

A study of drivers for latrine take-up in rural Cambodia

Analysis from two sanitation marketing programs

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Sanitation marketing results show variety in sales across communes in Cambodia

- Cambodia has the lowest rural sanitation coverage in South East Asia region
- Open defecation nearly 70% in rural areas
- Annual rate of increase in rural sanitation coverage 1% per year, among the lowest in the region
- Sanitation marketing introduced in 2009, but little is known as to why sales are rapid in some communes and slow in others
- Among others, WaterSHED and iDE are implementing sanitation marketing in Cambodia

Research Methodology

Research Question

What are the factors/drivers contributing to latrine take-up in communes where sanitation marketing activities have been carried out?

Level of analysis

Rural communes where latrine sales took place as part of sanitation marketing program

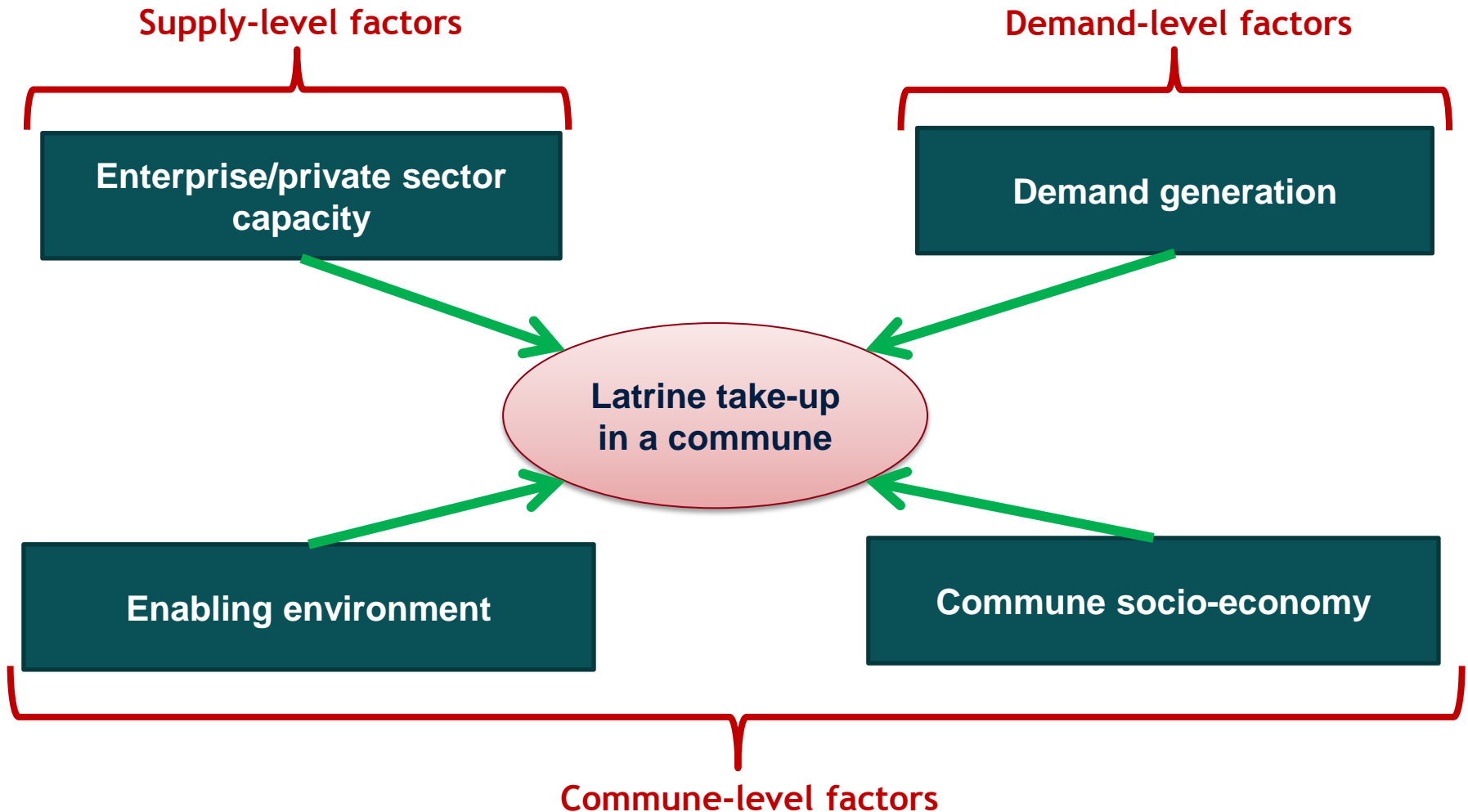
Research technique

- **Quantitative analysis:** multiple regression using monitoring data of sanitation marketing implementers and government administrative data
