



Price changes of antibiotics and perceived substitutes in the context of OTC policy changes in Mexico and Brazil

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Background



- Lack of regulation for the Over the counter (OTC) sales.
- Self-medication.
- Regulations to control the OTC acquisition of antibiotics.

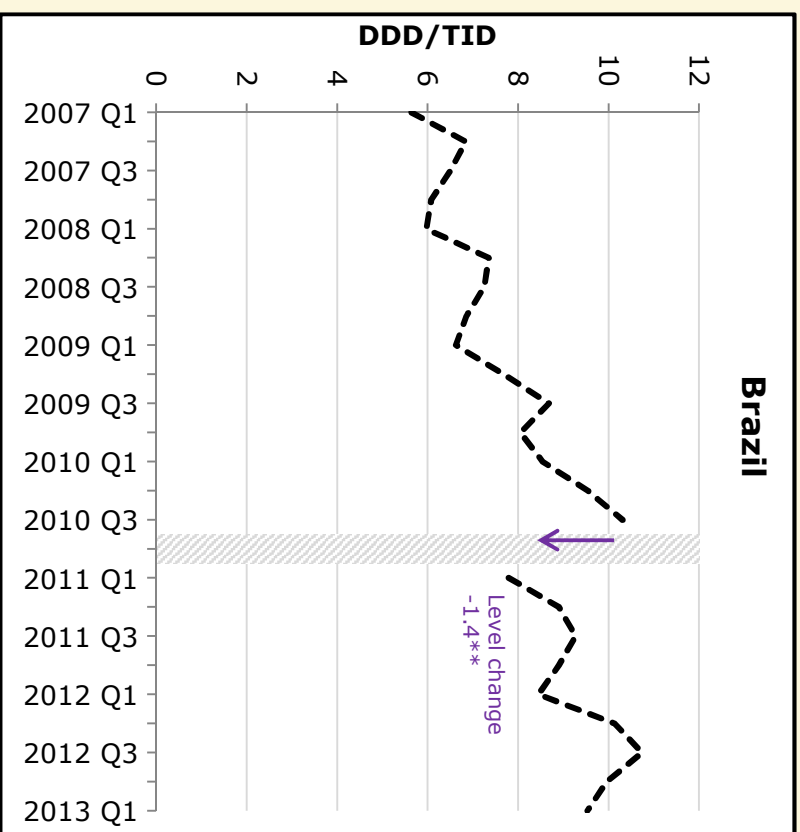
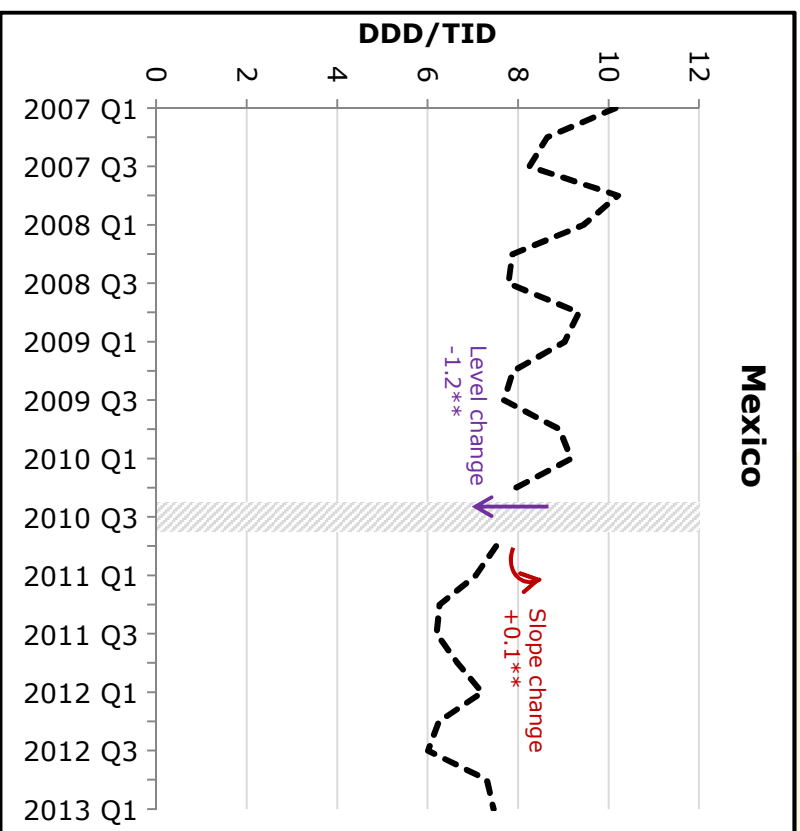
Change in level of consumption	
	DDD/TID
Chile♦	-5.6
Colombia♦	-1.0
Venezuela♦	-0.1
Mexico*	-1.2
Brazil*	-1.4

