skills: Hanushek (2006), Rockoff (2004), Chetty et al (2014).
  - Socioemotional skills: Jackson (2018).
- Teachers' expectation is also important: Dobie and Fryer (2012), Pinto and Ponczek (2018) and Papageorge et al (2016).

Introduction

- Our goal is threefold
  - Elicit teachers' beliefs on the relative importance of cognitive and socioemotional skills on human capital formation.
  - Show how beliefs play an important role on teachers' allocation on different tasks.
  - Evaluate an intervention that sends information to teacher about the importance of socioemotional skills.
- We are collecting data on 84 municipal schools in Rio. Data from 168 3rd and 4th-grade teachers and around 3,500 students.

Human Capital Formation Technology



Human Capital Formation Technology

- **Assumption**: Teachers maximize the expectation of adult outcome

- This expected value will depend on:
  - Teacher's belief on the importance of non-cognitive skills ($\phi^{\tau} = E[\alpha|\Omega^{\tau}, \theta_t^N, \theta_t^C]$)
  - Teacher's Tasks Investments

Measures

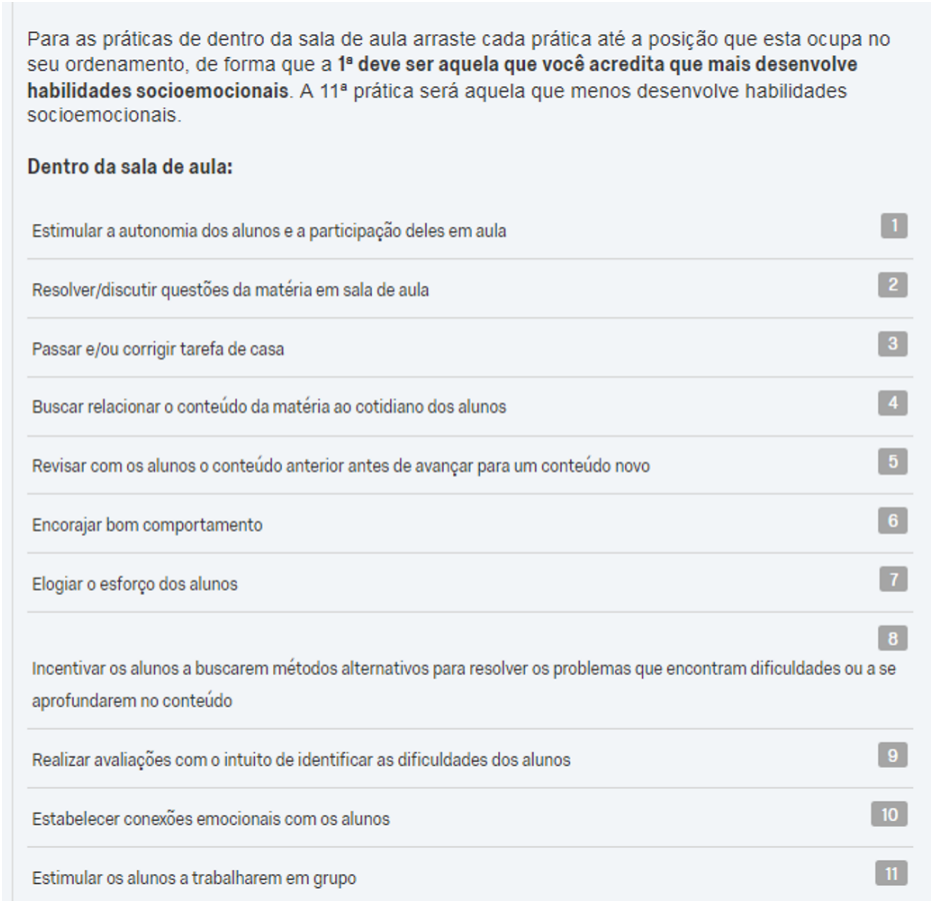
- **Expectation and Investment Measure**
  - 1st Part: **Effort allocation** in each of the teaching practices (inside or outside the classroom). Total effort should sum 100.

Dentro da sala de aula – atividades devem somar 100 unidades de esforço

Resolver/discutir questões da matéria em sala de aula	0
Incentivar os alunos a buscarem métodos alternativos para resolver os problemas que encontram dificuldades ou a se aprofundarem no conteúdo	0
Elogiar o esforço dos alunos	0
Buscar relacionar o conteúdo da matéria ao cotidiano dos alunos	0
Encorajar bom comportamento	0
Passar e/ou corrigir tarefa de casa	0
Realizar avaliações com o intuito de identificar as dificuldades dos alunos	0
Estimular a autonomia dos alunos e a participação deles em aula	0
Revisar com os alunos o conteúdo anterior antes de avançar para um conteúdo novo	0
Estabelecer conexões emocionais com os alunos	0
Estimular os alunos a trabalharem em grupo	0

Measures

- **Expectation and Investment Measure**
  - 2nd Part: **Rank of teaching practices** according to their priors on how much each practice develops students' **socioemotional skills**.



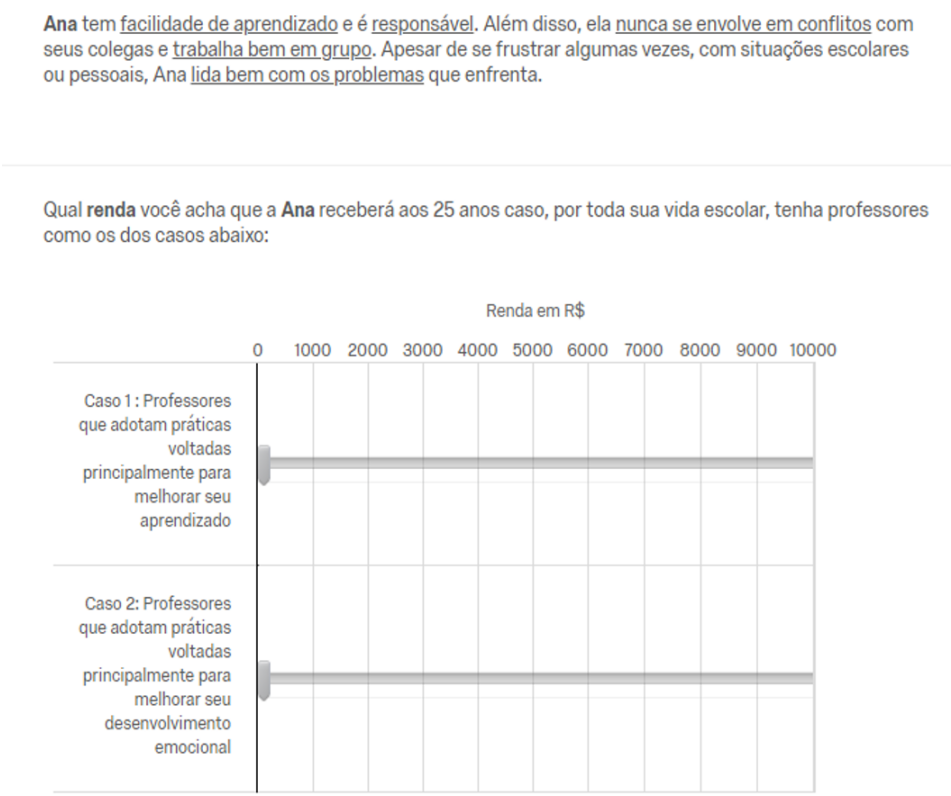
Para as práticas de dentro da sala de aula arraste cada prática até a posição que esta ocupa no seu ordenamento, de forma que a **1ª deve ser aquela que você acredita que mais desenvolve habilidades socioemocionais**. A 11ª prática será aquela que menos desenvolve habilidades socioemocionais.

