Pricing-To-Market and Networks

December 22nd, 2017

CIGS

Serguey Braguinsky (Maryland/NBER/Osaka)

Daisuke Miyakawa (Hitotsubashi)

Tetsuji Okazaki (Tokyo)

1-1. Introduction

- Currency exchange rate ⇒ export price measured in ***X*** (e.g., ***yen***)

E.g.,

$$\log(\textit{yen export price}) = \alpha + \beta \log(\textit{yen/USD}) + \varepsilon$$

⇒ $\beta \fallingdotseq 0$ (i.e., complete pass-through)

⇒ $\beta \fallingdotseq 1$ (i.e., no pass-through ⇒ profit margin might be altered)

- "Incomplete" pass-through: $\beta \neq 0$ ⇔ Pricing-to-Market (PTM)
  - Export dynamics (e.g., disconnect puzzle: macro)
  - Market structure (industry)
  - Firms' pricing behavior (micro)

Q. What determine(s) the level of β ?

1-2. Introduction

- Well known **"incomplete"** pass-through phenomenon
  - Gopinath et al. (*AER* 2010), Nakamura & Steinsson (*AER* 2012)
- Potentially many firm-level **"heterogeneity"**
  - Price level: Melitz & Ottaviano (*RES* 2008)
  - Market share: Atkeson & Burstein (*AER* 2008)
  - Product quality: Baldwin & Harrigan (*AEJ-Micro* 2011)
  - Import intensity & market share: Amiti et al. (*AER* 2014)
- Less than **"ideal"** data for examining specific mechanisms
  - Aggregate data or unit value computed from custom data are used…
  - Exception? Goldberg & Verboven (*RES* 2001): Automobile, Nakamura & Zerom (*RES* 2010): Coffee, Fitzgerald & Haller (*RES* 2014): "Plant-product"

2. This paper

In practice, different counts are considered as different products (e.g., In modern clothing, dress shirt: 40-120 count, casual shirt: 20-80 count)

- Use **ideal data**
  - Narrowly defined & differentiated product
  - Cotton yarn in a specific count: "16-bante"

    ⇒ Even better than Fitzgerald & Haller (2014): SIC 8 digit-level

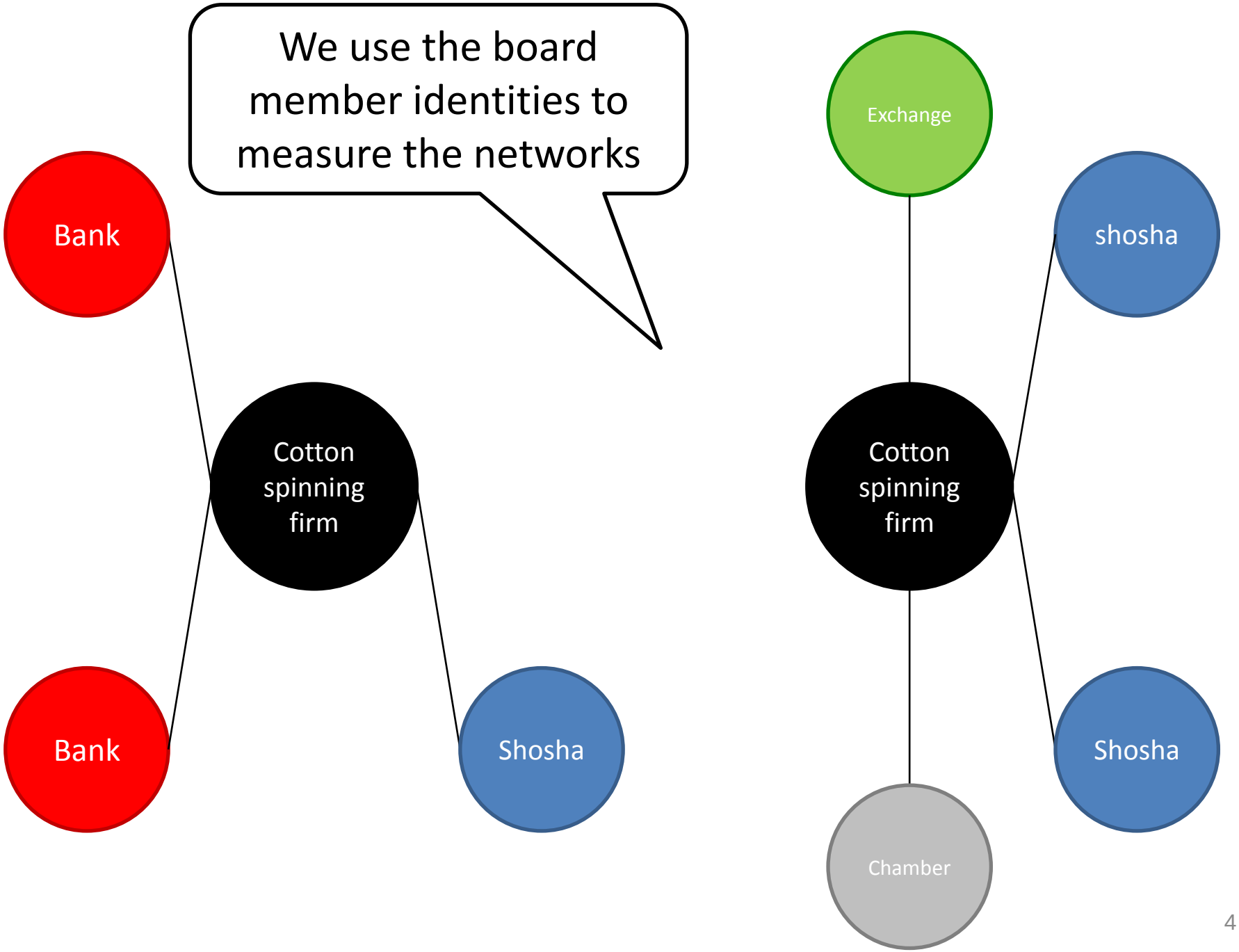
    (E.g., 22810302: COTTON YARN, SPUN)