♦ Wirtz, 2013

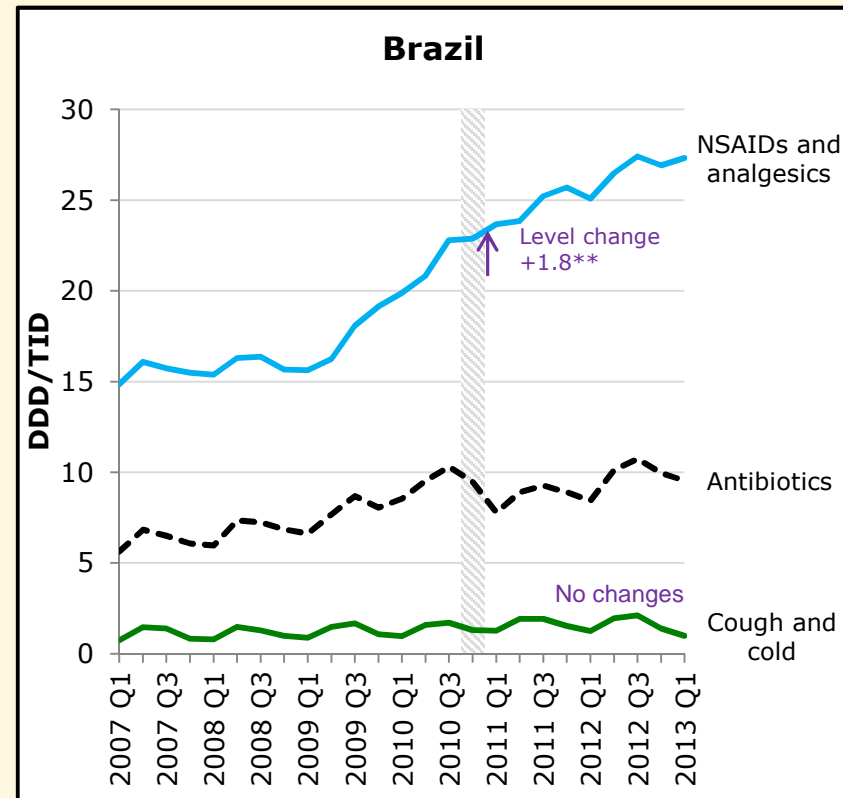
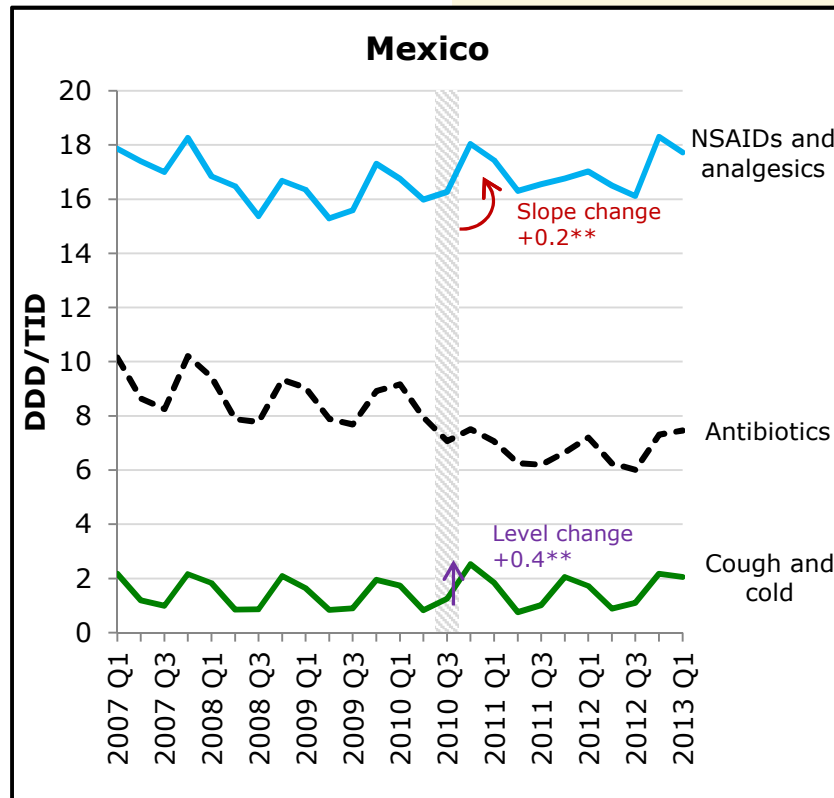
♣ Santa-Ana-Tellez, 2013