- **Qualitative analysis:** semi-structured interview with commune cadre (commune councillors, village chiefs, latrine businesses)

Data characteristics

- Latrine sales and business characteristics: WaterSHED and iDE
- Commune socioeconomic characteristics: Govt admin data (Commune Database & 'Identification of the poor' database)
- Data timeframe: January – December 2012
- Sample size: 381 communes
- 10 communes randomly selected for in-depth qualitative research

Constructing hypothesis: Various factors could determine latrine take-up in a commune



Independent Variables

Commune-level factors

- Dependency ratio
- Illiteracy rate
- Level of poverty
- Occupation structure of commune
- Migration patterns.
- Population density
- Percentage of households with a toilet in 2011
- Proportion of women in the commune council.

Demand-level factors

- Presence of sanitation sales agents
- Number of latrine businesses visiting commune

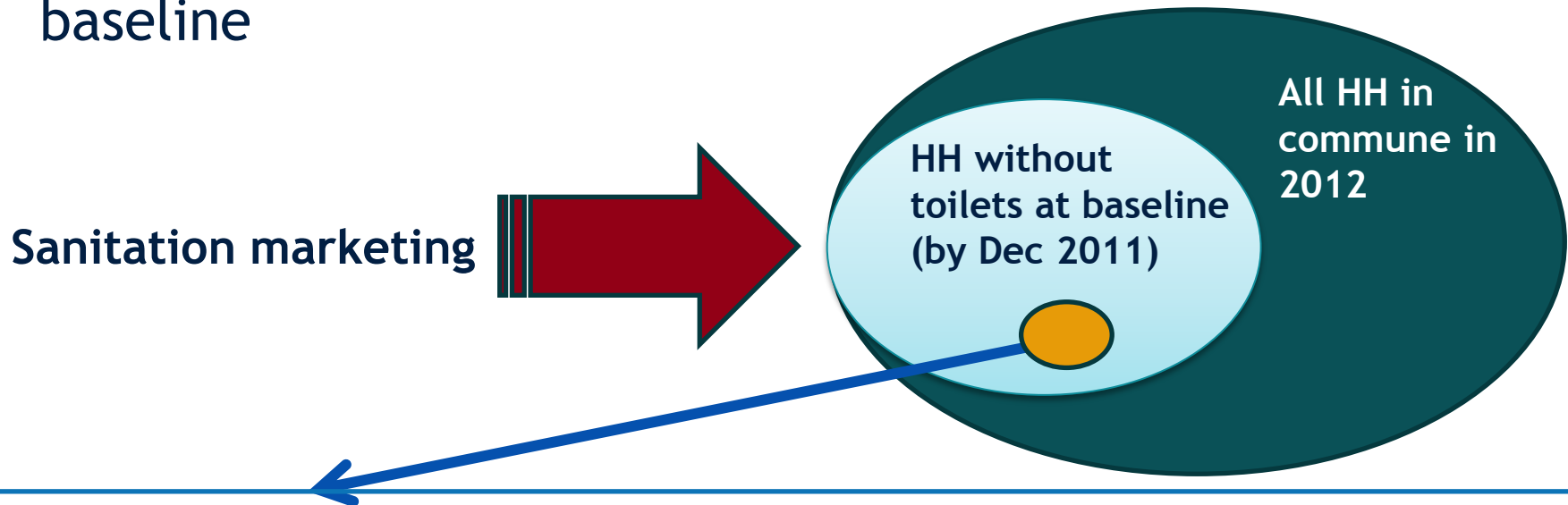
Supply-level factors

- Ownership of transportation assets
- Ownership of production assets
- Distance from latrine business to commune
- Number of markets in commune
- Number of construction enterprises

