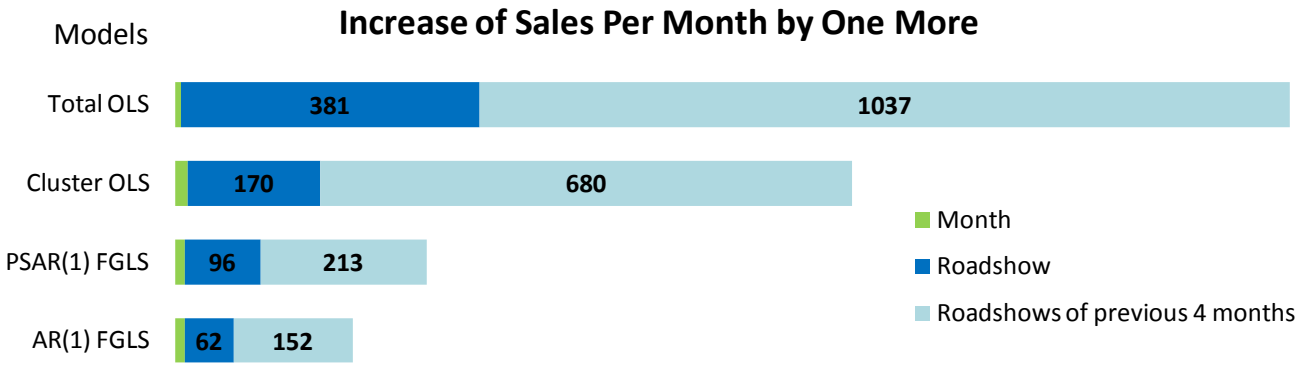
Roadshows increase sales instantly and the effect lasts in the following months; the increase, average level and fluactuation of sales differ in different regions.

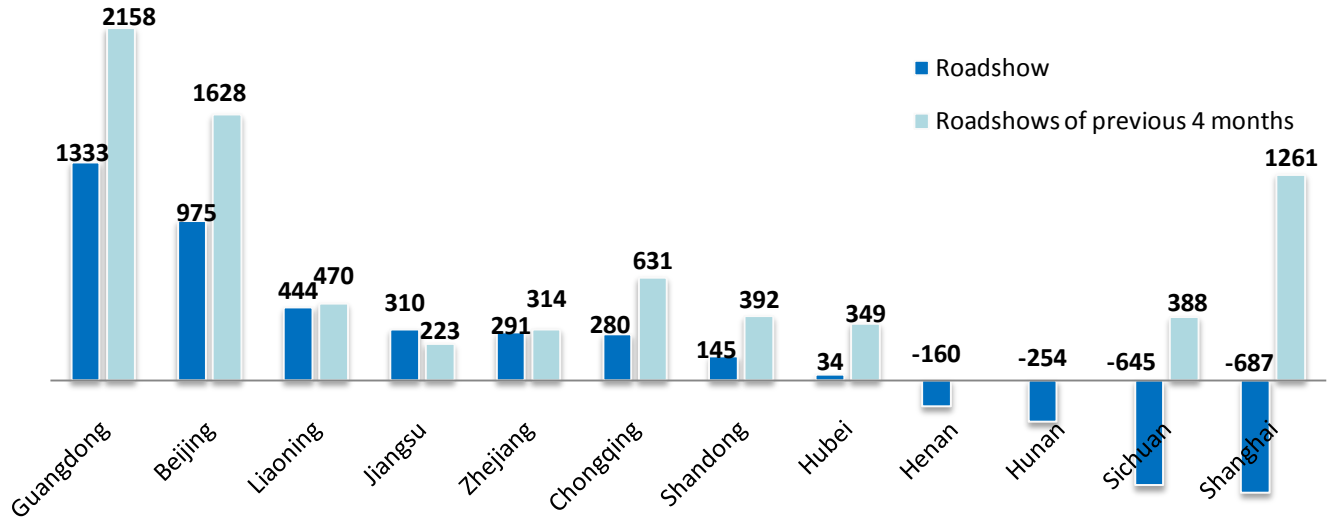
Findings from Graphs

- Increase of sales by one roadshow is higher in first-tier region and lower in inland provinces.
- Average sales are higher in first-tier region and lower in inland provinces.
- Fluctuation of sales is greater in first-tier region and smoother in inland provinces.