    ⇒ Exported to one common market (i.e., Shanghai)
  - High frequency (monthly) firm-level export price data

    ⇒ Allows panel estimation to control for unobservable factors
  - Exogenous currency exchange rate dynamics under the gold standard in Japan and the silver standard in China (i.e., destination country)
  - Use a comprehensive list of firm attributes (Braguinsky et al. *AER* 2015)

- Study the association b/w **β** & one untouched channel:

  ⇔ **Networks (esp. shosha) held by cotton spinning firms**


We use the board member identities to measure the networks
Bank
Bank
Cotton spinning firm
Shosha
Exchange
shosha
Cotton spinning firm
Shosha
Chamber

3. Key takeaways

- Low unconditional pass-through rate (⇔Fitzgerald & Haller 2014)

- Pass-through depends on…
  - TFP, firm size, import intensity, labor skill (⇔Product quality), as in the extant studies

- Pass-through also depends on ***"network"*** factor …
  - **Tight connection with "shosha" increases pass-through**

    ⇔ Might reflect the actual price setting pattern in reality

⇒ **First analysis** employing **ideal price data** to pin down **network factor** with controlling for a list of comprehensive firm attributes

4-1. Literature: “Mark-up”

- Larger **β** when…
  - Lower price (⇔higher TFP: Melitz & Ottaviano *RES* 2008; Berman et al. *QJE* 2012)
  - Higher market share (Atkeson & Burstein *AER* 2008)
  - Higher product quality (Baldwin & Harrigan *AEJ-Micro* 2011)

← Lower demand elasticity

⇔ Higher **mark-up** elasticity ⇔ Lower pass-through

4-2. Literature: "Marginal cost"

- Larger **β** when…
  - Higher import intensity of intermediate goods (Amiti et al. *AER* 2014)
  - Central product (Chatterjee et al. *AEJ-Policy* 2013)
  - Higher local distribution cost share (Corsetti & Dedola *JIE* 2005)
  - Higher productivity (Berman et al. *QJE* 2012)

← Higher **marginal cost** elasticity

⇔ Higher elasticity of home currency-measured price

⇔ Lower pass-through

4-3. Literature: Some new angles…

- Employ some of them jointly…
  - Amiti, et al. (*AER* 2014): (i) Firms w/ larger market share and/or (ii) firms w/ higher import intensity shows larger mark-up dynamics (⇔ lower pass-through)
- Attempting to claim something new…
  - Financial constraint: Strasser (*JME* 2013): Financially constrained firms pass-through the change in exchange rate more← Critique in Gopinath (*JME* 2013)

5-1. Data: Firm-month export price

- Hand-collected from industry report (*Geppo*: 大日本紡績連合会月報)
- Monthly frequency firm-level export price data
- 1897/5～1898/6, 1901/10, 1902/4～1903/12, 1911/6～1914/12
  - ⇒ Note: The gold standard was introduced in 1897
  - ⇒ Note: Periods associated with major events (e.g., The Boxer Rebellion, Japan-Russo war) are excluded
- Firm ID, count-level (e.g., 16, 20, etc.) export price
  - For each firm × count, we have max (highest reported prices in each month), min (lowest in each month), avr (average price in each month)
  - Mainly 16 and 20 count data are available (also 10, 12, and 14)
  - Price information from China and Indian producers are also available
- Domestic price (製糸十六番手一梱平均代価)
- Export quantity (16 and 20 count: converted to 梱数)
- Many missing data on export quantity (even when prices are reported)
- Mumbai price is also partially available

Note: 22, 23, 24, 30, 32, 40, 41, 42, 60, and 80 counts were actually produced

雲龍魁玉の類には一匁高を以て當地紡績筋に數千俵先物約定出來たる爲め各銘柄物にも一般一二匁高直相場を示し從て質棉も五匁方騰貴を見るに至れり通州物南北雜牌類にも一般在荷薄の事なれは氣配强氣を含み尚一段上進もせさらん現況なり

今本日の出來直を上れは左の如し

品銘	出來直	品銘	出來直
通州器械繰別上	一七、二〇	上海器械繰上長崎横濱向六十斤入	一六、八〇
仝　上等	一七、〇〇	仝　中等仝	一六、六〇
仝　中等	一六、八〇	上海製通州器械繰上等	一七、〇〇
仝　下等	一六、六〇	仝　中等	一六、八〇
上海器械繰雲錦	—	寧波器械繰バース附上等	一六、六〇
仝　雲龍	一七、一〇	仝　中等	一六、五〇
仝　錦玉	一六、九〇	仝　下等	一六、二〇
仝　白雪	一六、九〇	通州實綿　一號	六、五〇
仝　魁玉	一七、〇〇	仝　二號	六、四〇
仝　雪錦	一六、九〇	上海仝女姑　一號	六、四〇
仝　上一品	一六、八〇	仝　二號	六、三〇
仝南北雜牌別上	一六、六〇	仝　高圧	六、二〇
仝　上等	一六、四〇	仝　抄圧	六、一〇
仝　中等	一六、二〇	寧波仝　一號	六、三〇
仝　下等	一六、〇〇	仝　二號	六、二〇

次に本週中に於ける取組高を上れは左の如し

通州器械繰別上	三五〇	上海器械繰南北雜牌別上	五〇〇
上海器械繰雲龍	八〇〇	仝　上等	二〇〇
仝　魁五	五〇〇	寧波器械繰バース附	二〇〇
仝　上一品	一、五〇〇		