How latrine take-up rate is defined

Latrine take-up rate:

Sales per month per 100 households lacking sanitation at baseline

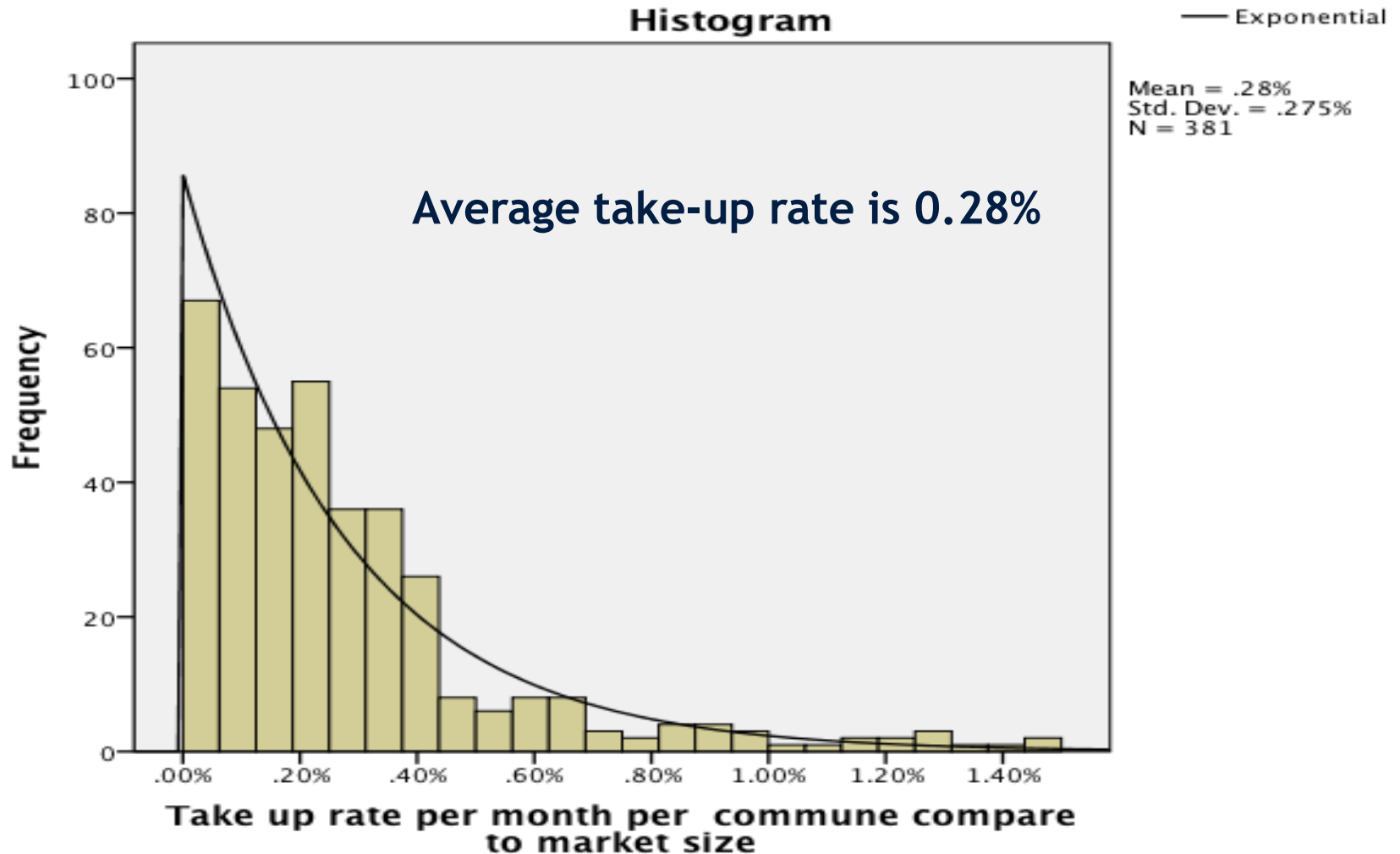


$$\text{Latrine take-up rate} = \frac{\text{Total annual number latrines sold in 2012}}{\text{Number of HH without toilet by Dec 2011} / 100} \times 12 \text{ (months)}$$