Dentro da sala de aula:

Estimular a autonomia dos alunos e a participação deles em aula	1
Resolver/discutir questões da matéria em sala de aula	2
Passar e/ou corrigir tarefa de casa	3
Buscar relacionar o conteúdo da matéria ao cotidiano dos alunos	4
Revisar com os alunos o conteúdo anterior antes de avançar para um conteúdo novo	5
Encorajar bom comportamento	6
Elogiar o esforço dos alunos	7
Incentivar os alunos a buscarem métodos alternativos para resolver os problemas que encontram dificuldades ou a se aprofundarem no conteúdo	8
Realizar avaliações com o intuito de identificar as dificuldades dos alunos	9
Estabelecer conexões emocionais com os alunos	10
Estimular os alunos a trabalharem em grupo	11

Measures

- **Expectation and Investment Measure**
  - 3rd Part: **Teachers' expectations** on future wage and schooling of students with different combinations of cognitive and non-cognitive skills.



Challenges

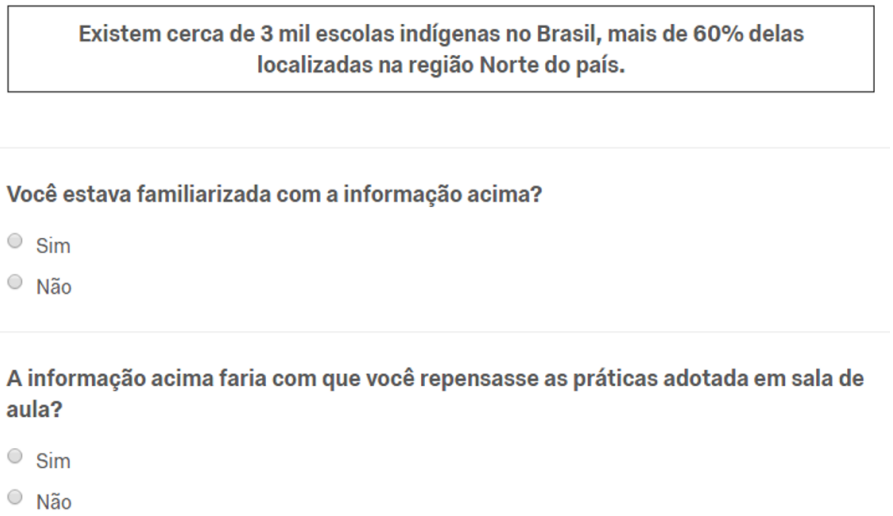
1. How beliefs are formed? (Rokeach, M., 1960)
   - Self-generated: Experience, Experiment, Reflection.
   - Externally generated: Information, Experts, Authority, etc.
   - Reverse Causality: Teaching practices (experience) might impact belief and not the other way around.
     $\Rightarrow$ We randomly selected participants for an information intervention (text messages: change in information set).

1st Challenge: Endogeneity

- **Information Intervention (T_1)**: Text messages during 2018 school-year.
  - Treatment: 14 messages with pieces of evidences on the importance of socioemotional skills (+ 14 control messages).
    - Eg. "It is well documented that socioemotional skills are rewarded in the labor market in the form of higher wages and a shorter period of unemployment."
  - Control: 14 messages with general info about the Brazilian school system.
    - Eg. "There are approximately 280 thousand schools in Brazil and about 5% of these are in the State of Rio de Janeiro."