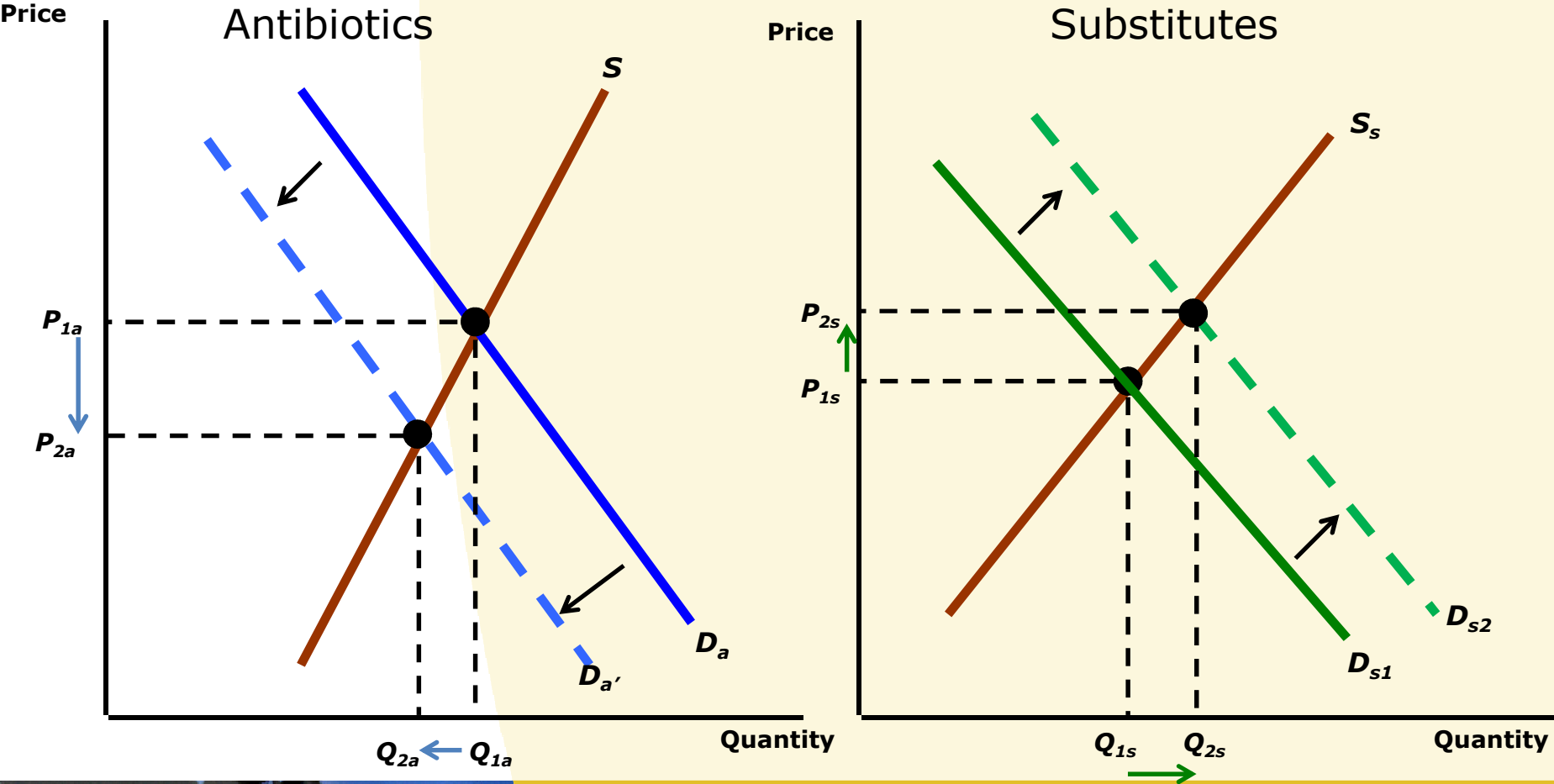
Effect of the policy



Unintended effects

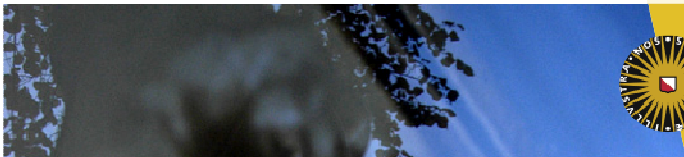


Hypothesis



Objective

- To study price changes of antibiotics, and medicines to relief symptoms of respiratory infections such as fever and cough after the OTC sales restriction in Mexico and Brazil.



Methods

- Retail quarterly sales data of trade prices (IMS Health).
- Private sectors Mexico and Brazil.
- January 2007 - March 2013.
- Policy change group:
 - ✓ Oral and injectable antibiotics.
 - Medicines easily available for symptoms relief:
 - ✓ Cough and cold preparations.
 - ✓ Analgesics and antipyretics.
 - ✓ Non-steroidal anti-inflammatory drugs.



Methods

- Trade prices per chemical substance → price per defined daily dose*.
- Corrected by inflation using 2013 as base year.
- Local currency converted to US Dollars.

- For each therapeutic group:
 - Mean price per defined daily dose.
 - Median price per defined daily dose.

