

## SUPPLEMENTAL MATERIAL

**Annex 1** Numbers and distributions of sample hospitals started the implementation progressively

Time of starting implementation	No. of hospitals	Location distribution	Affiliation distribution	Type of hospital distribution
2014	3	Eastern 3	All local	General 1;TCM 1; MCH 1
2015	15	Eastern 6; Central 2; Western 6	All local	General 5;TCM 5; MCH 5
2016	18	Eastern 5; Central 7; Western 6	Local 13; Central 5	General 10;TCM 4; MCH 4
2017	100	Eastern 45; Central 24; Western 31	Local 62; Central 38	General 41;TCM 21; MCH 22; Other specialty 16 (Oncology 3; Stomatology 6; Hematology 1; Dermatology 1; Cardiovascular 1; Ophthalmology 1; Plastic surgery 1, Occupational 1)

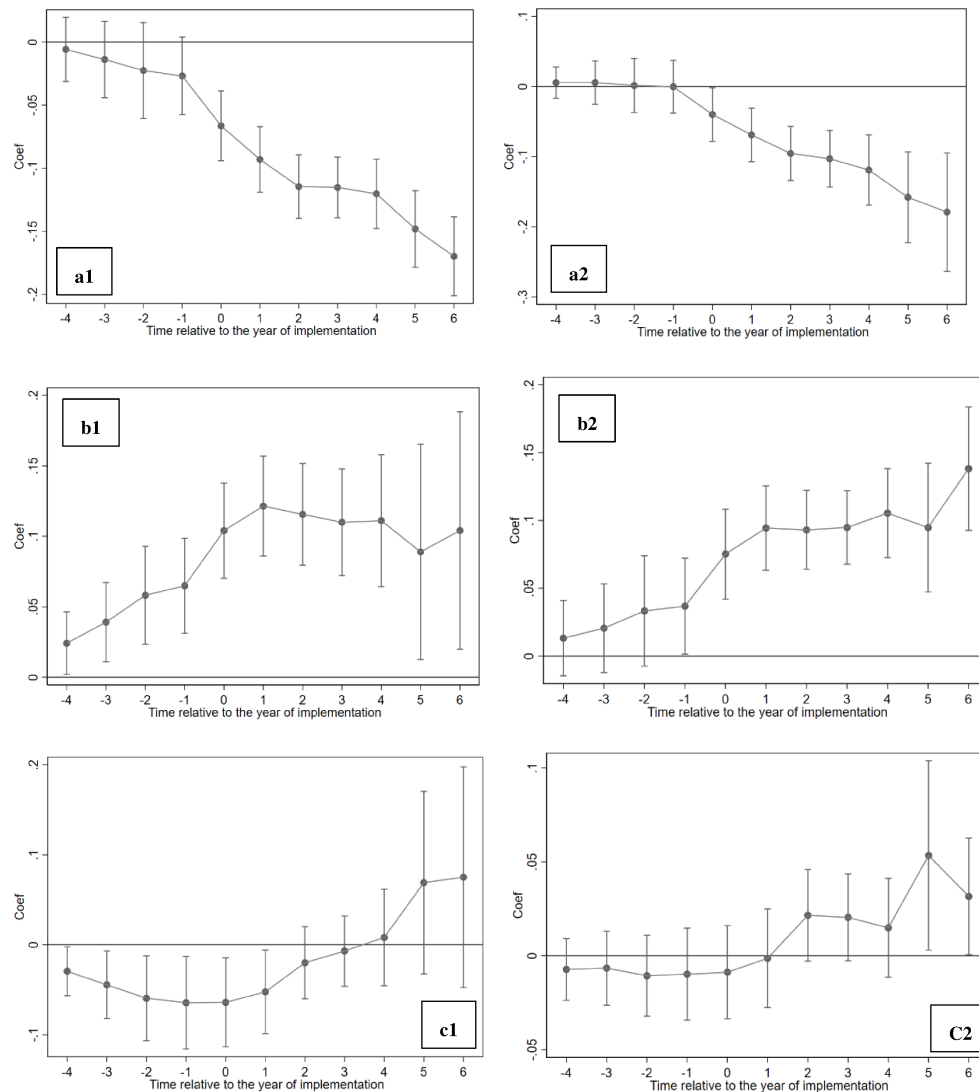
**Annex 2** Overall effect estimation of the pseudo-implementation of the policy 1 and 2 years ahead