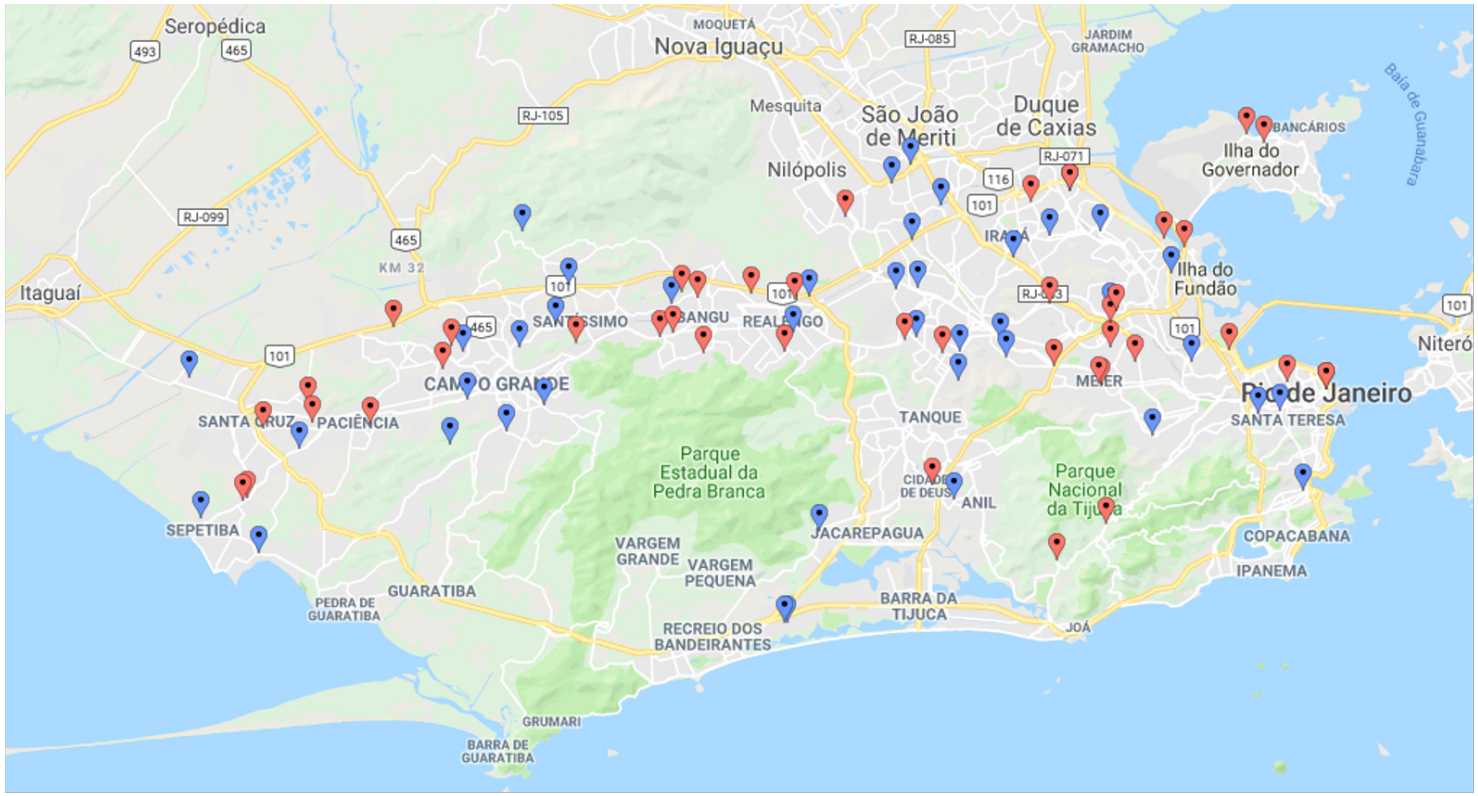
1st Challenge: Endogeneity

- Focus Group of the Messages with 27 elementary school teachers of a Sao Paulo municipal school with SEL.



- 83% (73%) of teacher's said they would rethink their teaching practices after reading treatment (control) messages.

Information Intervention: Text Messages



Treatment – Intervention 2 (belief's text messages) Control – Intervention 2 (belief's text messages)

Challenges

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   - Reverse Causality: Teaching practices (experience) might impact belief and not the other way around.
     $\Rightarrow$ We randomly selected participants for an information intervention (text messages: change in information set).
2. From beliefs to practice (Schraw and Olafson, 2006):
   - Teacher beliefs may not predict behavior. Problems with instrumentation due to lack of knowledge.
     $\Rightarrow$ SEL Intervention train teachers how to implement "socioemotional tasks".

2nd Challenge: Know-how

- **SEL Intervention (T_2): *Programa Compasso***
  - Created by a Brazilian NGO called *Vila Educacao*; based on the American *Second Step*.
  - Regular school teachers are trained in the methodology to teach 22 socioemotional lessons once a week.
  - Lessons: Skills for learning, empathy, emotion management and problem solving.
  - Material: student's handbook (homeworks for family integration), CDs, DVDs and teacher's handbook.
  - Fonseca et al (2018): companion paper with a preliminary evaluation of PC effects using data from 2017 implementation in Rio.
    - Some significant on executive functions and angry bias, especially on violent neighborhood.

Challenges

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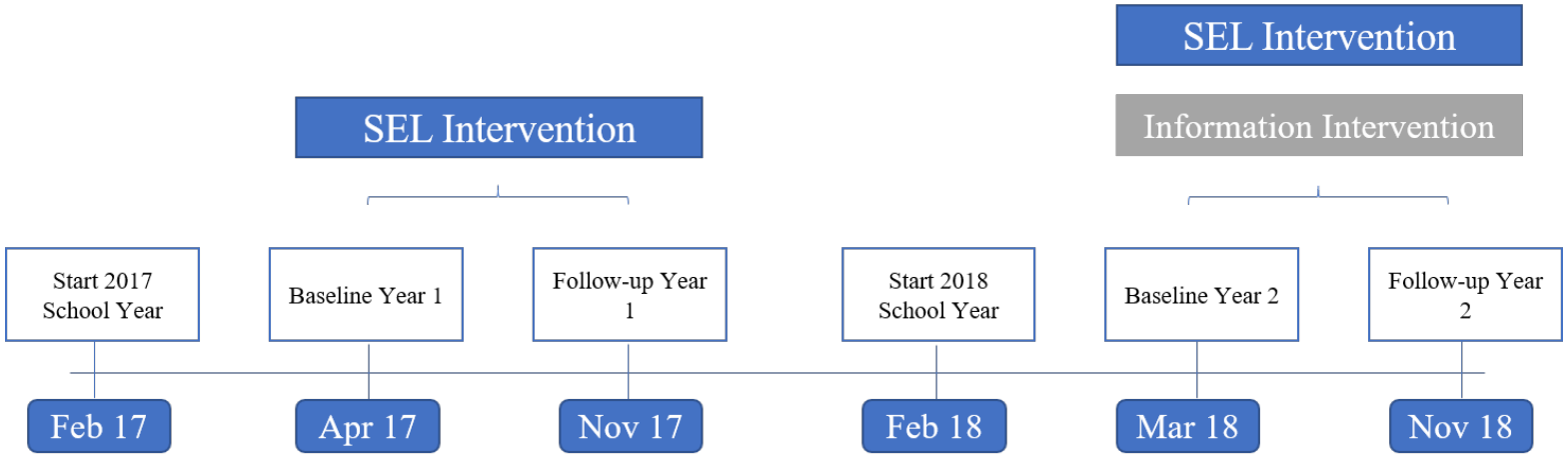
3. Measurement Error on Teaching Practices (Stigler and Hiebert, 1999)
   - Teachers report what they believe and not what they actually do.
     $\Rightarrow$ Class Observation: random sample of 20 schools (40 classrooms) during the month of October.

3rd Challenge

- Measurement Error on Teaching Practices (Stigler and Hiebert, 1999)
  - Teachers report what they believe and not what they actually do.

    $\Rightarrow$ Class Observation: random sample of 20 schools (40 classrooms) during the month of October.
    - Double-coded
    - Task intensity on a likert-scale
    - Correlation with teacher report: 68%.
    - Measurement error is not different for treated and controls

Sampling and Fieldwork



- 2017 sample: 94 schools; Around 4000 students(3rd and 5th grade); 188 teachers.
- 2018 sample: 84 (out of 2017's 94) schools; Around 3500 students(3rd and 4th grade); 168 teachers.

