

# Speed Money in the Asia Pacific

## Border Crossing Times, Corruption, and Trade

Ben Shepherd

Independent Trade Economist & International Development Consultant  
Research Associate, GEM, Sciences Po

ARTNeT Conference, Bangkok

November 2, 2009

# Outline

- 1 Motivation
- 2 Preview of Main Results
- 3 Data and Preliminary Analysis
  - WB Enterprise Surveys Data
  - A First Look at the Data
- 4 Empirical Model and Results
  - Empirical Model
  - Results
- 5 Summary

# Time has Commercial Value...

- Empirical work suggests that time can act as a significant trade barrier.
  - Hummels (2001): One additional day of transport time reduces the probability of the US sourcing from a country by up to 1.5%.
  - Djankov, Freund & Pham (Forthcoming, REStat): One additional day's shipping time reduces trade by 1%.

# Time has Commercial Value...

- Three reasons (at least) why some producers care about the time it takes to move goods across borders:
  - Perishable goods: fresh fruit, cut flowers, etc.
  - Production networking: minimization of inventory costs requires speedy movement of parts and components.
  - Response to demand shocks: the “lean retailing” model of Evans & Harrigan (2005.)

# So Some Firms Will Pay for Speed

- Assume that the “official” time it takes to move goods across the border is given, and slow.
- Customs agents perform a gatekeeper role:
  - No side payment: apply the official time.
  - Side payment: apply a quicker time than the official time.
- Assuming different levels of time preference, firms will self-select into bribers and non-bribers: slow border crossing times create an incentive for corrupt payments.

## So Some Firms Will Pay for Speed

- Assume that the “official” time it takes to move goods across the border is given, and slow.
- Customs agents perform a gatekeeper role:
  - No side payment: apply the official time.
  - Side payment: apply a quicker time than the official time.
- Assuming different levels of time preference, firms will self-select into bribers and non-bribers: slow border crossing times create an incentive for corrupt payments.

# So Some Firms Will Pay for Speed

- Assume that the “official” time it takes to move goods across the border is given, and slow.
- Customs agents perform a gatekeeper role:
  - No side payment: apply the official time.
  - Side payment: apply a quicker time than the official time.
- Assuming different levels of time preference, firms will self-select into bribers and non-bribers: slow border crossing times create an incentive for corrupt payments.

# Preview of Main Results

- ➊ Firm-level data from the World Bank's Enterprise Surveys support the hypothesis that longer border crossing times are associated with more prevalent trade-related corruption.
  - ➊ Identify bribers vs. non-bribers.
  - ➋ Identify firm-level border crossing times.
- ➌ The relationship between trade times and corruption is particularly strong in the Asia-Pacific.
- ➍ From a companion paper: the interaction between trade time and corruption is a significant determinant of bilateral trade.



# Preview of Main Results

- ❶ Firm-level data from the World Bank's Enterprise Surveys support the hypothesis that longer border crossing times are associated with more prevalent trade-related corruption.
  - ❶ Identify bribers vs. non-bribers.
  - ❷ Identify firm-level border crossing times.
- ❷ The relationship between trade times and corruption is particularly strong in the Asia-Pacific.
- ❸ From a companion paper: the interaction between trade time and corruption is a significant determinant of bilateral trade.

# Preview of Main Results

- ➊ Firm-level data from the World Bank's Enterprise Surveys support the hypothesis that longer border crossing times are associated with more prevalent trade-related corruption.
  - ➊ Identify bribers vs. non-bribers.
  - ➋ Identify firm-level border crossing times.
- ➋ The relationship between trade times and corruption is particularly strong in the Asia-Pacific.
- ➌ From a companion paper: the interaction between trade time and corruption is a significant determinant of bilateral trade.

# Preview of Main Results

- Important policy implications:
  - 1 Incremental progress on corruption does not always require huge institutional and cultural changes.
  - 2 Target enforcement resources at time-sensitive sectors.
  - 3 Provide a legal “fast track” to bring side payments into government revenue.
  - 4 Trade facilitation “double whammy” through reduced corruption.

# Contributions of this Paper

- 1 The small literature on “grease money” focuses on areas other than trade.
- 2 The trade and corruption literature focuses almost exclusively on tariffs as the source of corruption incentives.
- 3 No previous use of firm-level data in the trade and corruption literature.
- 4 With the companion paper: consistent evidence from the firm-, country-, and country-pair levels.