Limitation of the study

- Combining dataset: Combining data from different organizations with separate monitoring framework leads to only few data used for the study
- Data quality: Administrative data of the government faces some quality issue
- Data availability did not match hypothesized drivers

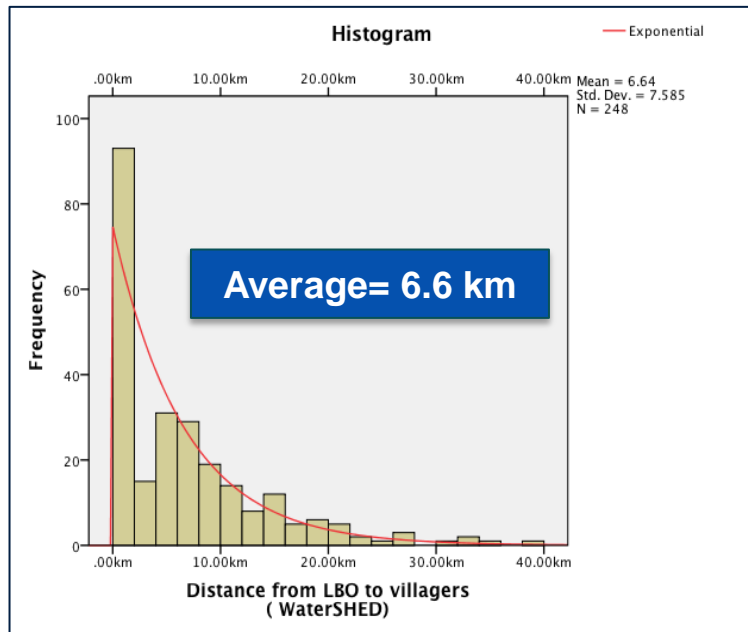
Nearly 3 latrines sold per month for every 1000 households without a toilet



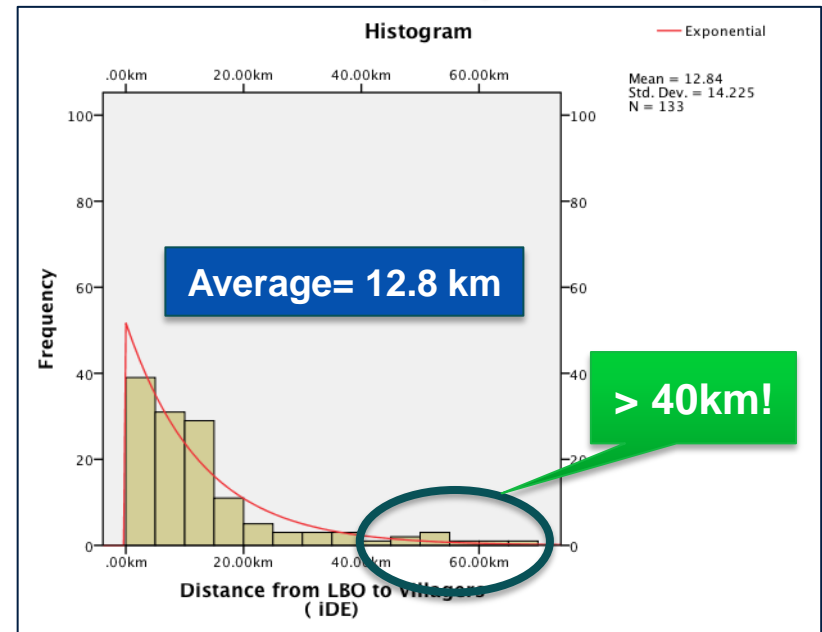
On average, the road distance of latrine business to commune is 8.8 km