Sampling and Fieldwork

- **Teachers' Measures**:
  - Growth Mindset
  - Perceived Stress Scale
  - Teacher Efficacy
  - **Teacher Expectation and Investments Measure** - only in 2018
- **Students' Measures**:
  - Cognitive Skills (Executive Function and Vocabulary)
  - Socioemotional Competences (ACES and teacher's report)

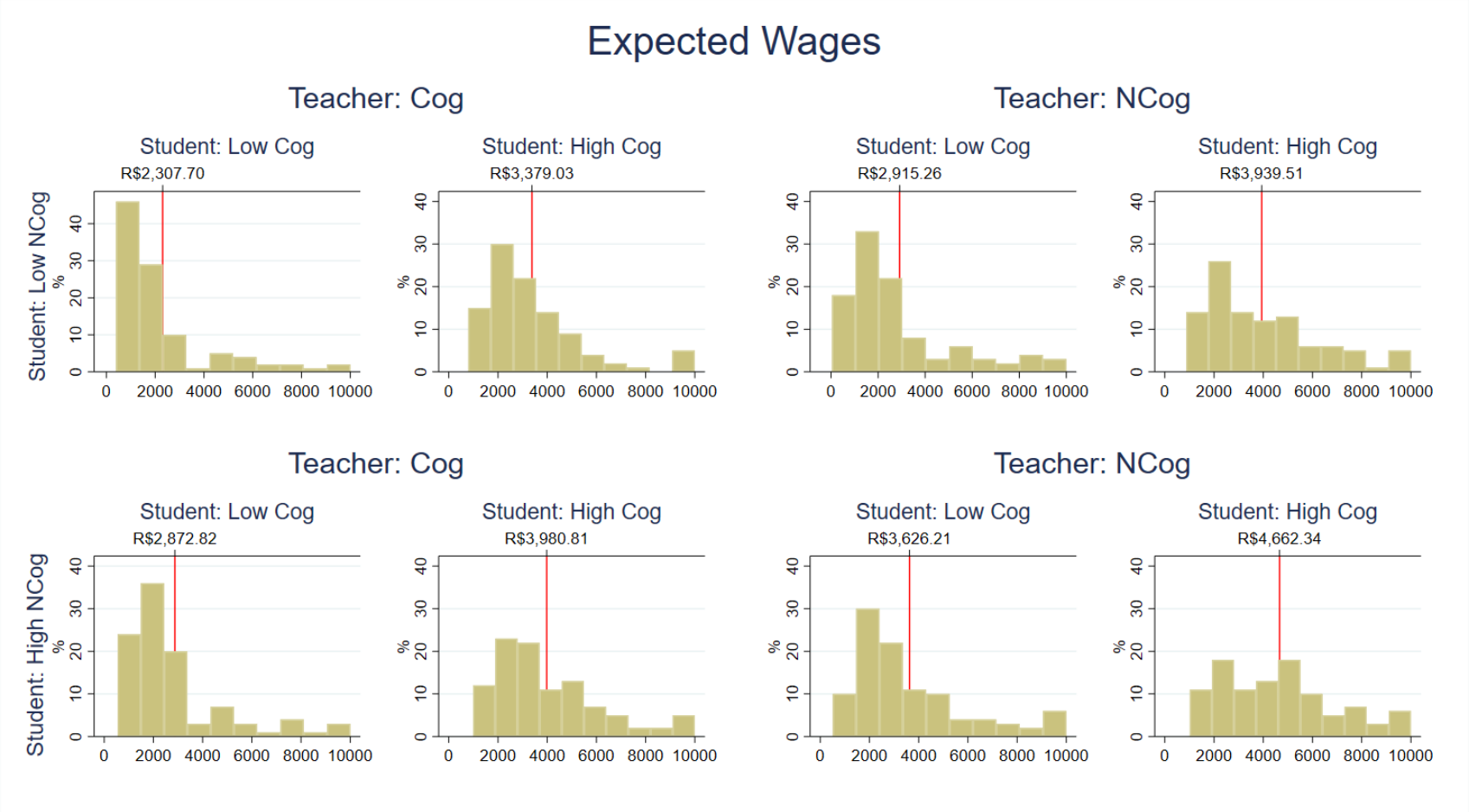
Sampling and Fieldwork

Table 1: Take-up

	$T_1 = 1$				$T_1 = 0$				Total	
	$T_2 = 1$		$T_2 = 0$		$T_2 = 1$		$T_2 = 0$			
Sample (100%)	**42**		**42**		**42**		**42**		**168**	
Baseline	27	(64%)	23	(55%)	27	(64%)	24	(57%)	101	(60%)
Follow-up	38	(90%)	35	(83%)	35	(83%)	32	(76%)	140	(83%)
Both Baseline + Follow-up	27	(64%)	21	(50%)	24	(57%)	21	(50%)	93	(55%)
T_1 Total	**48**	**(57%)**			**45**	**(54%)**				

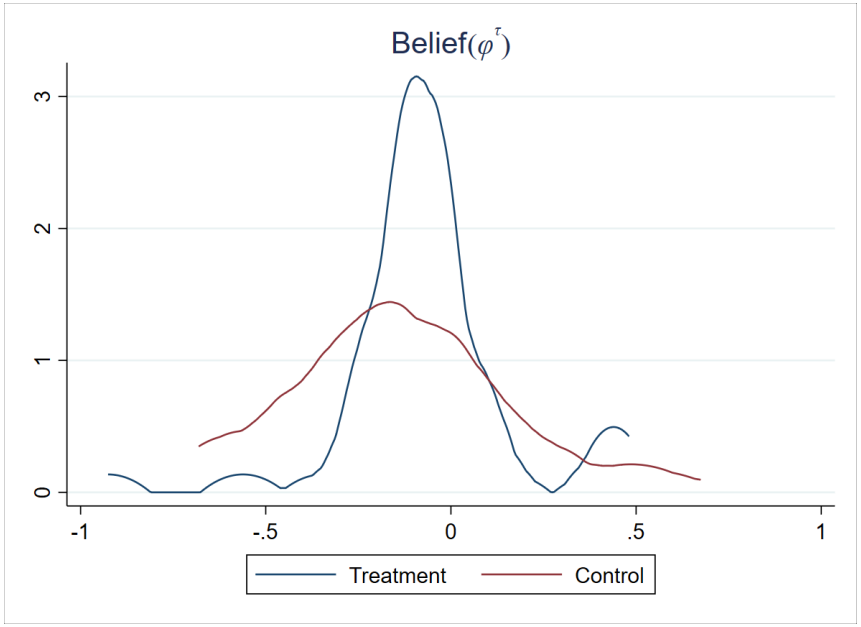
- No evidence of unbalance nor selective attrition.
- Teachers from both groups are similar on observables.
- Statistical power compromised.