# Contributions of this Paper

- 1 The small literature on “grease money” focuses on areas other than trade.
- 2 The trade and corruption literature focuses almost exclusively on tariffs as the source of corruption incentives.
- 3 No previous use of firm-level data in the trade and corruption literature.
- 4 With the companion paper: consistent evidence from the firm-, country-, and country-pair levels.

# Contributions of this Paper

- 1 The small literature on “grease money” focuses on areas other than trade.
- 2 The trade and corruption literature focuses almost exclusively on tariffs as the source of corruption incentives.
- 3 No previous use of firm-level data in the trade and corruption literature.
- 4 With the companion paper: consistent evidence from the firm-, country-, and country-pair levels.

## Contributions of this Paper

- 1 The small literature on “grease money” focuses on areas other than trade.
- 2 The trade and corruption literature focuses almost exclusively on tariffs as the source of corruption incentives.
- 3 No previous use of firm-level data in the trade and corruption literature.
- 4 With the companion paper: consistent evidence from the firm-, country-, and country-pair levels.

# Outline

- 1 Motivation
- 2 Preview of Main Results
- 3 **Data and Preliminary Analysis**
  - **WB Enterprise Surveys Data**
  - A First Look at the Data
- 4 Empirical Model and Results
  - Empirical Model
  - Results
- 5 Summary



# Overview

- Major World Bank project: 100,000+ firms in 113 countries.
- This paper uses Asia (including Central Asia) and Pacific data only:
  - Countries: China, India, Indonesia, Kyrgyzstan, Laos, Philippines, Sri Lanka, Turkey, and Vietnam.
  - 14 manufacturing industries.
  - Effective sample of 1,000+ firms.

# Corruption Data

- Survey participants are asked whether “a gift or informal payment was asked for or expected” in relation to certain activities, including obtaining an import license.
  - The emphasis in the question is on corrupt behavior by officials, not firms.
  - The word “bribe” is not used, so as to limit the effects of different cultural perceptions and legal norms.
  - The questions take place in the middle of the survey, after confidence has been established.
  - Participants are reminded about confidentiality of results.

# Corruption Data

- Corruption: 1/0 dummy for firms asked for a “gift” in connection with obtaining an import license.
- Robustness check 1: 1/0 dummy for firms indicating that it is common to make unofficial payments “to get things done”.
- Robustness check 2: 1/0 dummy for firms identifying corruption as a “major” or “very severe” obstacle to doing business.

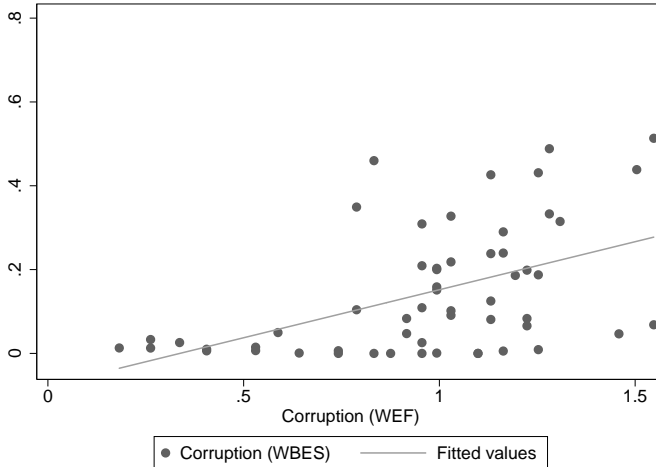
## Trade Time Data

- Time: longest import time over the 12 months prior to the survey, as reported by the firm.
- Robustness check 1: average import time reported by the firm.
- Robustness check 2: longest export time reported by the firm.
- Robustness check 3: 1/0 dummy for firms identifying customs as a “major” or “very severe” obstacle to doing business.

