

Fighting bid rigging in public procurement – Mexico's experience

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- 1. Public procurement markets are prone to bid rigging.** The design of the procurement procedures can ease or inhibit collusion.
- 2. The case of IMSS' supply of human insulin and solutions illustrates collusion and the impact of redesigning procurement procedures on prices.**
- 3. Lessons learned can be replicated with large potential savings.**

1. Public procurement markets are prone to bid rigging.

The design of the procurement procedures can ease or inhibit collusion.

In Mexico, public procurement presents a high risk of collusion and overprices ...

Factors that ease collusion

Competition policy

- Non-existent (legal collusion) or weak (lack of powers and discretion to detect and sanction collusion)

Tender rules

Reduction of rivalry among suppliers

- Joint-bids without restrictions
- Distribution of contracts among close bids (multiple allocation)
- Frequent and fragmented tenders
- Exclusive domestic tenders and other barriers to entry

Ease of monitoring between colluded suppliers

- Public information about winning and losers bids
- High reference prices

Buyers' incentives

- Focus (regulation and supervision) on compliance with procedures, not outcomes of the process

2. The case of IMSS' supply of insulin and solutions illustrates collusion and the impact of redesigning procurement procedures on prices.

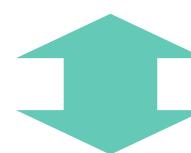
IMSS' procurement of generic medicines exhibits high concentration with barriers to entry

Concentration ratio 20 medicines most purchased

30% of IMSS procurement of generic pharm.

Prod	CR3	CR4	CR5
1	64%	82%	97%
2	100%	100%	100%
3	40%	50%	57%
4	78%	98%	100%
5	55%	65%	75%
6	85%	91%	94%
7	75%	91%	99%
8	61%	75%	85%
9	62%	74%	84%
10	58%	66%	74%
11	90%	96%	98%
12	100%	100%	100%
13	100%	100%	100%
14	97%	99%	100%
15	100%	100%	100%
16	90%	94%	96%
17	88%	98%	99%
18	93%	96%	98%
19	53%	64%	73%
20	100%	100%	100%

- 14 products that have a CR4 higher to 80% (all, higher to 50%)
- 20 tenders concentrate 68.2% of the total procurement of medicines by IMSS



**Local facility requirement
limited entry of global
manufacturers**

Timeline: CFC's participation in the case

2000



2002



2005



2006

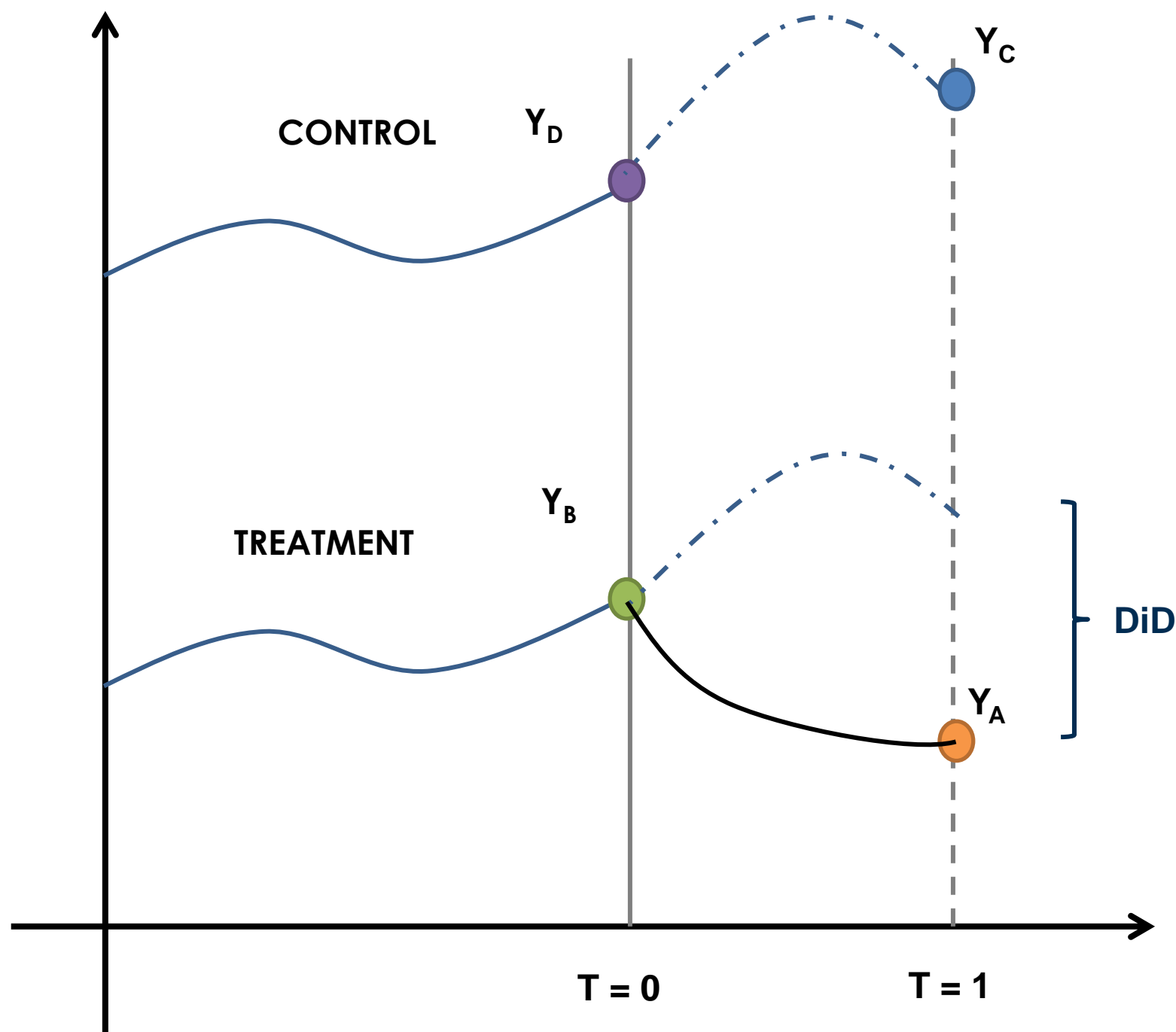
- CFC receives a complaint of suspected monopolistic practices in public tenders of the health sector for the acquisition of radiographic material.