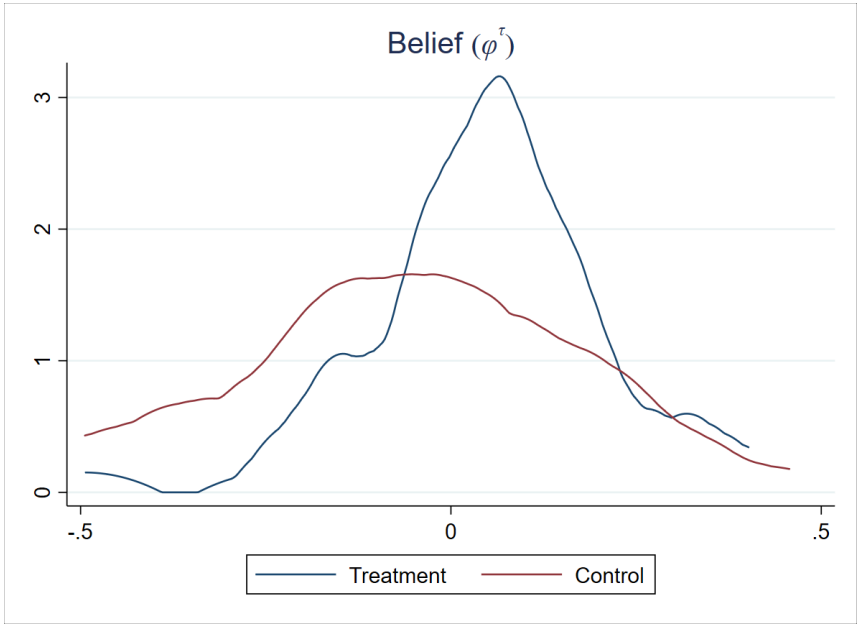
Expected Wages - Baseline



Beliefs

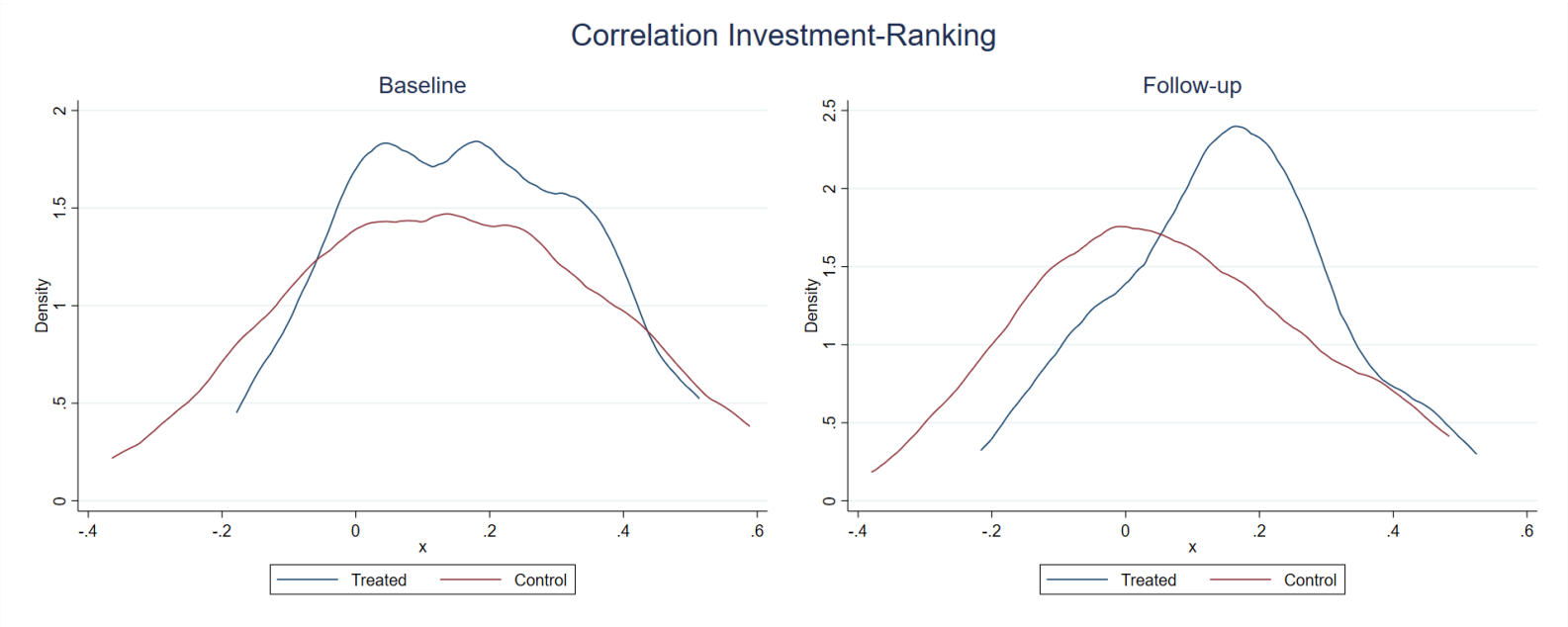
- Beliefs (Baseline vs Follow-up)