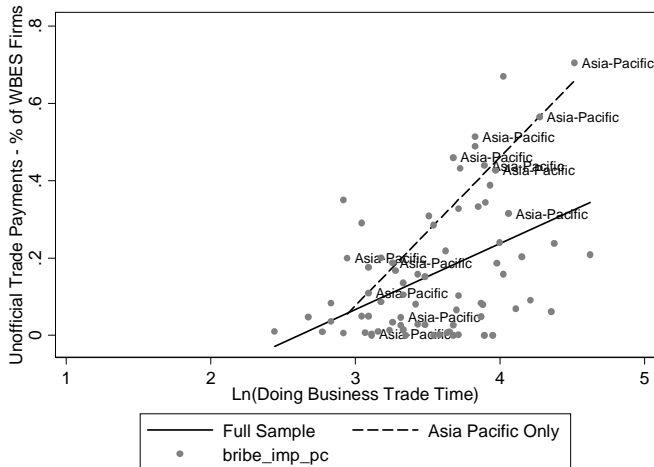
# Outline

- 1 Motivation
- 2 Preview of Main Results
- 3 Data and Preliminary Analysis**
  - WB Enterprise Surveys Data
  - **A First Look at the Data**
- 4 Empirical Model and Results
  - Empirical Model
  - Results
- 5 Summary

# WBES vs. WEF Corruption Data



# Time vs. Corruption–Country Level



# Outline

- 1 Motivation
- 2 Preview of Main Results
- 3 Data and Preliminary Analysis
  - WB Enterprise Surveys Data
  - A First Look at the Data
- 4 Empirical Model and Results**
  - Empirical Model**
  - Results
- 5 Summary



# Empirical Model

- 1 Define a latent variable  $Gift_{fcst}^*$  as the probability that firm  $f$  in country  $c$ , sector  $s$ , at time  $t$  makes a gift or informal payment to a customs officer.
- 2 Theory + inclusion of controls motivates an empirical model with the following form:

$$Gift_{fcst}^* = b_1 \ln(time_{fcst}) + b_2 \ln\left(\frac{sales_{fcst}}{empl_{fcst}}\right) + b_3 foreign_{fcst} + \sum d_{cst} + e_{fcst}$$

- 3 Expect  $b_1 > 0$  and  $b_2 > 0$ . Ambiguous expectation for  $b_3$ .

# Empirical Model

$$Gift_{fcst}^* = b_1 \ln(time_{fcst}) + b_2 \ln\left(\frac{sales_{fcst}}{empl_{fcst}}\right) + b_3 foreign_{fcst} + \sum d_{cst} + e_{fcst}$$

- 1 Assume a relationship between the latent and observed variables such that

$$Gift_{fcst} = \begin{cases} 1 & \text{if } Gift_{fcst}^* > 0 \\ 0 & \text{otherwise} \end{cases}$$

- 2 Assume  $e_{fcst}$  is logistic.
- 3 Estimate the model as a conditional fixed effects logit.

# Outline

- 1 Motivation
- 2 Preview of Main Results
- 3 Data and Preliminary Analysis
  - WB Enterprise Surveys Data
  - A First Look at the Data
- 4 Empirical Model and Results**
  - Empirical Model
  - Results**
- 5 Summary

## Baseline Results + Additional Controls

Dependent Variable: 1/0 Dummy "Import Gift"				
	Baseline	Size	Management	Checks
<b>Ln(Longest Import Time)</b>	<b>0.112+</b>	<b>0.115*</b>	<b>0.140*</b>	<b>0.138*</b>
Ln(Sales/Employees)	-0.034	-0.064	-0.06	-0.08
Foreign Dummy	0.299**	0.287**	0.352***	0.286**
Ln(Total Sales)		0.034	0.061	0.083*
Ln(Days of Input Inventory)			-0.095**	-0.089*
Ln(Capacity Utilization)			-0.273+	-0.263+
External Auditor Dummy				0.194
ISO 9000 Dummy				-0.261*
Observations	1676	1676	1297	1297

# Robustness Checks

	DV: Import "Gifts"			General "Gifts"	Corruption Obstacle
	Robustness: Time			Robustness: Corruption	
Ln(Ave. Import Time)	0.100*				
Ln(Long. Export Time)	0.207**				
Ln(Long. Import Time)				0.141**	0.111*
Customs Obstacle			0.384***		
Ln(Sales/Employees)	0.019	0.022	0.110***	-0.024	0.005
Foreign Dummy	0.359***	0.516***	0.873***	-0.296**	0.041
Observations	2212	2150	7858	2686	3884

## Complementary Results I: Country Level

- Same corruption data as in the firm-level results.
- Aggregated to the country level by calculating the percentage of firms that report having been asked for a “gift”.
- Trade time data from Doing Business: official (i.e., “no gift”) times—helps deal with possible endogeneity at the firm level.
- Placebo: Entry costs instead of trade costs.