Pseudo-implementation	Statistics	% medicines revenue	% medical service revenue	% government subsidy revenue
1 year ahead	Overall effect	0.0037	0.0046	-0.0083
	Cluster-robust standard error	0.0091	0.0101	0.0064
	<i>P</i> value	0.684	0.650	0.200
2 years ahead	Overall effect	0.0132	0.00001	-0.0132
	Cluster-robust standard error	0.0097	0.0108	0.0082
	<i>P</i> value	0.177	0.999	0.108

**Annex 3** Sensitivity analysis of the dynamic effect estimation  
by controlling the province specific time trend and the region specific time trend

Model	% medicines revenue	% medical service revenue	% government subsidy revenue	
Model 3a	-0.0333 (0.0089) ***	0.0339 (0.0100) ***	0.0006 (0.0076)	
Model 3b	-0.0318 (0.0086) ***	0.0344 (0.0099) ***	0.0026 (0.0077)	
Model 4a	The year of implementation	-0.0399 (0.0193) *	0.1040 (0.0171) ***	-0.0641 (0.0250) *
	1 year after implementation	-0.0690 (0.0193) ***	0.1214 (0.0179) ***	-0.0524 (0.0235) *
	2 years after implementation	-0.0954 (0.0194) ***	0.1155 (0.0183) ***	-0.0201 (0.0203)
	3 years after implementation	-0.1030 (0.0205) ***	0.1099 (0.0191) ***	-0.0070 (0.0198)
	4 years after implementation	-0.1191 (0.0253) ***	0.1111 (0.0237) ***	0.0080 (0.0271)
	5 years after implementation	0.1580 (0.0328) ***	0.0889 (0.0386) *	0.0690 (0.0513)
	6 years after implementation	0.1791 (0.0426) ***	0.1041 (0.0426) *	0.0750 (0.0620)
Model 4b	The year of implementation	-0.0664 (0.0140) ***	0.0752 (0.0168) ***	-0.0088 (0.0125)
	1 year after implementation	-0.0931 (0.0131) ***	0.0944 (0.0158) ***	-0.0014 (0.0133)
	2 years after implementation	-0.1146 (0.0127) ***	0.0930 (0.0147) ***	0.0215 (0.0123)
	3 years after implementation	-0.1152 (0.0122) ***	0.0948 (0.0137) ***	0.0204 (0.0117)
	4 years after implementation	0.1203 (0.0139) ***	0.1054 (0.0166) ***	0.0149 (0.0133)
	5 years after implementation	-0.1481 (0.0153) ***	0.0948 (0.0240) ***	0.0534 (0.0255) *
	6 years after implementation	-0.1699 (0.0158) ***	0.1383 (0.0230) ***	0.0316 (0.0157) *

**Notes:** Model 3a indicates inclusion of the province-specific time trend term in the hospital and time two-way fixed effect overall effect model (model 3), which is the same as the result when both the province-specific time trend term and the region-specific time trend term were included in model 3; model 3b indicates inclusion of the region-specific time trend term in the hospital and time two-way fixed effect model (model 3); model 4a indicates inclusion of the province-specific time trend term in the dynamic effect model (model 4), which is the same as the result when both the province-specific time trend term and the region-specific time trend term were included in model 4; Model 4b indicates inclusion of the region-specific time trend term in the dynamic effect model (Model 4). \*\*\*  $P < 0.001$ , \*\*  $P < 0.01$ , \*  $P < 0.05$ ; cluster-robust standard errors were within the parentheses.



**Notes:** “a” indicates proportionate medicines revenue, “b” indicates proportionate medical service revenue, c indicates proportionate government subsidy revenue, 1 denotes controlling the province-specific time trend in model 4, 2 denotes controlling the region-specific time trend in model 4, the regression results by controlling the province-specific time trend, or by controlling both trends in model 4 were the same.