○其三　（六月十日報）

本週に於ける棉花市況は前報の如く當地紡績筋の當用口の望取にして買進まさるも賣人筋には在荷薄且つ實綿高直引締め居相場保合居るも需用筋には一般相場不引合を唱へて望取薄昨今の氣配稍や引緩み茲或は下落を見るやも不斗景況にして本週の取組は當地紡績筋及び僅々の牛莊筋の手合とす

今日の出來直は前報と仝樣に附き省略す而して本週間に於ける取組高を上れは左の如し

上海器械繰雲龍	六五〇
仝　雪錦	二〇〇
仝南北雜牌上等	三〇〇
仝　中等	一〇〇
寧波器械繰バース附中等	一〇〇
仝　下等	一〇〇

上海綿糸商況

申興洋行報

○其一　（四月廿二日報）

本週中本邦糸の商況は前週に於て天津其他北滿筋の望取ありし爲め多少の氣配も見直し居りしも其後は各當用筋共更に買進まん摸樣もなく依然少數の手合に止まり買人筋は安附口の儘見送りの姿にて氣配も頓と引立ち兼品に依り二匁五分乃至五匁安にて手合出來居れり尚引續き需用薄には多少の下押は有之るが如き現況にて本週の取組高は二百三十餘俵にして在荷高は六千〇六十餘俵を示す其相場は左の如し

日本糸	十六手	二十手
大阪象	六五、七五	六八、五〇
平野馬	六五、五〇	六八、二五
攝津孔雀	六五、五〇	六八、二五
鐘淵魚	六五、七五	六八、五〇
東京牡丹	六五、二五	—
仝金獅子	六五、二五	—
朝日双鹿	六五、二五	六八、五〇
岡山花蝶	六五、七五	六八、五〇
三池三管	六五、五〇	六七、七五
浪花塔象	六五、二五	七〇、五〇
泉州戎	六五、二五	七〇、五〇
玉島和合人	六五、二五	七〇、五〇
金巾花瓶	六五、七五	七〇、五〇
備前伏龍	六五、七五	—
岸和田	—	七〇、五〇
天滿	六五、〇〇	七〇、五〇
尼ヶ崎	六五、〇〇	七〇、五〇
七星	六五、二五	七〇、七五

上海糸	十四手	十六手
茂生	七〇、五〇	七二、五〇
怡和	七〇、〇〇	七一、五〇
瑞記	七〇、〇〇	七三、〇〇
老公茂	七〇、〇〇	七二、七五
協隆	七〇、〇〇	七二、〇〇
裕源	七〇、五〇	七一、五〇
大純	七〇、〇〇	七二、〇〇
華盛	六九、五〇	七二、〇〇
華新	六九、五〇	七二、〇〇
	十二手	十手
上	六九、二五	六七、二五
中	六七、二五	六六、七五
以下	六六、〇〇	五八、五〇

孟買糸		
二十手	上	七七、五〇
	中	七四、〇〇
	中以下	七三、五〇
十六手	上	七四、〇〇
	中	七三、〇〇
	中以下	七二、〇〇
十二手	上	七二、五〇
	中	七〇、五〇
	中以下	六五、〇〇
十手	上	六八、二五
	中	六二、〇〇
	中以下	五九、五〇

次に本週中取組高を上れは左の如し

日本糸	十六手	一〇
	二十手	九〇
孟買糸	十手	八五一
	十六手	三五〇
	二十手	五五五

○其二　（五月廿七日報）

本週中糸況は本邦糸に於ては前報仝様引續き少數の手合に止り至て需用薄昨今の處相場亂調子とも云ふか如き傾向在りて左記相場より二匁五分乃至品に依り七匁五分方安直を以て僅少の手合を生し市勢何となく賣澁り買澁りの狀態にて相場は更に一定せす買人筋には本邦安直を氣構への向も在りて一向買進まさる等手控へ同樣の姿勢にて相場見送り居り賣人筋に於ても今後の動靜如何を氣遣ひ相場見送り居りて尚引續き不捌にて勢ひ不況を呈すへきやも不計現況なり而して其在荷は日本糸五千三百四十俵、印度糸二萬俵なり其相場は左の如し