- CFC recommends that IMSS, and its federal delegations, eliminate the following elements in its bidding processes:
 - i. Publication of reference prices, which correspond to the prices at which material had been acquired in previous tenders.
 - ii. Possibility that several economic agents could win a tender when bid prices are equal or similar.

- IMSS changes the rules for carrying out its tenders, which are applicable as of next year.

- CFC launches investigation of alleged conduct in violation of the FLEC in public tenders for the provision of medicines to the health sector.

The difference-in-differences estimator



Naive estimator:

$$(Y_A - Y_B)$$

DiD estimator:

$$(Y_A - Y_B) - (Y_C - Y_D)$$

Diff-in-diff: Empirical estimation

$$P_t^i = \alpha_n + \beta \cdot W^i + \gamma \cdot V_t + \delta \cdot W^i \cdot V_t + \theta \cdot X_t^i + e_t$$

P_t^i : Price index in real terms (base 2005)

α_n : Fixed effect by medical unit participating in tenders.

W^i : Value of 1 if medical supply belongs to the group of investigated medicines.

V_t : Value of 1 if medical supply occurred during the investigation period.

$W^i \cdot V_t$: Diff-in-diff estimator.

X_t^i : Controls (e.g. quantity contracted in each tender).

e_t : Error term

Market characteristics post-collusion

Harrington (2004), Abrantes-Metz (2006) and Bolotova (2008) argue that markets that pass from a cartel structure to a competitive one present the following characteristics^{1, 2, 3} :

- **Entry of competitors.**
- **Decrease in price.**
- **Increase in price variation during the competition period with respect to the period of collusion.**

These criteria are evident in the statistical analysis of the available information of IMSS medicine tenders.

¹Joseph E. Harrington, Jr, **Post-Cartel Pricing during Litigation**, *The Journal of Industrial Economics*, Vol. 52, No. 4 (Dec., 2004), pp. 517-533

²Bolotova, Y., Connor, J. M., & Miller, D. J, **The impact of collusion on price behavior: Empirical results from two recent cases**, *International Journal of Industrial Organization*, 26, No. 6 (2008), 1290-1307.

³Abrantes-Metz, R. M., Froeb, L. M., Geweke, J., & Taylor, C. T. (2006). **A variance screen for collusion**. *International Journal of Industrial Organization*, 24(3), 467-486.

Criteria for the identification of codes out of reference – First Stage

1. Price reduction

- Codes that exhibit **at least** a similar reduction to the minimum observed in any of the codes investigated.
- **Observed minimum reduction in price: Code “3612”:
17.3%**

2. Increase in price variation

- Codes that exhibit **at least** an increase similar to the minimum observed in any of the codes investigated.
- **Minimal increase in variation: Code
“3611”: 37.5%**

3. Entry of new competitors

- Codes in which entry of a new competitor exist after the 2006 tenders that trigger a price reduction.