**Annex 4** Sensitivity analysis of the dynamic effect estimation  
by controlling the province-specific time trend and the region-specific time trend

## Annex 5 Sub-group analyses of the average treatment effect of the policy

## 5a Sub-group analyses of the average treatment effect of the policy by type of hospital

Type of hospital(n)	Model	Measurement( $y_{it}$ )	No. of observation(n)	Coefficient( $\lambda$ )	Cluster-robust standard error	P value
General hospital (57)	Pooled regression model (Model 1)	Proportionate medicines revenue	499	-0.1061	0.0081	<0.001
		Proportionate medical service revenue	499	0.0942	0.0094	<0.001
		Proportionate government subsidy revenue	499	0.0120	0.0048	0.015
	Hospital-level fixed effect model (Model 2)	Proportionate medicines revenue	499	-0.1074	0.0078	<0.001
		Proportionate medical service revenue	499	0.0955	0.0090	<0.001
		Proportionate government subsidy revenue	499	0.0120	0.0046	0.012
	Two-way fixed effect model (Model 3)	Proportionate medicines revenue	499	-0.0322	0.0080	<0.001
		Proportionate medical service revenue	499	0.0252	0.0102	0.017
		Proportionate government subsidy revenue	499	0.0070	0.0077	0.363
TCM hospital (31)	Pooled regression model (Model 1)	Proportionate medicines revenue	279	-0.0830	0.0142	<0.001
		Proportionate medical service revenue	279	0.0806	0.0174	<0.001
		Proportionate government subsidy revenue	279	0.0024	0.0096	0.801
	Hospital-level fixed effect model (Model 2)	Proportionate medicines revenue	279	-0.0830	0.0134	<0.001
		Proportionate medical service revenue	279	0.0806	0.0164	<0.001
		Proportionate government subsidy revenue	279	0.0024	0.0091	0.790
	Two-way fixed effect model (Model 3)	Proportionate medicines revenue	279	-0.0312	0.0227	<b>0.180</b>
		Proportionate medical service revenue	279	0.0315	0.0204	<b>0.134</b>
		Proportionate government subsidy revenue	279	-0.0003	0.0161	0.985
MCH hospital (33)	Pooled regression model (Model 1)	Proportionate medicines revenue	297	-0.0837	0.0129	<0.001
		Proportionate medical service revenue	297	0.0956	0.0126	<0.001

		Proportionate government subsidy revenue	297	-0.0119	0.0103	0.253	
Specialty hospital (15)	Hospital-level fixed effect model (Model 2)	Proportionate medicines revenue	297	-0.0837	0.0123	<0.001	
		Proportionate medical service revenue	297	0.0956	0.0120	<0.001	
		Proportionate government subsidy revenue	297	-0.0119	0.0097	0.228	
	Two-way fixed effect model (Model 3)	Proportionate medicines revenue	297	-0.0328	0.0108	0.005	
		Proportionate medical service revenue	297	0.0521	0.0156	0.002	
		Proportionate government subsidy revenue	297	-0.0192	0.0156	0.226	
	Specialty hospital (15)	Pooled regression model (Model 1)	Proportionate medicines revenue	135	-0.0653	0.0163	0.001
			Proportionate medical service revenue	135	0.0588	0.0148	0.001
			Proportionate government subsidy revenue	135	0.0065	0.0097	0.518
		Hospital-level fixed effect model (Model 2)	Proportionate medicines revenue	135	-0.0653	0.0158	0.001
			Proportionate medical service revenue	135	0.0588	0.0144	0.001
			Proportionate government subsidy revenue	135	0.0065	0.0095	0.507
Two-way fixed effect model (Model 3)		Proportionate medicines revenue	135	-0.0846	0.0202	0.001	
		Proportionate medical service revenue	135	0.0641	0.0198	0.006	
		Proportionate government subsidy revenue	135	0.0205	0.0243	0.414	