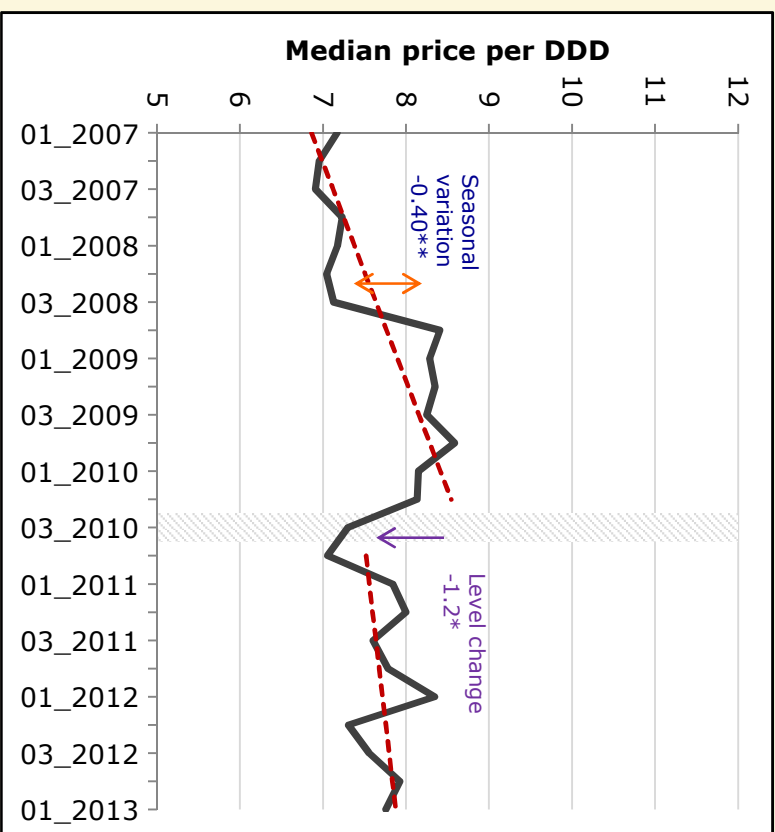
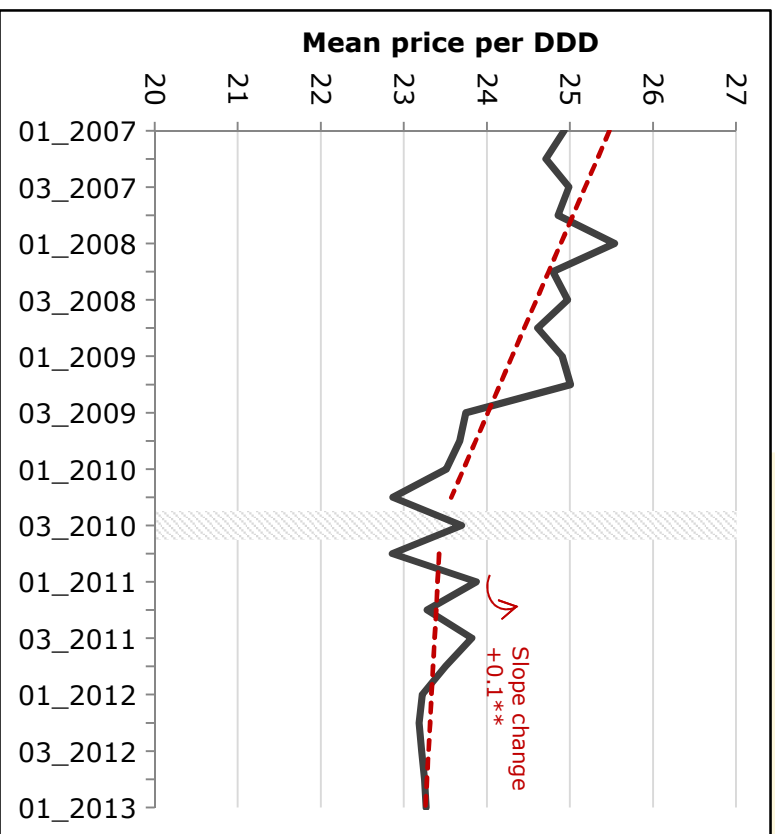