# Complementary Results I: Country Level

Dependent Variable: % WBES Firms "Import Gift"						
	Baseline	Placebo	Asia-Pac	IV2	IV1-Time	IV1-Inter.
<b>Ln(DB Time)</b>	<b>0.099**</b>	0.17	<b>0.042</b>	<b>0.135</b>		
<b>Ln(DB Time) * AsPac</b>			<b>0.255***</b>	<b>0.216**</b>		
Ln(Gov)	-0.019	-3.674***	-0.081	-0.007	-0.509**	-0.041
Ln(Voice)	-0.157**	-0.32	-0.072	-0.059	-0.018	-0.059
Ln(Culture)	0.010**	0.02	0.011***	0.010**	0.024	0.007
Asia-Pacific			-0.759***	-0.616	-1.15	0.287
Ln(Area)					0.034	0
Ln(Area) * AsPac					-0.059	-0.057
Ln(DB Docs)					0.711***	-0.045
Ln(DB Docs) * AsPac					0.807***	1.729***
Obs.	74	112	74	74	74	74
				J=0.9	F=21.2***	F=20.9***

## Complementary Results II: Gravity Model

- Previous research suggests that:
  - Corruption impacts negatively on trade (Anderson & Marcouiller, 2002).
  - Time impacts negatively on trade (Djankov et al., Forthcoming)
- My analysis suggests an additional joint effect, because time influences corruption prevalence.



## Complementary Results II: Gravity Model

Dependent Variable: Log(Exports)	
	OLS
Time	-1.449***
Corruption	-0.435***
<b>Time*Corruption</b>	<b>-0.039*</b>
Distance	-1.403***
Border	0.779***
Common Language	0.722***
Common Colonizer	1.201***
Colony	0.732***
Observations	10,504

# Main Results

- 1 Firm-level data from the World Bank's Enterprise Surveys support the hypothesis that longer border crossing times are associated with more prevalent trade-related corruption.
- 2 The relationship between trade times and corruption is particularly strong in the Asia-Pacific.
- 3 From a companion paper:
  - 1 The same relation holds in cross-country data, including using IVs.
  - 2 The interaction between trade time and corruption is a significant determinant of bilateral trade.

# Main Results

- 1 Firm-level data from the World Bank's Enterprise Surveys support the hypothesis that longer border crossing times are associated with more prevalent trade-related corruption.
- 2 The relationship between trade times and corruption is particularly strong in the Asia-Pacific.
- 3 From a companion paper:
  - 1 The same relation holds in cross-country data, including using IVs.
  - 2 The interaction between trade time and corruption is a significant determinant of bilateral trade.

# Main Results

- ➊ Firm-level data from the World Bank's Enterprise Surveys support the hypothesis that longer border crossing times are associated with more prevalent trade-related corruption.
- ➋ The relationship between trade times and corruption is particularly strong in the Asia-Pacific.
- ➌ From a companion paper:
  - ➊ The same relation holds in cross-country data, including using IVs.
  - ➋ The interaction between trade time and corruption is a significant determinant of bilateral trade.

# Policy Implications

- 1 “People respond to incentives”: Doing something about corruption does not always require major cultural or institutional/governance changes.
- 2 Legal “fast tracks”: Legitimize speed money, and take advantage of firms’ willingness to pay to increase government revenue.

# Policy Implications

- 1 “People respond to incentives”: Doing something about corruption does not always require major cultural or institutional/governance changes.
- 2 Legal “fast tracks”: Legitimize speed money, and take advantage of firms’ willingness to pay to increase government revenue.

# Policy Implications

- 1 Focus limited detection and enforcement resources: Producers in time-sensitive sectors—and customs officials who deal with them—are more likely to be involved in trade-related corruption.
- 2 The trade facilitation “double whammy”: faster times increase exports AND reduce corruption, which produces more export gains.

## Policy Implications

- 1 Focus limited detection and enforcement resources: Producers in time-sensitive sectors—and customs officials who deal with them—are more likely to be involved in trade-related corruption.
- 2 The trade facilitation “double whammy”: faster times increase exports AND reduce corruption, which produces more export gains.