## 5b Sub-group analyses of the average treatment effect of the policy by location of hospital

Region (n)	Model	Measurement (y <sub>it</sub> )	No. of observation (n)	Coefficient (λ)	Cluster-robust standard error	P value
Eastern (59)	Pooled regression model (Model 1)	Proportionate medicines revenue	527	-0.0846	0.0074	<0.001
		Proportionate medical service revenue	527	0.0818	0.0084	<0.001
		Proportionate government subsidy revenue	527	0.0028	0.0068	0.679
	Hospital-level fixed effect model (Model 2)	Proportionate medicines revenue	527	-0.0828	0.0074	<0.001
		Proportionate medical service revenue	527	0.0787	0.0082	<0.001
		Proportionate government subsidy revenue	527	0.0041	0.0066	0.536
	Two-way fixed effect model (Model 3)	Proportionate medicines revenue	527	-0.0382	0.0115	0.001
		Proportionate medical service revenue	527	0.0325	0.0136	0.020
		Proportionate government subsidy revenue	527	0.0057	0.0074	0.445
Central (34)	Pooled regression model (Model 1)	Proportionate medicines revenue	306	-0.1017	0.0092	<0.001
		Proportionate medical service revenue	306	0.0910	0.0109	<0.001
		Proportionate government subsidy revenue	306	0.0106	0.0061	0.093
	Hospital-level fixed effect model (Model 2)	Proportionate medicines revenue	306	-0.1016	0.0090	<0.001
		Proportionate medical service revenue	306	0.0914	0.0108	<0.001
		Proportionate government subsidy revenue	306	0.0102	0.0060	0.097
	Two-way fixed effect model (Model 3)	Proportionate medicines revenue	306	-0.0273	0.0138	0.057
		Proportionate medical service revenue	306	0.0252	0.0113	0.032
		Proportionate government subsidy revenue	306	0.0022	0.0077	0.779
Western (43)	Pooled regression model (Model 1)	Proportionate medicines revenue	377	-0.0925	0.0137	<0.001
		Proportionate medical service revenue	377	0.0959	0.0145	<0.001
		Proportionate government subsidy revenue	377	-0.0035	0.0069	0.621
	Hospital-level fixed effect model (Model 2)	Proportionate medicines revenue	377	-0.0942	0.0134	<0.001
		Proportionate medical service revenue	377	0.0979	0.0142	<0.001
		Proportionate government subsidy revenue	377	-0.0036	0.0068	0.599
	Two-way fixed effect model (Model 3)	Proportionate medicines revenue	377	-0.0237	0.0205	<b>0.255</b>
		Proportionate medical service revenue	377	0.0398	0.0235	<b>0.097</b>
		Proportionate government subsidy revenue	377	-0.0162	0.0207	0.439

## 5c Sub-group analyses of the average treatment effect of the policy by affiliation of hospital

Affiliation of hospital (n)	Model	Measurement ( $y_{it}$ )	No. of observation (n)	Coefficient ( $\lambda$ )	Cluster-robust standard error	P value
Affiliated to central government (43)	Pooled regression model (Model 1)	Proportionate medicines revenue	378	-0.0809	0.0085	<0.001
		Proportionate medical service revenue	378	0.0737	0.0089	<0.001
		Proportionate government subsidy revenue	378	0.0072	0.0061	0.241
	Hospital-level fixed effect model (Model 2)	Proportionate medicines revenue	378	-0.0829	0.0084	<0.001
		Proportionate medical service revenue	378	0.0762	0.0087	<0.001
		Proportionate government subsidy revenue	378	0.0067	0.0057	0.250
	Two-way fixed effect model (Model 3)	Proportionate medicines revenue	378	-0.0301	0.0111	0.010
		Proportionate medical service revenue	378	0.0240	0.0116	0.044
		Proportionate government subsidy revenue	378	0.0060	0.0073	0.414
Affiliated to local government (93)	Pooled regression model (Model 1)	Proportionate medicines revenue	832	-0.0953	0.0076	<0.001
		Proportionate medical service revenue	832	0.0938	0.0084	<0.001
		Proportionate government subsidy revenue	832	0.0015	0.0051	0.768
	Hospital-level fixed effect model (Model 2)	Proportionate medicines revenue	832	-0.0950	0.0074	<0.001
		Proportionate medical service revenue	832	0.0933	0.0082	<0.001
		Proportionate government subsidy revenue	832	0.0017	0.0050	0.733
	Two-way fixed effect model (Model 3)	Proportionate medicines revenue	832	-0.0277	0.0095	0.004
		Proportionate medical service revenue	832	0.0337	0.0109	0.003
		Proportionate government subsidy revenue	832	-0.0059	0.0088	0.500