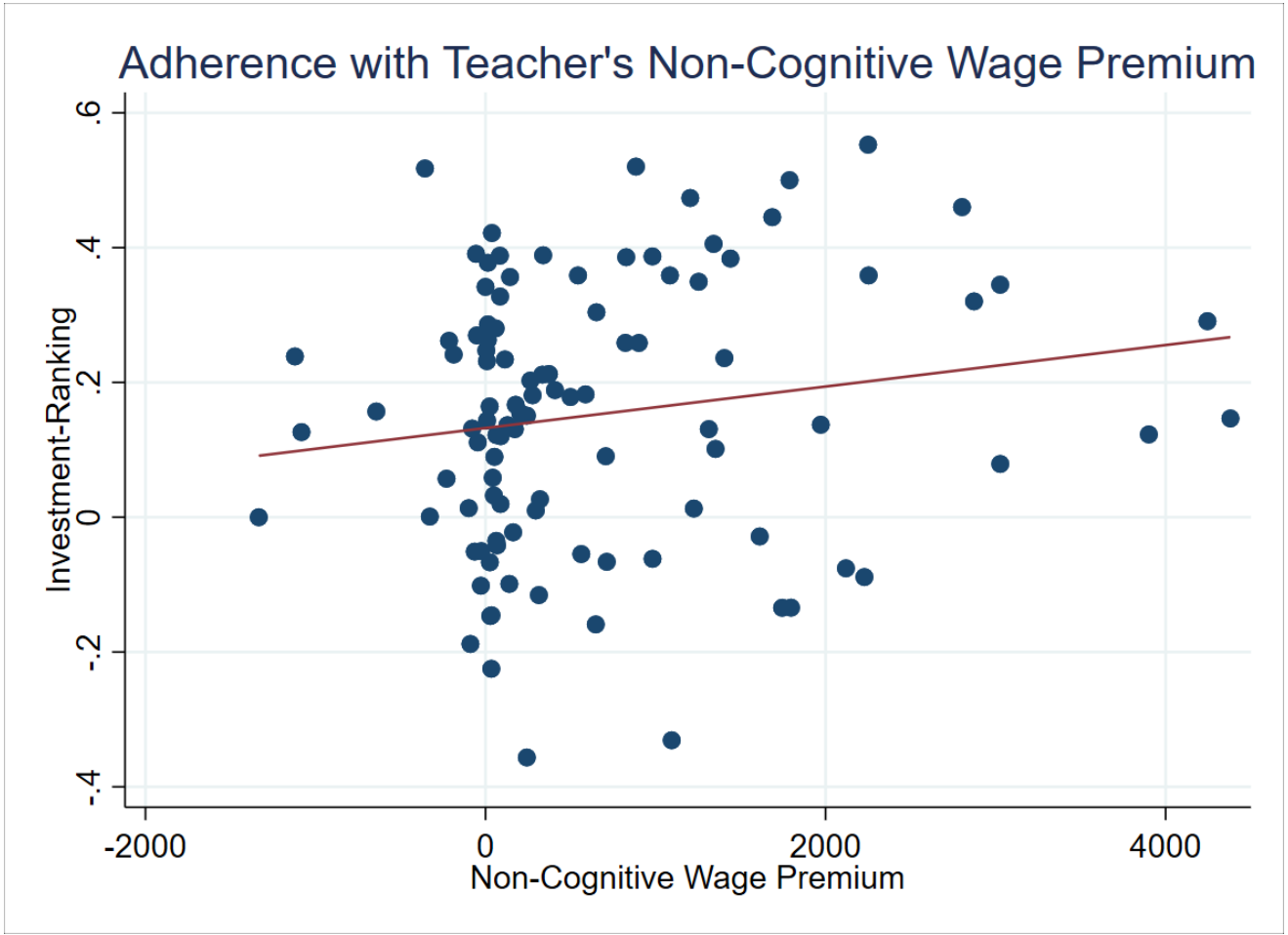
Descriptive Statistics

- How we measure the investments (effort) of the teachers on non-cog tasks?
  - Investment-Ranking: correlation between task-investments and task-ranking (baseline).
  - We fixed baseline task-ranking.



  - This is robust to many different definitions of Investment-Ranking.

Descriptive Statistics



Exploring the Message Treatment - Empirical Method

- Main Model:

$$\beta_1^\tau = \alpha_0 + \alpha_1 \beta_0^\tau + \alpha_2 \phi_0^\tau + \alpha_3 \phi_1^\tau + \sum_{i=1}^{21} \gamma_i d_{strata_i} + \varepsilon^\tau$$

$$\phi_1^\tau = \mu_0 + \mu_1 T_1 + \mu_2 \beta_0^\tau + \mu_3 \phi_0^\tau + \sum_{i=1}^{21} \delta_i d_{strata_i} + u^\tau$$

  - β_t^τ: correlation in t between task-investments and baseline task-ranking, ie, $Corr(r(S_{ij})_t, (r(\alpha_j^N) - r(\alpha_i^N))_0)$
  - ϕ_t : non-cognitive expectation measure in t.
  - T_1 as a instrument for ϕ_1^τ.

- Dependent variable estimated: bootstrap or WLS (inverse of β_1^τ variance)

Results

Table 2: First Stage

	(1)	(2)	(3)	(4)
Treatment (T_1)	0.115***	0.145***	0.115**	0.145***
	(0.042)	(0.044)	(0.052)	(0.054)
Baseline Expectation (ϕ_0)	0.146	0.176	0.146	0.176
	(0.146)	(0.153)	(0.164)	(0.177)
Baseline Correlation Investment-Ranking (β_0)	-0.115	-0.188	-0.115	-0.188
	(0.157)	(0.152)	(0.171)	(0.176)
R^2	0.268	0.331	0.268	0.331
Observations	93	93	93	93
Covariates:				
Strata Fixed Effects	x	x	x	x
Teacher's Covariates		x		x
Method:				
OLS	x	x	x	x
Boostrap (500 reps)			x	x

Results

Table 3: Second Stage - IV

	(1)	(2)	(3)	(4)	(5)	(6)
Baseline Correlation	0.553***	0.550***	0.553***	0.567***	0.553***	0.550***
	(0.158)	(0.146)	(0.167)	(0.150)	(0.163)	(0.146)
Baseline Expectation Measure	-0.256*	-0.254**	-0.211	-0.221*	-0.256	-0.254*
	(0.142)	(0.125)	(0.151)	(0.130)	(0.318)	(0.130)
Follow-up Expectation Measure	**0.654***	**0.514***	**0.696**	**0.529***	**0.654**	**0.514***
	(0.376)	**(0.275)**	**(0.444)**	**(0.300)**	**(0.996)**	**(0.277)**
Constant	-0.204	-0.092	-0.160	-0.068	-0.204	-0.092
	(0.315)	(0.264)	(0.332)	(0.257)	(0.534)	(0.263)
Observations	93	93	93	93	93	93
Covariates:						
Strata Fixed Effects	x	x	x	x	x	x
Teacher's Covariates		x		x		x
Method:						
GMM	x	x	x	x	x	x
WLS			x	x		
Boostrap (500 reps)					x	x

- Results are larger for inside than for outside the classroom tasks.

So Far...

- T_1 (Information intervention) has an impact of 0.1 on teacher's expectations.
- Increased expectations get teachers to invest 50% more in "socioemotional- tasks".
- Further Questions: (i) Do teachers know how to implement socioemotional tasks? Teacher's from SEL intervention do. (ii) Is it possible that the results above are actually from SEL intervention?

Results - SEL

Table 4: Using T_2 insted of T_1

	(1)	(2)	(3)	(4)
SEL Treatment (T_2)	-0.051	-0.039	-0.051	-0.039
	(0.053)	(0.053)	(0.056)	(0.058)
Baseline Expectation	0.245	0.264*	0.245	0.264
	(0.149)	(0.149)	(0.166)	(0.185)
R^2	0.216	0.242	0.216	0.242
Observations	93	93	93	93
Covariates:				
Strata Fixed Effects	x	x	x	x
Teacher's Covariates		x		x
Method:				
OLS	x	x	x	x
Boostrap (500 reps)			x	x

Further Outcomes - Very Preliminary

Table 5: Effects on Students' Outcomes

	Cognitive Scores			Non-Cognitive Scores	
	PPVT	**BDS**	**H&F**	**ACES (Sit)**	**Angry Bias**
Treatment	0.019	0.396**	-0.122	0.516**	-0.012
	(0.174)	(0.193)	(0.244)	(0.232)	(0.317)
SEL Treatment	0.056*	-0.025	-0.012	-0.011	0.036
	(0.032)	(0.037)	(0.049)	(0.031)	(0.050)
R^2	0.129	0.127	0.153	0.207	0.042
Observations	3222	2556	1993	2573	1917

Covariates: School Pairs Fixed Effects, Strata Fixed Effects, Assessors Fixed Effects, Grade Fixed Effects, Violence, Students's age, gender and SSE.