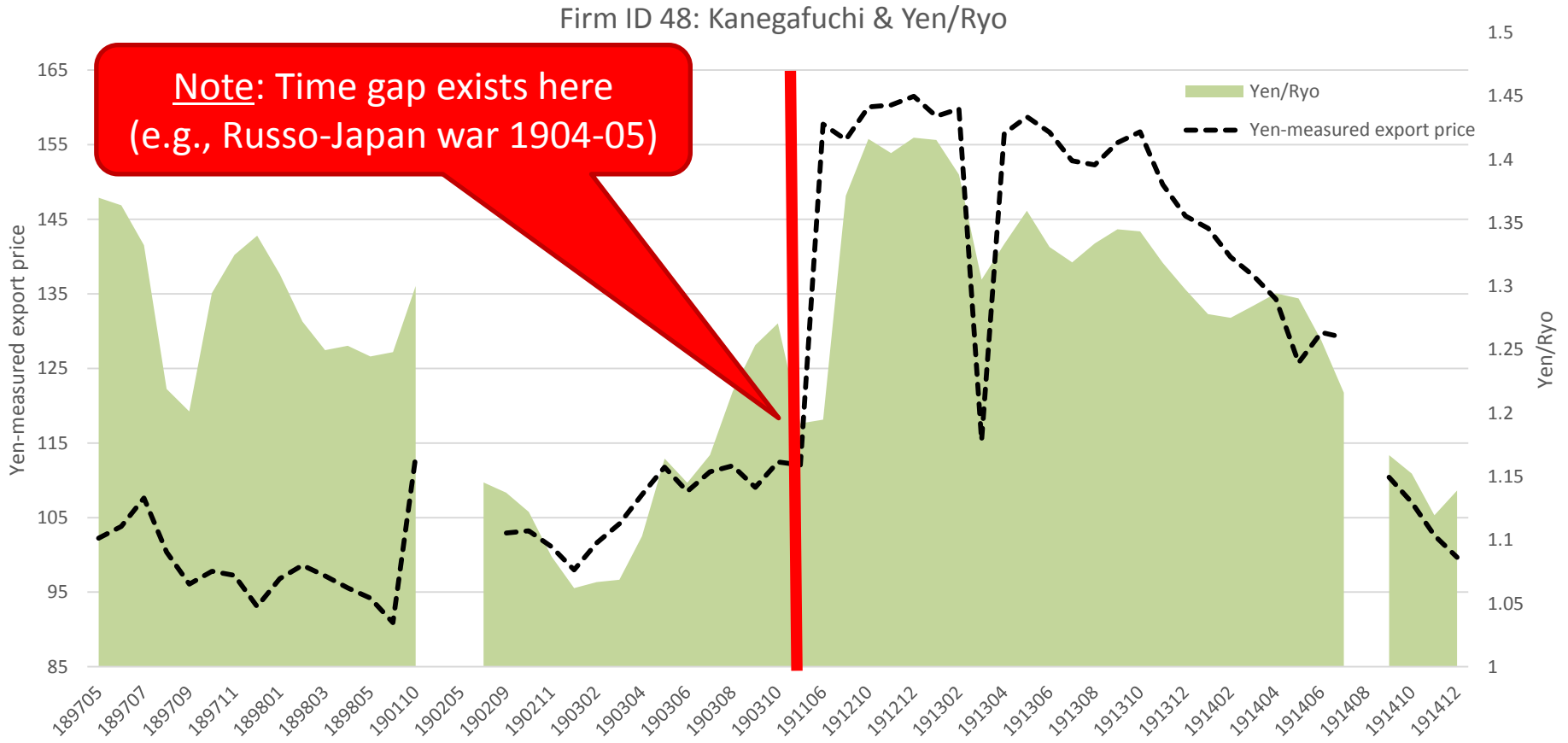
日本糸	十六手	二十手
大阪象	六五、七五	六八、五〇
平野馬	六五、五〇	六八、二五
攝津孔雀	六五、五〇	六八、二五
鐘淵魚	六五、七五	六八、五〇
東京牡丹	六五、二五	—

上海糸	十六手	二十手
茂生	七〇、五〇	七二、五〇
怡和	七〇、〇〇	七一、五〇
瑞記	七〇、〇〇	七三、〇〇
老公茂	七〇、〇〇	七二、七五
協隆	七〇、〇〇	七二、〇〇

孟買糸		
二十手	上	七七、五〇
	中	七四、〇〇
	中以下	七三、五〇
十六手		

5-2. Data: Currency exchange rate

- Data book of Japanese economic statistic (日本経済統計総観)
- Monthly frequency ***yen***/***ryo***(Chinese currency) exchange rate
  - Highest, lowest, average (used in our analysis) for each month



5-3. Data: Firm characteristics

- Firm characteristics
  - *Geppo* & financial statement (考課状)
  - Items included in the data
    - Output: Measured in physical units for two machinery (ring & mule)
    - Capital: Two-types of machinery, operating hours & days, power source
    - Labor: Male & female w/ wage information
    - Intermediate good: Cotton & coal
    - Cotton sources: Japan, China, India, US, HK, Vietnam, Egypt, others
    - Product composition: Share of 16 & 20 counts out of total production
    - Location: All the plants (with detailed information)
    - Almost all the P/L & B/S items (e.g., inventory, sales)
    - Board member, managers' attributes (e.g., education)
    - Plant-level attributes, entry/exit (firm & plant) ⇒ Planning to use…

Note: Production data are handled to compute TFPQ by following Braguinsly et al. (*AER* 2015)

⇒ At most, 32 firms × 57months (max #obs = 517 in the current analysis)

5-4. Data: Summary stat (a) - (c)

Variable	Definition	Obs	Mean	Std. Dev	Min	Max
	Sample (a): Sample for Table 2					
P	Natural logarithm of Yen(i.e., home currency)-measured 16-bante cotton exported	436	4.67	0.16	4.05	5.08
ER	Exchange rate measured as units of yen per one ryo	436	0.21	0.08	0.06	0.35
TFP	Firm-level total factor productivity obtained from fixed-effect panel estimation	436	0.00	0.13	-0.36	0.45
	Sample(b): Sample for Table 3					
P	Natural logarithm of Yen(i.e., home currency)-measured 16-bante cotton exported	353	4.67	0.16	4.46	5.08
ER	Exchange rate measured as units of yen per one ryo	353	0.22	0.07	0.06	0.35
TFP	Firm-level total factor productivity obtained from system GMM estimation	353	0.00	0.12	-0.33	0.34
	Sample(c): Sample for Table 4					
P	Natural logarithm of Yen(i.e., home currency)-measured 16-bante cotton exported	353	4.67	0.16	4.46	5.08
ER	Exchange rate measured as units of yen per one ryo	353	0.22	0.07	0.06	0.35
TFP	Firm-level total factor productivity obtained from fixed-effect panel estimation	353	0.01	0.13	-0.33	0.45
WAGE	Natural logarithm of female worker wage	353	0.00	0.29	-0.49	0.58
SIZE	Natural logarithm of output	353	0.06	1.14	-2.48	2.68

Note: All the variables other than IMPORT is demeaned

5-5. Data: Summary stat (d)