Note: The graph above is obtained by Stata, a data analysis software widely used in econometrics.
Source: Roadshow data from Mar.2015 to Aug.2017 in the 12 provinces sorted by McKinsey

The effect of roadshows lasts for 5 months. The increase of sales by a roadshow differs using different models, but is quite significant.





Overall Effect of Roadshow

The models on the left assume roadshows have the same effect on each province, e.g, 1 roadshow in Guangdong increases same amount of sales as in Hunan.

Province Effect of Roadshow

The model on the left assumes roadshows affects provinces differently. In Sichuan, 1 roadshow increases sales by 388*4 - 645 = 907 > 0.

Note: 1. Roadshows of previous 1 month, 2 months, 3 months and 4 months have significant influence on sales but roadshows of previous 5 months do not, so the effect lasts for 5 months. Effect of roadshows on sales in Henan and Hunan could not be obtained because of collinearity.

Source: Roadshow data from Mar.2015 to Aug.2017 in the 12 provinces sorted by McKinsey

Five regression models based on different assumptions; AR(1) and PSAR(1) estimate the increase of sales by a roadshow to be 670 - 948.

Five Key Effects of Models:

'√' represents the model considers the effect , '—' represents the model does not. The numbers of the last column indicates the increase of sales in present month by 1 roadshow in this month(e.g 381) and by 1 roadshow in previous 4 months(e.g 1073).

Total increase of sales by 1 roadshow : **PSAR(1) 62+152*4 = 670** **AR(1) 96+213*4 = 948**

Models	Different Province Effect	Different Roadshow Effect	Different variations among provinces (Existed)	Serial correlation within a province (Existed)	Cross province dependence (Existed)	∆sales by 1 more roadshow / roadshow in previous 4 months
Total OLS	—	—	—	—	—	381 1073
Cluster OLS	√	—	—	—	—	170 680
PSAR(1)	√	—	√	√	√	96 213
AR(1)	√	—	√	√	√	62 152
Individual	√	√	—	—	—	—

Note: 1. Econometrics methods proved the existence of different variations among provinces, serial correlation within a province and cross province dependence. Whether different province effect and different roadshow effect exist could not be examined. 2. The difference between AR(1) and PSAR(1) is that AR(1) assumes the same serial correlation coefficients among provinces, while PSAR(1) assumes they are different.

Source: Roadshow data from Mar.2015 to Aug.2017 in 12 provinces sorted by McKinsey;

Intepretation and examples of five regression models; AR(1) and PSAR(1) are the most reasonable because they consider effects that are proved to exist in the model.

Definition	Different Province Effect	Different Roadshow Effect	Different variations among provinces	Serial correlation within a province	Cross province dependence
Interpretation	Provinces inherently differ in sales, regardless of roadshows.	A roadshow increases sales differently among provinces	Factors affecting sales apart from roadshows vary differently	Factors affecting sales apart from roadshows in present month are correlated with those of previous month	Sales in different provinces at a same time are related because of roadshows or other factors.
Examples	Both having no roadshows, Shanghai has 3000 more sales than Henan on average.	One more roadshow increases sales by 400 in Guangdong while 50 in Beijing.	Income also influences sales of products, and the growth of income varies among provinces.	Income growth of last month is highly correlated with that of present month.	A roadshow in Shanghai increases sales in nearby Jiangsu; Shanghai and Jiangsu have similar income growth, affecting sales similarly.

Note: Above are effects needed to be considered in econometrics models dealing with panel data. Panel data contain observations of multiple phenomena obtained over multiple time periods for the same firms or individuals

Source: Ad*vanced econometrics and Stata application, 2nd Edition, Qiang Chen*