Methods

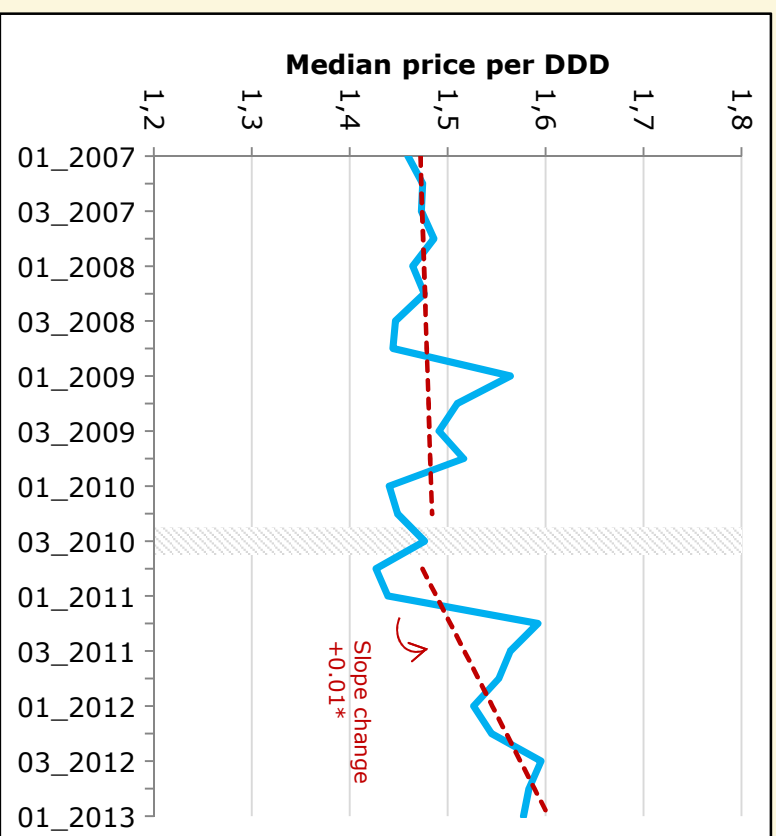
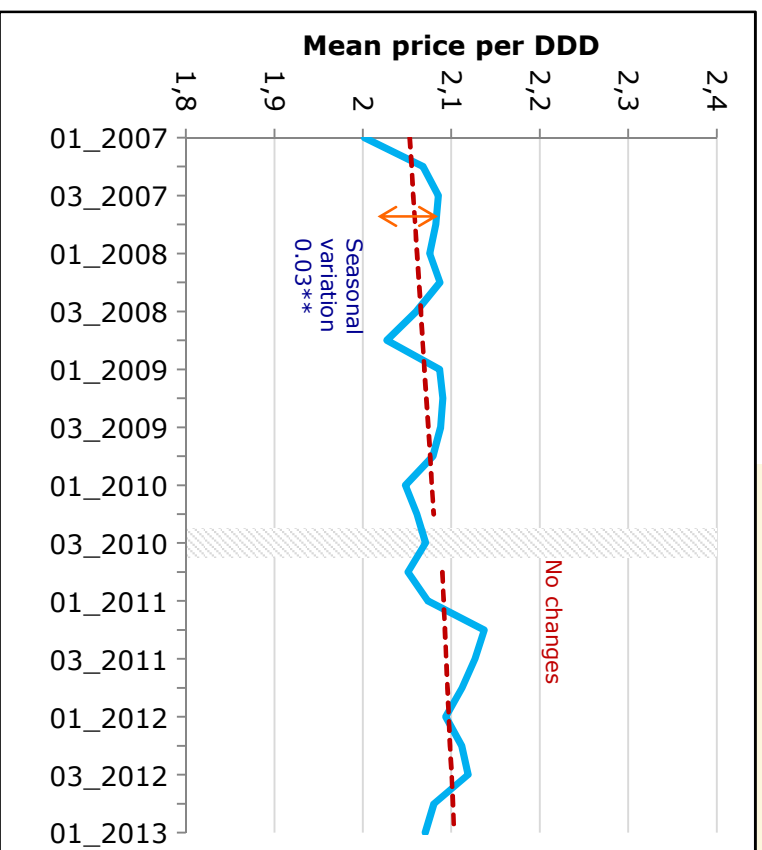
- Interrupted time series analysis:
 - To estimate changes in slope and level of the median price and mean price of each of the groups after the policy started.
- Stationarity and autocorrelation tested and corrected if any using ARIMA models.
- Dummy variables to assess seasonal variation.
- Measured seasonal variation (reference prices during winter).



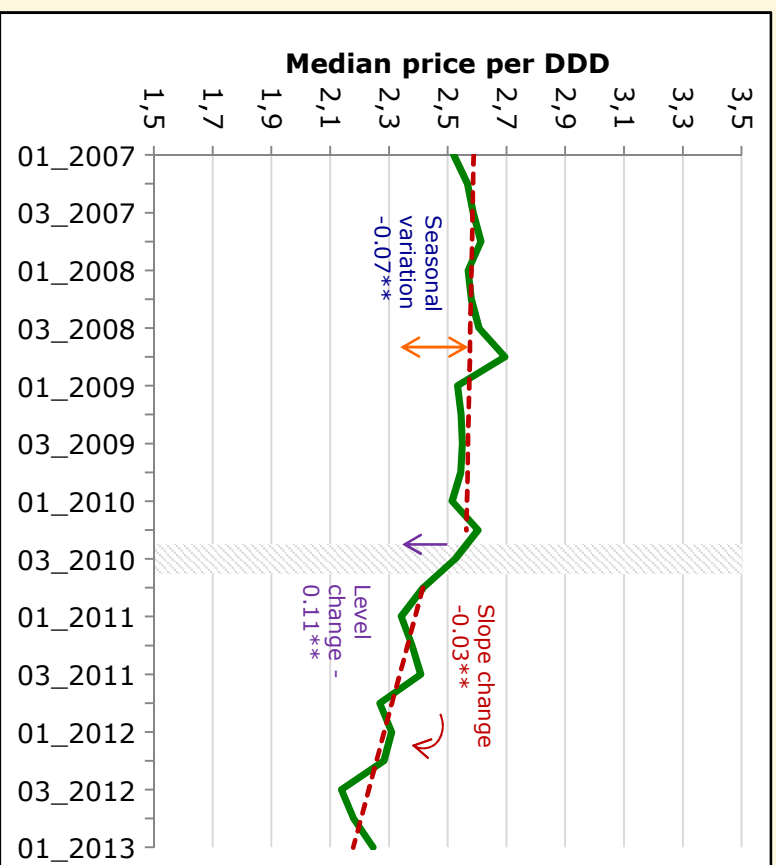
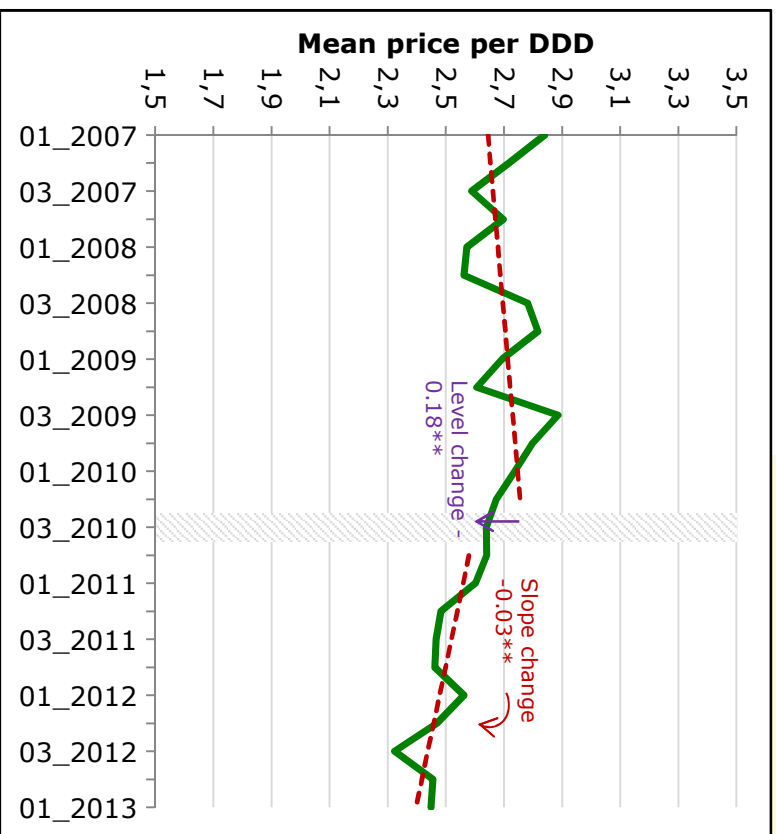
Mexico Antibiotics