Sample(d): Sample for Table 5						
P	Natural logarithm of Yen(i.e., home currency)-measured 16-bante cotton exported	189	4.68	0.17	4.51	5.08
ER	Exchange rate measured as units of yen per one ryo	189	0.21	0.07	0.06	0.35
TFP	Firm-level total factor productivity obtained from fixed-effect panel estimation	189	0.02	0.13	-0.31	0.43
WAGE	Natural logarithm of female worker wage	189	0.06	0.28	-0.43	0.53
SIZE	Natural logarithm of output	189	0.26	1.23	-2.48	2.68
IMPORT	Import from Ryo export source countries / Import from all the souces (Note: this variable is time-invariant and measured as of the initial appearance in the data)	189	4.46	20.60	-39.67	39.23
INVENTORY	(Inventory + Account receivable) / Sales	189	-0.01	0.08	-0.09	0.26
RATE	BOJ's discount rate	189	-0.15	0.64	-1.05	1.14
SHARE	Output share of 16 count cotton yarn	189	0.02	0.24	-0.42	0.55
CAPUTIL	Capuital utilization rate	189	-0.01	0.14	-0.41	0.51

5-6. Network data

- Coded data
  - Shosha & trade exchange
    - 1893-1918
  - Bank, chamber of commerce
    - 1893, 1894, 1985, 1898, 1900, 1901, 1907
- Merge the following items to our cotton yarn firm-level panel data
  - Count the number of overlapped board members
  - Time-invariant as of 1898 & time-variant for shosha

5-6. Network data

- E.g., Amagasaki

15 1898 01			
名前	タイトル（取締役、監	本株式数	仮株式数
福本元之助	社長	676	786
亀岡徳太郎	取締役	320	430
本咲利一郎	取締役	605	655
菊池恭三	取締役	472	360
広岡信五郎	監査役	603	523
阪上新次郎	監査役	315	325
M31(1898)銀行役員データ&商社&商業会議所			
1,618	M31(1898)	貯金銀行	取締役
9,505		大阪商業会議所	副会頭
2,512		尼崎銀行	頭取
#N/A			
1,723		加島貯蓄銀行	監査役
1,104		北浜銀行	監査役
M31(1898)繊維関係商社役員データ			
#N/A			
12		日本綿花株式会社	監査役
#N/A			
#N/A			
#N/A			
#N/A			
M31(1898)三品取引所役員データ			
#N/A			
#N/A			
#N/A			
#N/A			
#N/A			
#N/A			
M31(1898)商社のみ			
#N/A			
#N/A			
#N/A			
#N/A			
#N/A			
#N/A			
M31(1898)商業会議所のみ			
#N/A			
38	大阪商業会議所	副会頭	
#N/A			
#N/A			
#N/A			
#N/A			

5-6. Network data

☐ Tabulate the time-invariant information

firm_name	firm_id_final	yearmonth	firm_id_final_yearmonth	firm_id_final	num_boards	num_bank	num_kaigi	num_shosha	num_exc
朝日紡績	4	189705	4189705	4	5	0	1	0	0
尼ヶ崎	5	189804	5189804	5	6	4	1	1	0
合同	24	190211	24190211	4	5	0	1	0	0
大阪紡績	28	189705	28189705	28	6	3	0	1	2
岡山紡績	36	189705	36189705	36	8	3	2	0	0
笠岡紡績	43	190110	43190110	43	9	4	1	0	0
金巾	46	189711	46189711	46	7	6	0	2	0
鐘淵紡績	48	189705	48189705	48	8	3	1	0	0
岸和田	52	189711	52189711	52	8	4	0	0	0
吉備紡績	***56***	***190110***	***56190110***	56					
三池紡績	58	189705	58189705	58	10	4	0	1	0
倉敷紡績	65	190110	65190110	65	7	5	0	0	0
郡山紡績	72	190303	72190303	72	7	3	0	0	0
堺紡績	***76***	***190110***	***76190110***	76	7	2	1	0	0
讃岐サ	***79***	***190307***	***79190307***	79	9	4	0	0	0
摂津紡績	98	189705	98189705	98					
泉州紡績	100	189705	100189705	100	8	5	0	0	0
玉島紡績	109	189705	109189705	109	5	2	0	0	0
中国紡績	111	190110	111190110	111	9	4	2	0	0
東京紡績	124	189705	124189705	124	5	0	0	0	0
名古屋紡績	136	190303	136190303	136	7	5	1	0	0
浪花紡績	139	189705	139189705	139	9	7	0	3	0
日本紡織	145	190207	145190207	145	8	6	0	0	1
日本紡績	147	190209	147190209	147	10	6	1	5	0
野田	149	189709	149189709	149	9	4	0	0	2
備前	155	189706	155189706	155	9	2	0	0	0
平野紡績	158	189705	158189705	158	6	2	0	1	0
福島紡績	160	190312	160190312	160	5	1	0	0	0
福山紡績	162	190110	162190110	162	5	5	0	0	0
三重紡績	174	190110	174190110	174	6	2	2	0	0

6. Bring it to estimation

Focus on the observation with some price change (⇔ Nakamura & Steinsson 2012)

(i) Fixed-effect panel estimation:

$$\ln P_{i,t} = \alpha + \beta_1 \ln ER_t + \beta_2 x_{i,t} + \beta_3 \ln ER_t \times x_{i,t} + FE_i + \varepsilon_t$$

(ii) Allison's hybrid random-effect estimation (Allison 2009)

$$\ln P_{i,t} = \alpha + \beta \ln ER_t + \gamma_1 (x_{i,t} - \bar{x}_i) + \gamma_2 \bar{x}_i + \delta_1 \left\{ \ln ER_t \times x_{i,t} - \overline{\ln ER \times x_i} \right\} + \delta_2 \overline{\ln ER \times x_i} + RE_i + \varepsilon_t$$

(iii) Correlated coefficient random-effect estimation (Wooldridge 2010)