Identification of codes out of reference – Second Stage

In this second stage, the criteria for the elimination of codes with possible collusion were:

- **Any of the investigated companies are among the competitors.**
- **Price series shows repeated patterns for several competitors.**

As a result of this process the following codes are identified:

Code	Change rate	Characteristics	Therapeutic class
109	-33%	Investigated companies	Analgesic
1006	-65%	Repeated patterns	Endocrinology
3422	-38%	Investigated companies	Analgesic

Identification of codes out of reference

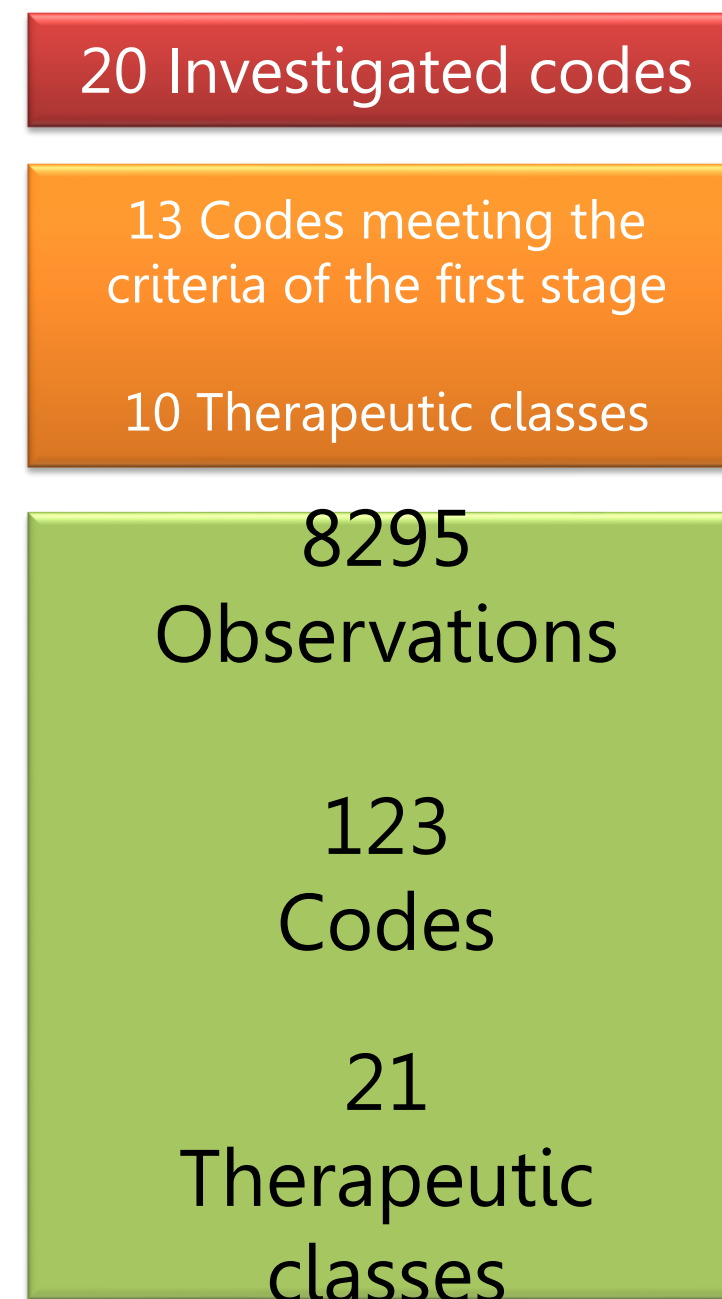
FULL SET



WITHOUT INVESTIGATED CODES



WITHOUT "SUSPICIOUS" CODES



Insulin: Comparison of estimates

	Change in January 2006	Change in August 2006
DiD	-60.745*** (2.254)	-69.035 *** (3.205)
Group of investigated medicines	.8951 (.9893)	3.6310 *** (1.2055)
Period of increased competition	-15.142 *** (1.433)	-10.579 ** (4.1139)
Quantity	9.11e-08 (1.30e-06)	-1.09e-07 (1.34e-06)
Constant	105.3538 *** (.4795)	101.4088 *** (.3329)

- Estimated coefficient is shown in the first line for each variable, while the second row shows the standard error in parentheses.
- Coefficients with three stars are significant at 1%, with two at 5% and one at 10%.