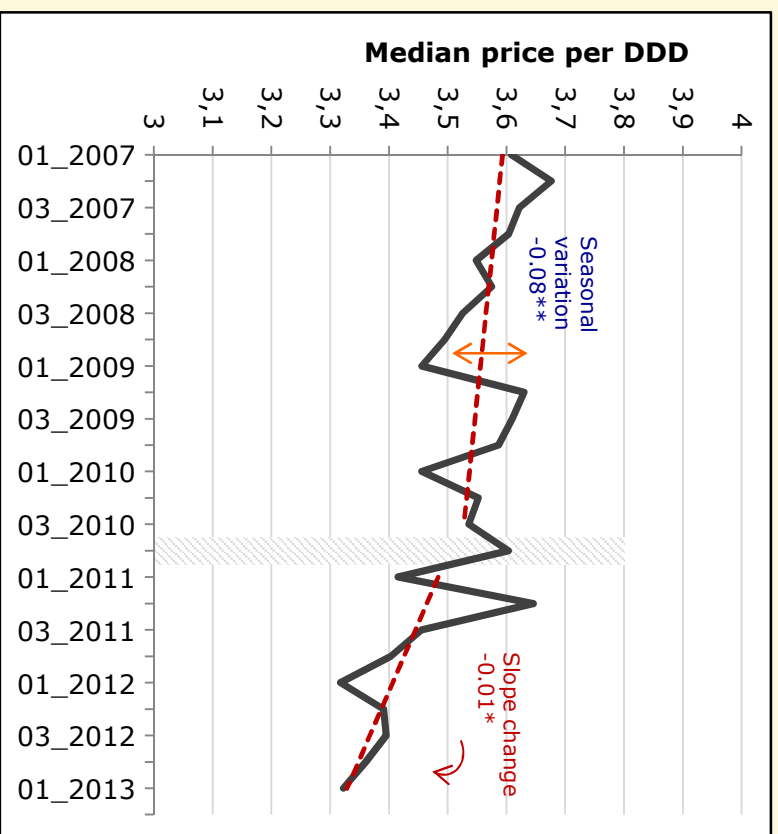
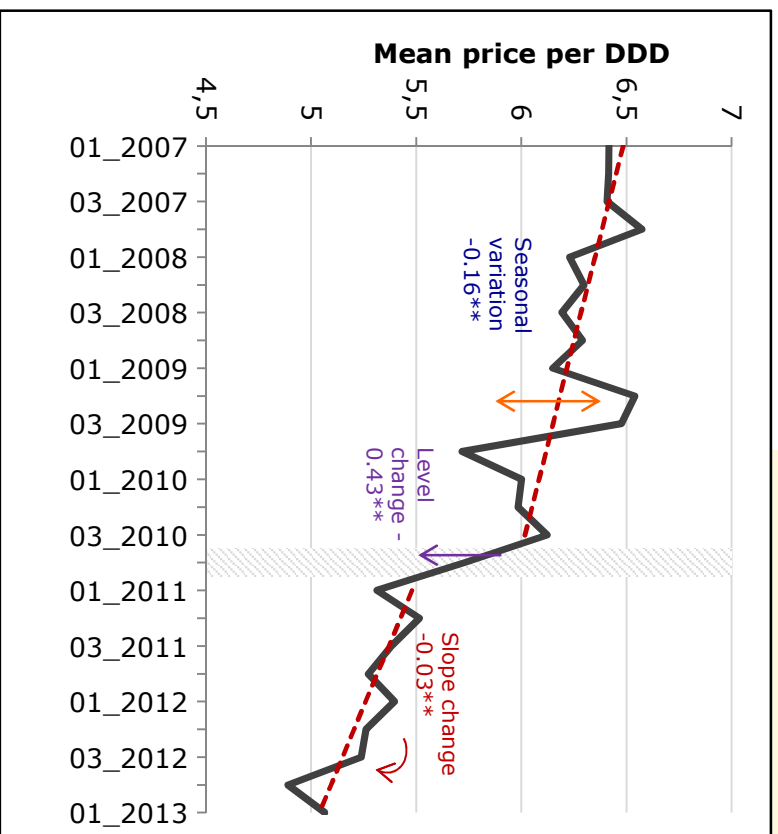
Mexico NSAIDs-Analgesics