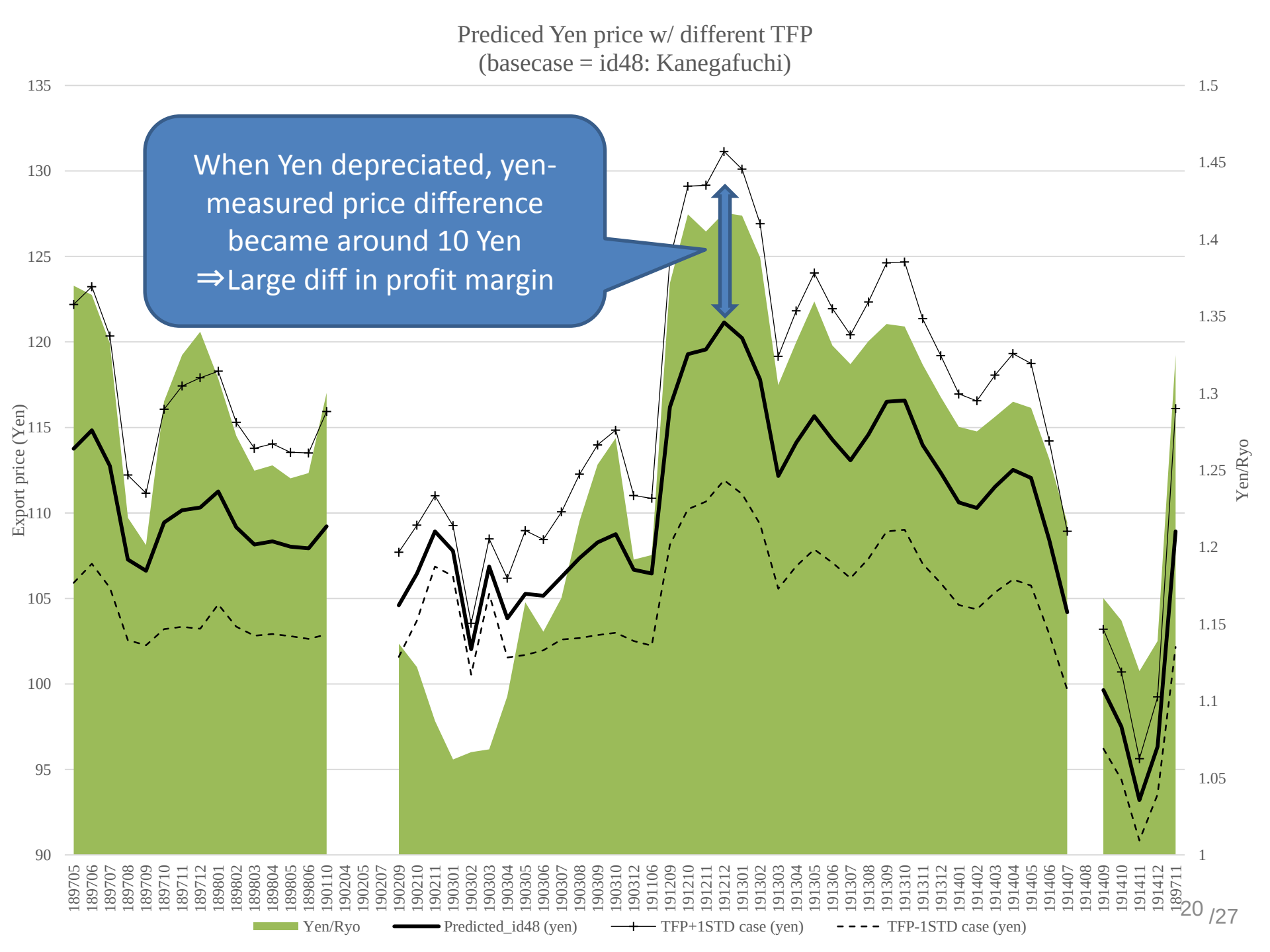
$$\ln P_{i,t} = \alpha + \beta \ln ER_t + \gamma_1 x_{i,t} + \gamma_2 \bar{x}_i + \delta_1 \ln ER_t \times x_{i,t} + \delta_2 \overline{\ln ER \times x_i} + RE_i + \varepsilon_t$$

7-1. Unconditional & TFP

Dependent variable: *P*										
	Fixed-effect model			Fixed-effect model			Allison (2009) Hybrid random-effect model			Correlated random-effects model		
Independent Variables	Coef.	Std. Err.		Coef.	Std. Err.		Coef.	Std. Err.		Coef.	Std. Err.	
ER	1.067	0.070	***	1.024	0.068	***				1.019	0.068	***
TFP				-0.400	0.150	***				-0.407	0.149	***
ER×TFP				1.748	0.629	***				1.786	0.628	***
ER - ER_AVR							1.019	0.068	***			
TFP - TFP_AVR							-0.407	0.149	***			
ER×TFP - ER×TFP_AVR							1.786	0.628	***			
ER_AVR							-0.118	0.346		-1.137	0.352	***
TFP_AVR							-0.131	0.628		0.276	0.640	
ER×TFP_AVR							0.486	2.788		-1.300	2.831	
constant	4.462	0.016	***	4.451	0.015	***	4.643	0.072	***	4.643	0.072	***
No. of Obs.	517			436			436			436		
No. of Groups	32			30			30			30		
Observation per group												
min	1			1			1			1		
avr	16.2			14.5			14.5			14.5		
max	57			57			57			57		
F or Wald chi2	231.55			76.79			227.30			227.30		
Prob > F or chi2	0.0000			0.0000			0.0000			0.0000		
R-sq												
within	0.3236			0.3637			0.3637			0.3637		
between	0.0047			0.0044			0.0136			0.0136		
overall	0.2074			0.1767			0.1791			0.1791		
corr(u_i, xb)	-0.0870			-0.1267			0 (assumed)			0 (assumed)		
F test that all u_i=0												
F	12.93			18.61			n.a.			n.a.		
Prob>F	0.0000			0.0000			n.a.			n.a.		