Average distance 8.8 km

WaterSHED data

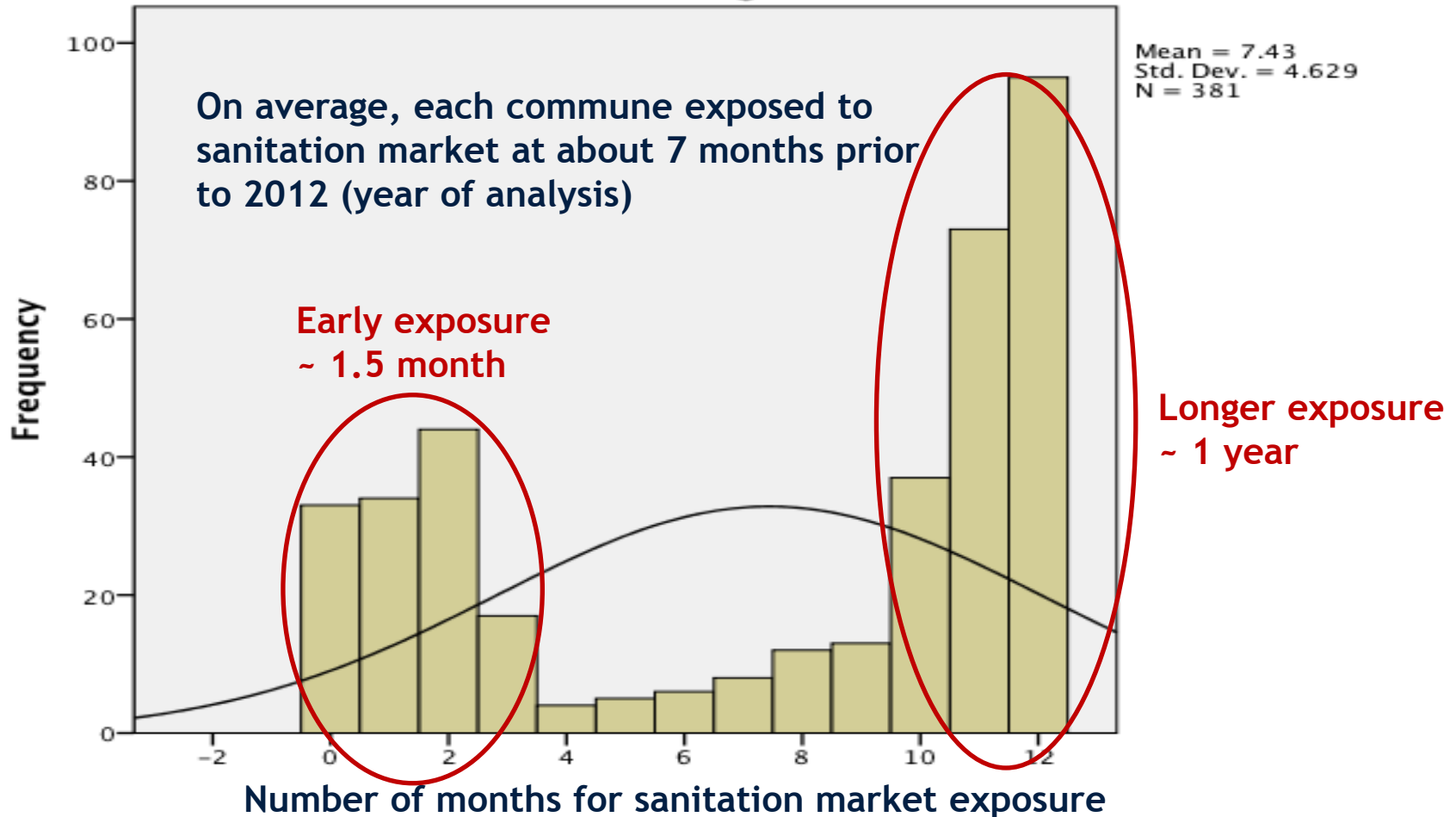


iDE data



Communes have different level of sanitation market exposure

Histogram



Key commune characteristics that have an effect on latrine take-up rate

<i>Model with fixed effects</i>		
	<i>B</i>	<i>SE B</i>
Constant	0.06	0.16
Total Area in the commune	2.8E-07	1.2E-07
Total Area for resident in the commune	0.002	0.001
Density of population compare to resident area	2.3E-04	1.2E-04
% poor households category 1	*-0.006	0.003
% population > 18 migration out country	*-0.026	0.013
% Primary occupation	0.001	0.001
% Secondary occupation	-0.001	0.001
% Primary occupation in Agriculture fishery	0.001	0.002
% Primary occupation in craft and production	***0.032	0.010
Has a microfinance intervention	0.032	0.046
% female commune council	***0.004	0.001
Illiteracy rate	-0.008	0.005
Total dependency ratio	0.001	0.001