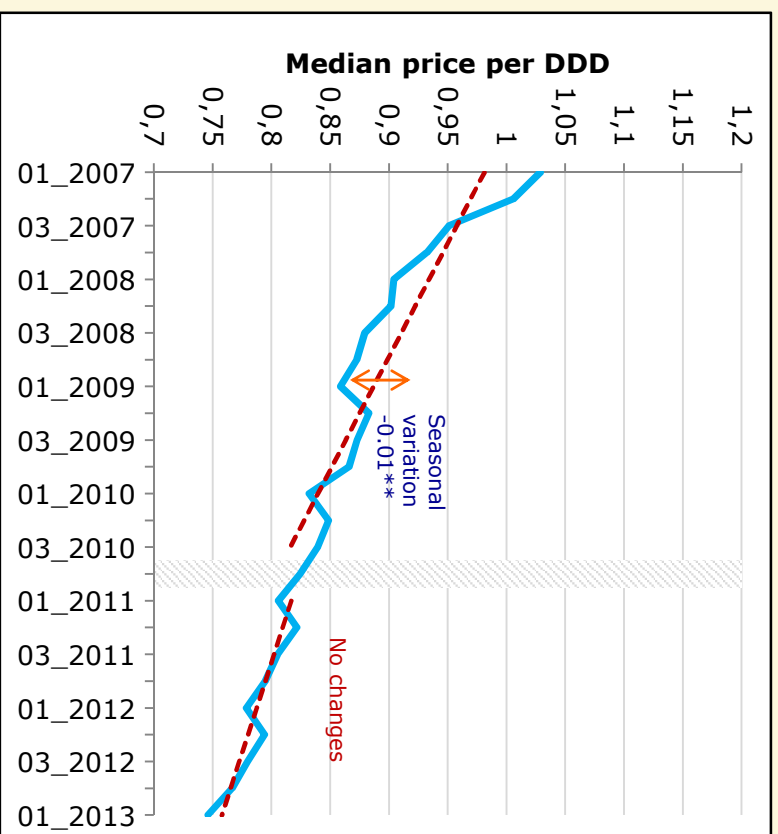
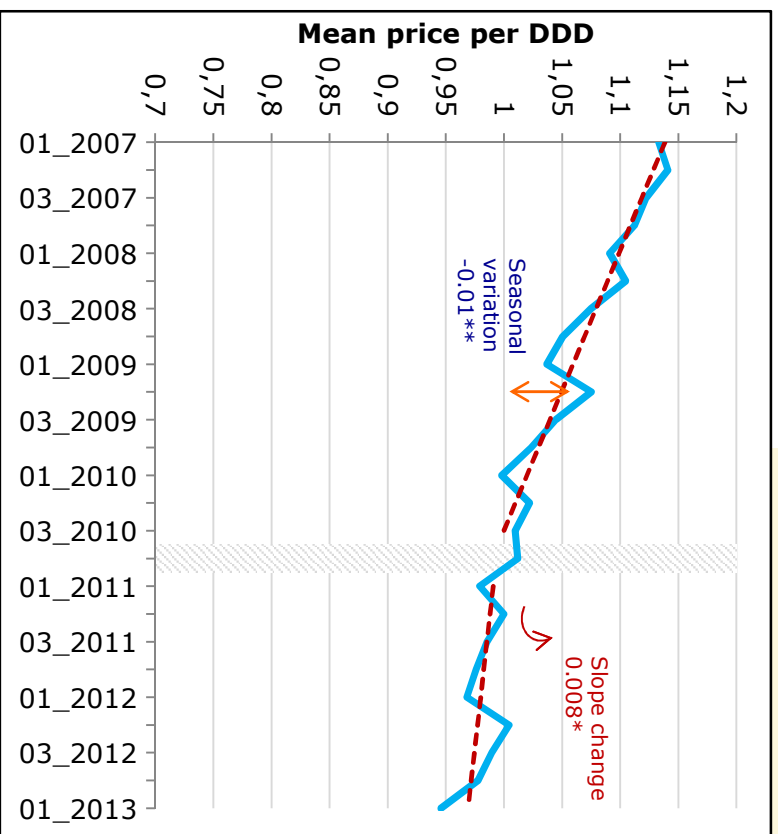
Mexico cough and cold