Almost same magnitude reported in Fitzgerald & Haller (2014) i.e., β=1.01 (std. 0.090)***

Fitzgerald & Haller (2014) "meets" Berman et al. (2012) i.e., depends on firm characteristics


Prediced Yen price w/ different TFP
(basecase = id48: Kanegafuchi)
When Yen depreciated, yen-measured price difference became around 10 Yen
⇒Large diff in profit margin
Export price (Yen)
Yen/Ryo
Yen/Ryo
Predicted_id48 (yen)
TFP+1STD case (yen)
TFP-1STD case (yen)

7-2. Another TFP measure

- Robust to alternative TFP computation

Dependent variable: *P*									
	Fixed-effect model			Allison (2009) Hybrid random-effect model			Correlated random-effects model		
Independent Variables	Coef.	Std. Err.		Coef.	Std. Err.		Coef.	Std. Err.	
ER	1.016	0.076	***				1.012	0.076	***
TFP	-0.469	0.187	**				-0.480	0.187	***
ER×TFP	2.529	0.789	***				2.573	0.791	***
ER - ER_AVR				1.012	0.076	***			
TFP - TFP_AVR				-0.480	0.187	***			
ER×TFP - ER×TFP_AVR				2.573	0.791	***			
ER_AVR				-0.321	0.495		-1.333	0.501	***
TFP_AVR				-0.280	1.103		0.200	1.116	
ER×TFP_AVR				1.690	4.827		-0.883	4.881	
constant	4.449	0.017	***	4.686	0.106	***	4.686	0.106	***

7-3. One step further

① Female wage (⇔quality)
② Import intensity
③ Inventory turnover (⇔*"financial cost"*)
④ BOJ discount rate (sign???)

t variable: *P*

Independent Variables	Fixed-effect model Coef.	Std. Err.		Coef.	Std. Err.		Coef.	Std. Err.	
ER	0.272	0.090	***	0.691	0.065	***	1.078	0.127	***
TFP	-0.166	0.142		-0.079	0.108		-0.035	0.122	
ER×TFP	0.200	0.686		-0.482	0.480		-0.144	0.585	
WAGE	-0.219	0.079	***	-0.315	0.068	***	-0.045	0.072	
ER×WAGE	1.511	0.384	***	2.149	0.328	***	1.067	0.339	***
SIZE	0.037	0.019	*	0.058	0.017	***	0.071	0.017	***
ER×SIZE	0.174	0.081	**	0.108	0.073		0.033	0.071	
ER×IMPORT	0.018	0.003	***	0.015	0.003	***	0.010	0.003	***
INVENTORY	0.985	0.376	***				0.728	0.322	**
ER×INVENTORY	-7.053	1.682	***				-4.604	1.467	***
RATE				-0.072	0.015	***	-0.191	0.024	***
ER×RATE				0.324	0.073	***	0.777	0.109	***
constant	4.575	0.018	***	4.497	0.014	***	4.392	0.028	***

7-4. Full model

Dependent variable: *P*									
	Fixed-effect model								
Independent Variables	Coef.	Std. Err.		Coef.	Std. Err.		Coef.	Std. Err.	
ER	0.070	0.221		0.986	0.328	***	0.740	0.556	
TFP	-0.253	0.153	*	-0.057	0.156		0.006	0.160	
ER×TFP	0.350	0.713		-0.619	0.735		-1.449	0.690	**
WAGE	-0.268	0.086	***	-0.349	0.085	***	0.025	0.097	
ER×WAGE	1.755	0.434	***	2.132	0.430	***	0.327	0.535	
SIZE	0.053	0.023	**	0.018	0.024		0.054	0.034	
ER×SIZE	0.103	0.103		0.255	0.107	**	0.192	0.167	
ER×IMPORT	0.009	0.006		0.017	0.006	***	0.013	0.012	
INVENTORY	0.674	0.395	*	0.007	0.421				
ER×INVENTORY	-5.541	1.761	***	-1.933	1.959				
ER×Shosha_share	-2.641	1.415	*	-3.381	1.374	**			
ER×Bank_share	0.848	0.611		-0.629	0.712		-0.391	1.020	
ER×Kaigi_share				-4.068	1.112	***	-0.356	2.281	
Shosha_num_TV							0.016	0.009	*
ER×Shosha_num_TV							-0.114	0.050	**
constant	4.572	0.019	***	4.568	0.018	***	4.505	0.030	***

7-5. Robustness

- Asymmetry b/w appreciation & depreciation
- Incorporate other currencies
- Incorporate prefectural controls
- Incorporate and consider additional factors:
  - Interaction b/w exchange rate & centrality of 16 count: (+/-) but insig
    Interaction b/w exchange rate & **1**(early entry to export market): (+) but insig
    ⇔ Early entrant has some market power
  - Interaction b/w exchange rate & **1**(headquartered in Tokyo): (+) but insig
    ⇔ Distribution cost as in Berstein & Jaimovich (2012)?
  - Exclude the periods for WWI (July 1914～)

⇒ Results in "full model" are robust to the inclusion of these items

8-1. Discussion

- Somewhat stable (-) coef associated w/ shosha*ER
  - Under depreciation of JPY, firms with higher “shosha” increases yen-price by smaller margin
  - This leads to lower ryo-price (⇒more export “quantity”)
  - Note: This is the case with many controls proposed in literature
- Possible mechanism?
  - Intention to increase market share?
  - Intention to gain more profit from transaction?