Key demand-level variable that affects the latrine take-up rate

Model with fixed effects

	<i>B</i>	<i>SE B</i>
Constant	*0.43	0.21
Number of sales agents	***0.091	0.022
Number of village sold by latrine businesses	-2.9E-03	0.01
Total number latrine businesses come to sell latrine per commune	0.02	0.02
Market maturity	-0.001	0.010
Illiteracy rate	-0.021	0.011
Total dependency ratio	-3.E-03	3.E-03

Key supply-level variables that affect latrine take-up rate

Model with fixed effects

	<i>B</i>	<i>SE B</i>
Constant	***0.359	0.042
Distance from latrine business to commune in KM	***-0.004	0.001
Has mould size 1 meter	****-0.13	0.04
Has mould size 0.8 meter	0.07	0.03
Has a motorcart	-0.02	0.04
Has a truck	0.02	0.04
Has a Kouyon	-0.03	0.05
Has a Chamberboxmold	0.07	0.05
Has other tools	-0.04	0.04
Number of market in the commune	*0.023	0.012
Number of construction material shop in the commune	0.01	0.01

Combining the variables together, only few maintain their significance

Model with fixed effects

	<i>B</i>	<i>SE B</i>
Constant	*0.8	0.347
Total dependency ratio	-0.002	0.003
% poor households category 1	-0.01	0.01
% population > 18 migration out country	-0.03	0.02
Employment rate	-0.004	0.003
% secondary occupations	0.000	0.002
% Primary occupation in craft and production	***0.04	0.01
% female commune council	0.002	0.002
Number of sales agents	***0.09	0.02
Distance from latrine business to commune in KM	-1.2E-04	1.9E-03
Number of market in the commune	*0.055	0.028
Has mould size 1 meter	-0.13	0.06

Key findings from quantitative analysis

- Presence of households with diverse sources of income is positively correlated with latrine take-up
- The number of latrine sales agents visiting the commune had the strongest positive correlation with latrine take-up rate
- Community's exposure to the market also plays significant role in latrine take-up, i.e. sales is easier where there is an already functioning market place in the community
- Latrine business's ownership of production assets such as mold is not strongly correlated with latrine take-up

Key findings from qualitative analysis

Communes with high latrine take-up often have the following features:

- Commune chiefs who care about commune reputation in relation to sanitation
- Strong commune leadership in setting sanitation shared vision and strategies for the commune
- Existence of demand creation activities in the commune
- Regular follow-up activities by the commune in sanitation activities



"I don't want my commune to be called "shit" commune"

Key findings from qualitative analysis (cont.)

- Good coordination among other partners such as NGO and private sector by local government
- Well established relationship of private sector and local government
- Reliability and quality of the latrine enterprise in producing and delivering latrine
- Active involvement of Commune Committee for Women and Children in sanitation



..... “building relationships with the village chiefs and community people is very important for my business. When people have money to buy latrine, they will remember me”

Programming Implications

- Strengthening sales function in sanitation marketing program could be key to improve the latrine sales and take-up in a commune.
- Capitalizing on female members of commune council, such as the focal point for Commune Committee for Women and Children, is also key to increase the latrine take-up rate.
- Reducing cash constraint at household level could increase latrine take-up
- Need to understand better what role the capacity of enterprise plays in take-up

Programming Implications (Qualitative)

- Having strong local government leadership in enabling the private sector to operate in the communes is also necessary in enhancing sales function.
- Establishing good relationship with local government is key for private latrine business to be successful in a commune
- Capitalizing on or coordinating with other demand creation activities could be key success for sanitation marketing program
- Building competition mindset for commune reputation could optimize commune leadership to support sanitation program

Thank you

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