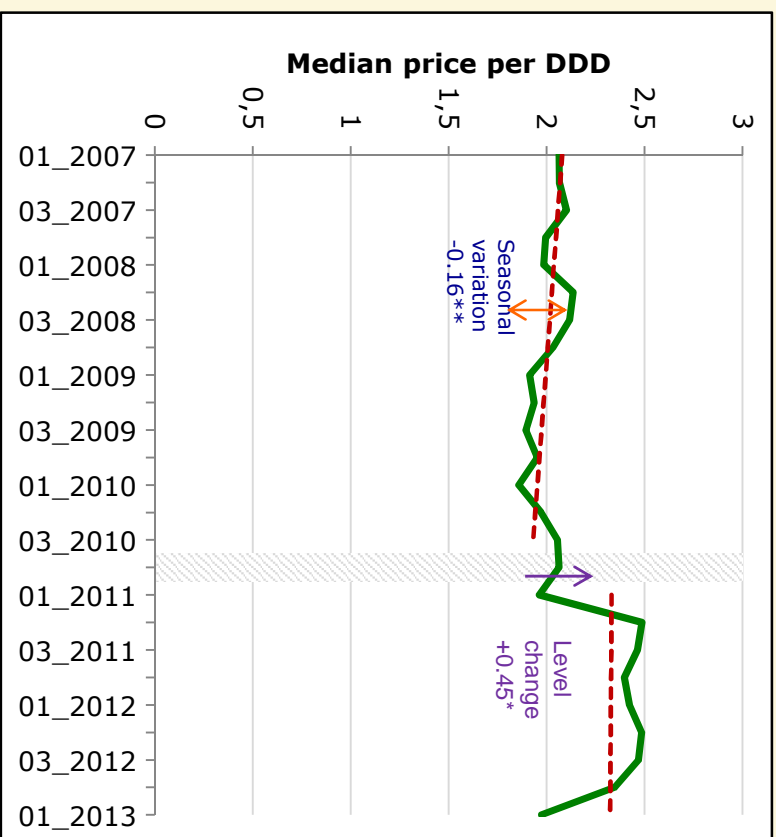
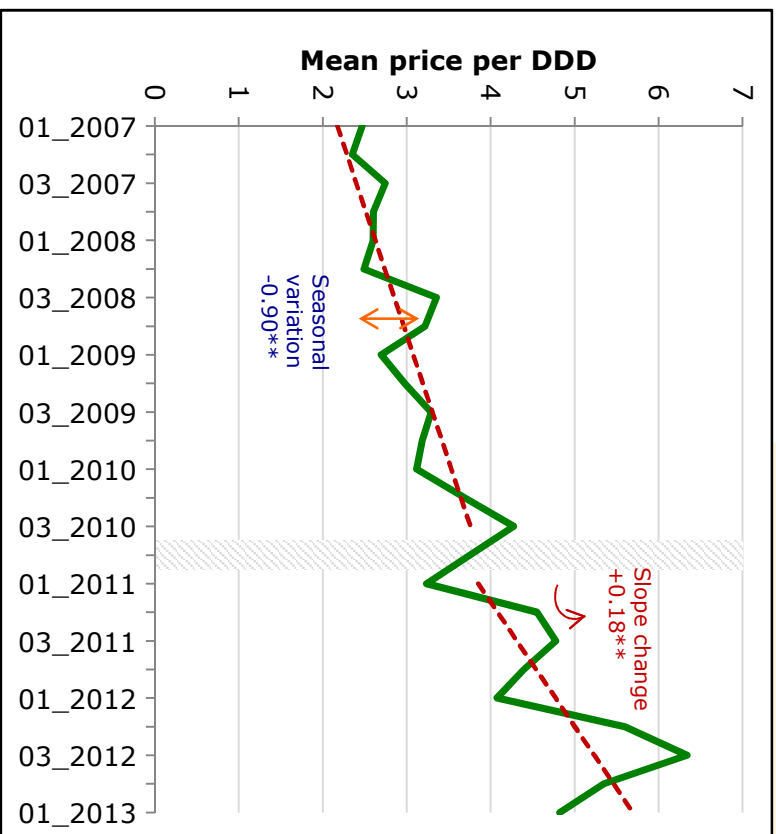
Brazil antibiotics



Brazil NSAIDs-Analgesics

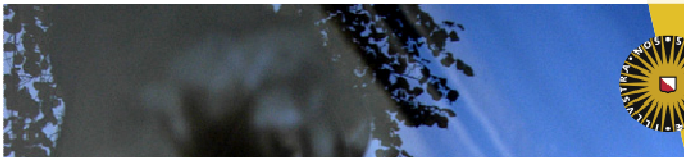


Brazil cough and cold



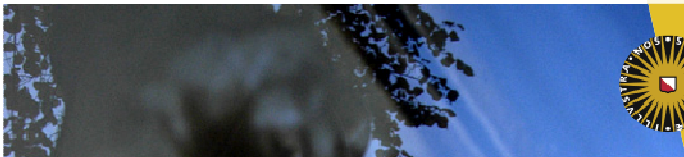
Discussion

- Antibiotics: Price decreased in both countries.
- NSAIDs-analgesics: increased in Mexico and decreased in Brazil
- Cough and cold medicines: decreased in Mexico and increased in Brazil.
- Prices of medicines are constantly fluctuating and some of these fluctuations are related to seasons.



Implications

- The implementation an OTC sales restriction of antibiotics is a good initiative to improve their use.
- However, this type of policies should:
 - ✓ be comprehensive,
 - ✓ take into account the potential substitution effects in the use of other medicines, and
 - ✓ consider the potential changes in the existent pharmaceutical market.



Acknowledgments

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