8-2. Things to be done

- Better to confirm the robustness of this result
  - Construct longer bank/kaigisho member list

9. Conclusion

- Use the ideal data and confirm heterogeneous pass-through in a comprehensive way: Product quality, import, financial cost

- Examine an untouched channel (networks) in the context of PTM

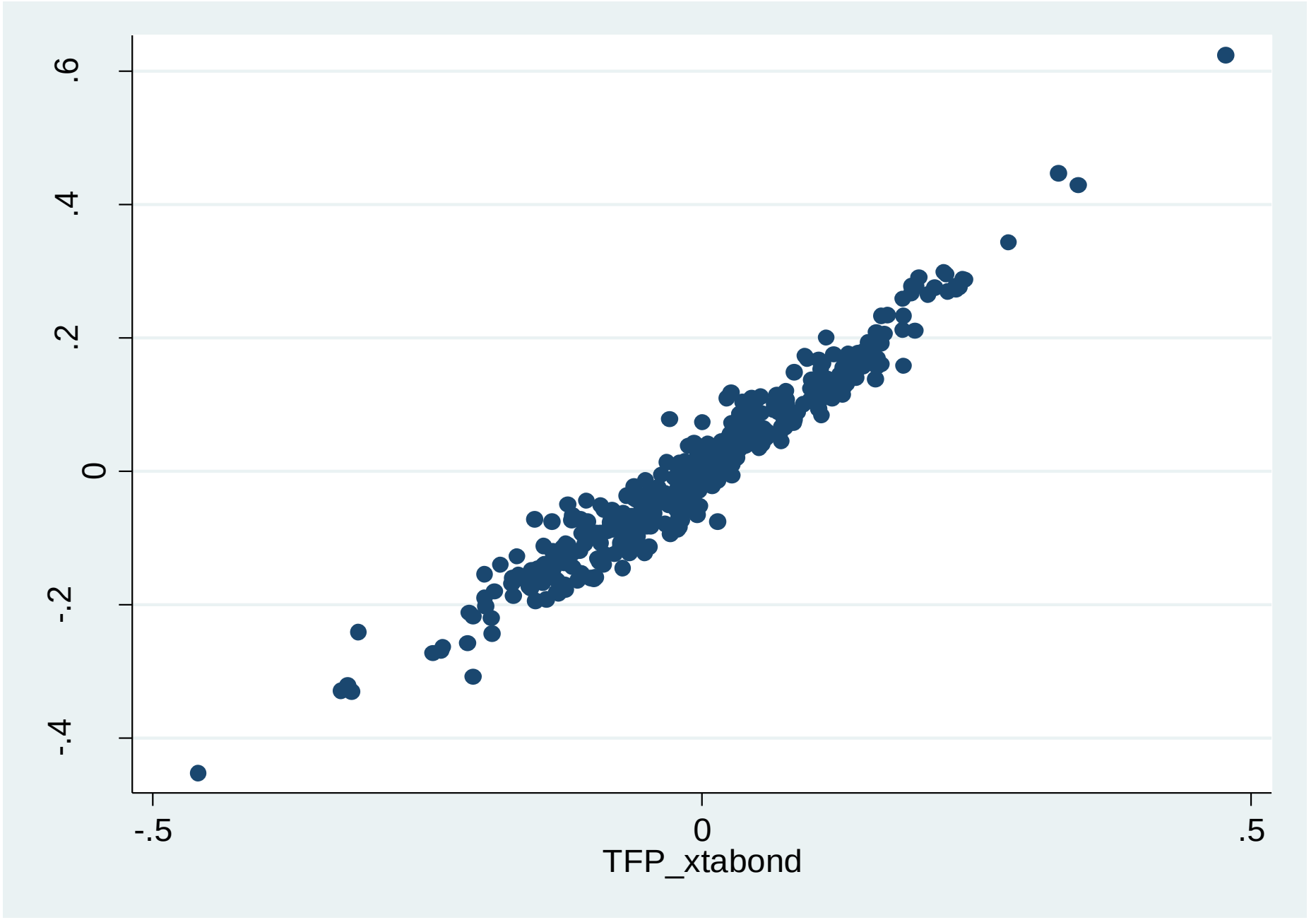
- Other projects using this data

  - Pre-export investment (i.e., tangibles & intangibles)

  - Pre-export & post-export productivity/profitability dynamics

  - Utilizing network information more intensively

Appendix


.6
.4
.2
0
-.2
-.4
-.5
0
.5
TFP_xtabond

List to do for PTM paper

- Extensive margin & Urgency explanation (e.g., Nakamura)
- Downstream integration into cloth production
- Within-effect vs., between-effect
- Sources of data attrition
- Financial friction explanation: BOJ*B/S
- Way to demean (e.g., industry average)
- Domestic price dynamics of exporter and non-exporter firms
- Time-fixed effect (subsuming *ER* etc.)
- Benchmarking export prices by domestic (or industry) prices of cotton yarn produce by firms little depending on Chinese raw cotton
- Driver(s) of gold/silver rate (for ensuring exogeneity of *ER*)
- Controlling for FDI
- Lagged & averaged *ER* (related to delivery cost)
- Heterogeneity in cost adjustment
- Behavior of Chinese cotton producers
- Export price volatility within month
- Determinants of (i) level of *ER* and growth of *ER*?
- Delivery cost inside China
- Real Exchange Rate?
- Magnitude of the ER coef↓ (not a one-to-one pass-through, R-squared is also much higher)
- Somewhat surprisingly, the depreciation of yen to shilling (*ER_S*) led to lower export price (Did India also have a gold standard? That could explain it. How much variation is there?)

Thank you and comments are welcome!

<Contact Information>

Serguey Braguinsky:
Robert H. Smith School of Business and the Department of Economics,
University of Maryland, NBER, and Osaka University
4558 Van Munching Hall, College Park, MD 20742 USA;
E-mail: sbraguinsky@rhsmith.umd.edu

Daisuke Miyakawa:
Graduate School of International Corporate Strategy,
Hitotsubashi University
2-1-2 Hitotsubashi, Chiyoda-ku, Tokyo, 101-8439 JAPAN
E-mail: dmiyakawa@ics.hit-u.ac.jp

Tetsuji Okazaki:
Graduate School of Economics,
University of Tokyo
7-3-1 Hongo, Bunkyo-ku, Tokyo 113-0033 JAPAN
E-mail: okazaki@e.u-tokyo.ac.jp