Solutions: Comparison of estimates

	Change in January 2006	Change in August 2006
DiD	-3.028 ** (1.3584)	-12.251 *** (.9381)
Group of investigated medicines	-1.356 ** (.8121)	1.5568 * (.90405)
Period of increased competition	-14.4061 *** (1.3485)	-10.744 *** (3.5221)
Quantity	2.54e-07 (1.29e-06)	1.05e-07 (1.31e-06)
Constant	105.082 *** (.52465)	101.375 *** (.3664)

- Estimated coefficient is shown in the first line for each variable, while the second row shows the standard error in parentheses.
- Coefficients with three stars are significant at 1%, with two at 5% y with one at 10%.

Benefits of competition

- Increased competition for both groups of medical compounds turned out to imply an average fall in price between:
 - **(57.6, 68.1 %)** in human insulin.
 - **(2.9, 12.1%)** in solutions.
- The price overcharge represents a lower bound of **50** million USD:
 - A range from **46.6** to **55.1** million USD in human insulin.
 - A range from **3.5** to **14.6** million USD in solutions.
- IMSS could have bought:
 - 47 tomography units
 - 727 ambulances
 - 2168 incubators; or
 - 5 clinics with 10 medical offices could have been built.

3. Lessons learned can be replicated with large potential savings.

From the lessons learned and the impressive saving, IMSS decided to carry out deeper actions

MOU (IMSS-OECD-Commission)
for the
implementation
of the
*“OECD Guidelines to
fight bid rigging in
public procurement”*

- 1 **Analysis of procurement legislation, regulation and practices** based on the OECD Guidelines to fight bid rigging.
- 2 **Development of practices that ease anticompetitive conduct prevention** in IMSS procurement processes.
- 3 **Training of procurement officials** in the design of procurement processes and detection of collusive behavior..

The results of the MOU were:¹

Training

- 210 IMSS procurement officials trained by OECD and the Commission officials and international experts on best practices and strategies to detect and prevent collusive behavior.

No exhaustive

Final report recommendations are exhaustive and far reaching

- Analyze alternatives to allow IMSS benefit for its important purchasing power.
- Allow joint-bids between suppliers based only in procompetitive reasons.
- Allow the multiple contracting only in exceptional cases (to allow new entrance).
- Discourage subcontracting between suppliers when it may lead to collusion.

Benefits for consumers

- Better use of taxpayers' resources
- Saving allow the acquisition of new products and services
- IMSS' example was followed by other federal and local institutions promoting better allocation of resources in other markets and sectors

¹ Available at: <http://www.oecd.org/daf/competition/fightingbidrigginginpublicprocurementinmexico2011.htm>

IMSS' work awakened the interest of other government institutions to fight bid rigging

Federal level:

ISSSTE

(The second health care provider) conducted a **similar project with the Commission and the OECD** that concluded in November 2013. Savings reported by the Institute account for **400 million dollars**.²

Ministry of Public
Office (SFP)

The Commission has conducted several **training programs to the officials of the federal administration** on detection and prevention of collusion.

CFE

(The most important procurer in Mexico) is **currently implementing a project with the Commission and the OECD** to analysis its procurement system.

IMSS' work awakened the interest of other government institutions to fight bid rigging (cont.)

State level:

IMCO (Think tank)

With the support of the Commission and the OECD **developed a ranking to assess the quality of the procurement regulation of the 32 Mexican States.** With the Commission support, it **developed a State Model Procurement Law.** This Law has been implemented in the Nuevo Leon and the State of Mexico.³

State of Mexico

(the most important State in terms of its economy size) **conducted a project with the Commission and the OECD to assess its procurement legislation,** regulation and practices.

3 States

IMCO worked with the **three worst ranked states in order to improve their procurement legislation,** regulation and practices.

³ Available at: [http://imco.org.mx/wp-content/uploads/2013/6/Competencia_en_las_compras_p%C3%BAblicas.12sept2011_documento_\(final\)_pdf](http://imco.org.mx/wp-content/uploads/2013/6/Competencia_en_las_compras_p%C3%BAblicas.12sept2011_documento_(final)_pdf) and http://imco.org.mx/wp-content/uploads/2013/7/Ley_Modelo_de_Adquisiciones.Final.Sept2012.pdf

⁴ <http://www.oecd.org/daf/competition/fightingbidrigginginpublicprocurementinmexicogemreport--2012.htm>