Conclusions

- T_1 (information Intervention) has an impact of 0.1 on teacher's expectations.

  $\Rightarrow$ Taking a teacher from the 2nd decil of baseline expectation to the median expectation.

- Increased expectations get teachers to increase their socioemotional effort in 6% .

  $\Rightarrow$ Taking a teacher from the 1st decil of investment-ranking correlation to the mean/median.

- Treatment has direct impact on students' outcomes:

  $\Rightarrow$ Executive Function (BDS):from the 1st to the 4th decil.

  $\Rightarrow$ Non Cognitive Skills (ACES): from the 1st to the 2nd decil.

  $\Rightarrow$ More violent areas: reduced angry bias from mean to 1st decil.

Data-set Construction

```
57        * Juntando a base de professores limpa na Co-working
58        /*
59        use "$cow\y2 t 0.dta", clear
60        save "$base\y2_t_0.dta", replace
61        use "$cow\y2_t_1.dta", clear
62        save "$base\y2_t_1.dta", replace
63        */
64
65        use "$base\y2_t_0.dta", clear
66        merge 1:1 cdschool class using "$base\y2_t_1.dta"
67        rename _merge merge_0_1
68
```

Variables

```
70        * Criando um código para cada professor
71        egen teachercode = concat(cdschool class), punct(" ")
72        gen grade_3=(class=="3° ano")
73        gen treat_real=(treat&grade_3)
74
75    /* Parte 3 do questinário: quanta renda o professor acha que alunos
      diferentes combinações de habidades
76    cog e ncog receberão no futuro em dois casos: professores que focam
      professores que focam em não cognitivo.*/
77
78    forvalues num=0(1)1{
79    **Prof Cog
80    gen xc_`num'=belief_p3_1_m1_`num' //alto cog alto ncog
81    gen zc_`num'=belief_p3_2_m1_`num' //alto cog baixo ncog
82    gen yc_`num'=belief_p3_3_m1_`num' //baixo cog alto ncog
83    gen wc `num'=belief p3 4 m1 `num' //baixo cog baixo ncog
84
85    **Prof Não- Cog
86    gen xn_`num'=belief_p3_1_m2_`num' //alto cog alto ncog
87    gen zn_`num'=belief_p3_2_m2_`num' //alto cog baixo ncog
88    gen yn_`num'=belief_p3_3_m2_`num' //baixo cog alto ncog
89    gen wn_`num'=belief_p3_4_m2_`num' //baixo cog baixo ncog
90    }
91
92
```

Variables

```
107   * Passando o log
108   forvalues num=0(1)1{
109   foreach var in xc_`num' zc_`num' yc_`num' wc_`num' xn_`num' zn_`num' yn_`num' wn_`num'{
110   qui sum `var'
111   gen tag_`var'_`num'=1 if `var'==r(min)
112   replace `var'=(`var'-r(min))/(r(max)-r(min))
113   replace `var'=`var'+1
114   replace `var'=ln(`var')
115   }
116
117
118   /* Função objetivo: y = A(h)(\theta^N)^\alpha(\theta^C)^{1-\alpha}
119   Resolvendo o modelo temos: dy_dthetaN + dy_dthetaC = \gamma (1)
120                              dy_dIC = (1-\gamma)(1-\phi) (2)
121   */
122
123   * dy_dthetaN = prêmio financeiro médio dado para o não cognitivo (considerando os dois
      tipos de professores)
124   gen dy_dthetaN_`num'=1/4*(xc_`num'-zc_`num'+yc_`num'-wc_`num'+xn_`num'-zn_`num'+yn_`num'-
      wn_`num')
125
126   * dy_dthetaC = prêmio financeiro médio dado para o cognitivo (considerando os dois tipos
      de professores)
127   gen dy_dthetaC_`num'=1/4*(xc_`num'-yc_`num'+zc_`num'-wc_`num'+xn_`num'-yn_`num'+zn_`num'-
      wn_`num')
```

Variables

```
143   * Seria o \gamma^\tau
144   gen gamma_t_`num'=dy_dthetaN_`num'+dy_dthetaC_`num'
145   qui sum gamma_t_`num'
146
147
148   * Padronizando \gamma para ficar entre 0 e 1
149   replace gamma_t_`num'=(gamma_t_`num'-r(min))/(r(max)-r(min))
150
151   * dy_dIC = prêmio financeiro médio dado para o professor que foca no cognitivo
152   gen dy_dIC_`num'=-1/4*(xn_`num'-xc_`num'+yn_`num'-yc_`num'+zn_`num'-zc_`num'+wn_`num'-wc_
      `num')
153   gen dy_dIN_`num'=1/4*(xn_`num'-xc_`num'+yn_`num'-yc_`num'+zn_`num'-zc_`num'+wn_`num'-wc_
      `num')
154
155   * Isolando phi em (2) temos:
156   gen phi_t_aux_`num'=1-(dy_dIN_`num'/(1-gamma_t_`num'))
157   gen phi_t_aux2_`num'= phi_t_aux_`num'
158   }
159
```

Variables

```
384  forvalues num=0(1)1{
385  * Criando a razão dos investimentos = razão do esforço nas práticas 2 a 2
386
387  gen S_`num'_ji=p1_`num'_j/p1_`num'_i
388
389  * Criando o ranking (três maneiras distintas) da razão dos investimentos = razão
     esforço nas práticas 2 a 2
390
391  bysort cod_prof dentro:  egen r1_S_`num'_ji = rank(S_`num'_ji), field
392  bysort cod_prof dentro:  egen r2_S_`num'_ji = rank(S_`num'_ji), track
393  bysort cod_prof dentro:  egen r3_S_`num'_ji = rank(S_`num'_ji), unique
394  bysort cod prof dentro:  egen r4 S `num' ji = rank(S `num' ji)
395
396  * Criando a diferença entre os rankings socioemocionais das práticas
397  gen p2_`num'_ji=p2_`num'_j-p2_`num'_i
398  la var p2_`num'_ji "Diferença entre ranking das práticas 2 a 2 em t=`num'"
399
400
401  gen razao p2 `num' ji=p2 `num' j/p2 `num' i
402  la var p2_`num'_ji "Razão ranking das práticas 2 a 2 em t=`num'"
403
404
405  * Deixando os rankings no negativo, só para o maior ter maior número!
406  foreach var in r1 S `num' ji  r3 S `num' ji r4 S `num' ji{
407  replace `var' = - `var'
408  }
409  }
```

Descriptive Statistics

```
293   gen dif_belief = phi_t_sample_1 - phi_t_sample_0
294
295   twoway (kdensity dif_belief if treat_belief==1) (kdensity dif_belief if treat_belief==0),
      legend(lab(1 "Treatment") lab(2 "Control")) graphregion(color(white)) ytitle("") bgcolor(
      none) xtitle("") title("Belief{stSerif}({it:{&phi}{sup:{&tau}}})") saving(
      "$grafs/delta_belief.gph", replace)
296   graph export "$grafs/delta belief.png", as(png) replace
297
298   xi: reg phi_t_sample_1 phi_t_sample_0 i.pair_belief, rob
299   predict belief_res, res
300
301   twoway (kdensity belief_res if treat_belief==1) (kdensity belief_res if treat_belief==0),
      legend(lab(1 "Treatment") lab(2 "Control")) graphregion(color(white)) ytitle("") bgcolor(
      none) xtitle("") title("Belief {stSerif}({it:{&phi}{sup:{&tau}}})") saving(
      "$grafs/residuo_belief.gph", replace)
302   graph export "$grafs/residuo belief.png", as(png) replace
```

Descriptive Statistics

```
293   gen dif_belief = phi_t_sample_1 - phi_t_sample_0
294
295   twoway (kdensity dif_belief if treat_belief==1) (kdensity dif_belief if treat_belief==0),
      legend(lab(1 "Treatment") lab(2 "Control")) graphregion(color(white)) ytitle("") bgcolor(
      none) xtitle("") title("Belief{stSerif}({it:{&phi}{sup:{&tau}}})") saving(
      "$grafs/delta_belief.gph", replace)
296   graph export "$grafs/delta belief.png", as(png) replace
297
298   xi: reg phi_t_sample_1 phi_t_sample_0 i.pair_belief, rob
299   predict belief_res, res
300
301   twoway (kdensity belief_res if treat_belief==1) (kdensity belief_res if treat_belief==0),
      legend(lab(1 "Treatment") lab(2 "Control")) graphregion(color(white)) ytitle("") bgcolor(
      none) xtitle("") title("Belief {stSerif}({it:{&phi}{sup:{&tau}}})") saving(
      "$grafs/residuo_belief.gph", replace)
302   graph export "$grafs/residuo belief.png", as(png) replace
```

Descriptive Statistics

```
416   * Motivação: ranking correlaciona com belief?
417
418   * Gráfico Correlação vs Prêmios financeiros
419   twoway (scatter corr_0_ji raw_dy_dthetaN_0) (lfit corr_0_ji raw_dy_dthetaN_0), xlabel(,
      grid gmax)leg(off) ytitle("Investment-Ranking") xtitle("Non-Cognitive Wage Premium")
      graphregion(color(white)) bgcolor(none) title("Adherence with Student's Non-Cognitive
      Wage Premium")saving(corr_n, replace)
420
421   graph export  "$grafsartigo/corr_wagethetan.png", as(png) replace
422
423
424   twoway (scatter corr_0_ji raw_dy_dIN_0) (lfit corr_0_ji raw_dy_dIN_0), xlabel(, grid gmax)
      leg(off) ytitle("Investment-Ranking") xtitle("Non-Cognitive Wage Premium") graphregion(
      color(white)) bgcolor(none) title("Adherence with Teacher's Non-Cognitive Wage Premium")
      saving(corr in, replace)
425
426   graph export  "$grafsartigo/corr_wagein.png", as(png) replace
427
```

Results

```
490   reg phi t sample 1 treat belief phi t sample 0 i.pair belief, rob
491   estimates store itt
492   reg phi_t_sample_1 treat_belief phi_t_sample_0 i.pair_belief etnia1 under_educ, rob
493   estimates store itt2
494   bootstrap, reps(1000): reg phi_t_sample_1 treat_belief phi_t_sample_0 i.pair_belief, rob
495   estimates store itt3
496   bootstrap, reps(1000): reg phi_t_sample_1 treat_belief phi_t_sample_0 i.pair_belief etnia1
       under educ, rob
497   estimates store itt4
498
499   estout itt itt2 itt3 itt4, cells(b(fmt(3) star) se(fmt(3) par)) stats(r2 N) starlevels(*
      0.1 ** 0.05 *** 0.01)
500
```

Results

```
687  */
688
689  foreach var in  corr b  corr 0 b  corr 1 b  {
690  ivregress gmm `var'1_ji `var'0_ji  phi_t_sample_0  i.pair_belief (phi_t_sample_1=
     treat_belief)
691  estimates store iv1`var'
692
693  ivregress gmm `var'1_ji `var'0_ji  phi_t_sample_0  i.pair_belief (phi_t_sample_1=
     treat_belief) [aw=se_`var'1_ji]
694  estimates store iv2`var'
695
696  ivregress gmm `var'1_ji `var'0_ji  phi_t_sample_0  i.pair_belief etnia1 under_educ (
     phi_t_sample_1=treat_belief)
697  estimates store iv3`var'
698
699  ivregress gmm `var'1_ji `var'0_ji  phi_t_sample_0  i.pair_belief etnia1 under_educ  (
     phi t sample 1=treat belief) [aw=se `var'1 ji]
700  estimates store iv4`var'
701
702  bootstrap, reps(2000): ivregress gmm `var'1_ji `var'0_ji phi_t_sample_0  i.pair_belief (
     phi_t_sample_1=treat_belief)
703  estimates store iv5`var'
704
705  bootstrap, reps(2000):ivregress gmm `var'1_ji `var'0_ji  phi_t_sample_0  i.pair_belief
     etnia1 under_educ (phi_t_sample_1=treat_belief)
706  estimates store iv6`var'
707  }
708
709  estout  iv1corr b   iv2corr b   iv3corr b  iv4corr b   iv5corr b  iv6corr b  , cells(b(fmt
     (3) star) se(fmt(3) par)) stats(r2 N) starlevels(* 0.1 ** 0.05 *** 0.01)
710  estout  iv1corr_1_b_  iv2corr_1_b_  iv3corr_1_b_ iv4corr_1_b_  iv5corr_1_b_ iv6corr_1_b_
     , cells(b(fmt(3) star) se(fmt(3) par)) stats(r2 N) starlevels(* 0.1 ** 0.05 *** 0.01)
711  estout  iv1corr_0_b_   iv3corr_0_b_ iv2corr_0_b_ iv4corr_0_b_  iv5corr_0_b_  iv6corr_0_b_,
      cells(b(fmt(3) star) se(fmt(3) par)) stats(r2 N) starlevels(* 0.1 ** 0.05 *** 0.01)
712
```