

Table 1 <Descriptive statistics: 2004-2013>

Variable	Definition	Source	Pre intervention (N=98)				Post intervention (N=107)				p-value
			VPP countries(N=24)		Non VPP countries (N=74)		VPP countries (N=25)		Non VPP countries (N=82)		
			Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D	
Inconterms price	Mean unit cost of 600mg efavirenz(incoterms applied)	WHO GPRM(2015b)	0.56	0.18	0.65	0.29	0.15	0.08	0.20	0.12	<0.001
Ex works price	Mean unit cost of 600mg efavirenz(ex works applied)	WHO GPRM(2015b)	0.52	0.17	0.60	0.26	0.14	0.06	0.18	0.10	<0.001
Transaction volume	Sum of quantity*package of transaction per year	WHO GPRM(2015b)	1589175	3633073	2258281	6172162	3941418	9965920	6050612	14200000	0.8325
Market competition	Number of generic manufacturers	WHO GPRM(2015b)	1.94	0.91	2.00	1.08	1.86	0.97	1.71	1.06	0.8931
HIV prevalence	Prevalence of HIV, total (% of population ages 15-49)	World Bank(2015)	2.60	3.51	3.63	6.15	2.42	3.50	2.83	5.30	0.3264
GNI	GNI per capita, PPP (current international \$)	World Bank(2015)	2357.21	1785.72	5109.83	7098.11	2884.95	2514.82	6256.06	8050.83	0.0033
CPI	Consumer price index (reference year=2010)	World Bank(2015)	73.04	12.20	64.89	22.21	90.75	14.90	87.02	29.25	<0.001
Public health expenditure	Health expenditure, public (% of total health expenditure)	World Bank(2015)	39.44	14.60	44.93	19.50	42.50	15.20	45.80	21.64	0.6621
Tax	Tax revenue (% of GDP)	World Bank(2015)	7.89	6.73	10.58	11.78	8.78	7.45	7.69	8.45	0.8653
Treatment × Post	Interaction term of treatment*post period	WHO GPRM(2015b) GFATM PQR(2015)	0	0	0	0	0.85	0.36	0	0	
Treatment	=1 if joined VPP	GFATM PQR(2015)	1	0	0	0	1	0	0	0	
Year (2004 is the reference category)											
2005	=1 if year=2005		0.08	0.27	0.12	0.32	0	0	0	0	
2006	=1 if year=2006		0.22	0.42	0.24	0.43	0	0	0	0	
2007	=1 if year=2007		0.36	0.48	0.27	0.45	0	0	0	0	
2008	=1 if year=2008		0.34	0.48	0.33	0.47	0	0	0	0	
2009	=1 if year=2009		0	0	0	0	0.19	0.39	0.21	0.41	

2010	=1 if year=2010	0	0	0	0	0.22	0.41	0.20	0.40
2011	=1 if year=2011	0	0	0	0	0.22	0.41	0.20	0.40
2012	=1 if year=2012	0	0	0	0	0.17	0.38	0.20	0.40
2013	=1 if year=2013	0	0	0	0	0.20	0.40	0.19	0.39

* P value was calculated using t-test with the interaction term comparing a treatment group with a control group

*N=number of countries

Table 2: The assumption of a common trend– Regression approach

	GLM			
	Ex works price		Incoterms price	
	Coefficient(95% CI)	p-value	Coefficient(95% CI)	p-value
Transaction_volume	0 (0 : 0)	0.106	0 (0 : 0)	0.264
HIV prevalence	0.04 (-0.014 : 0.093)	0.145	0.041 (-0.015 : 0.097)	0.150
GNI	0 (0 : 0)	0.982	0 (0 : 0)	0.878
CPI	-0.001 (-0.002 : 0.001)	0.555	-0.001 (-0.003 : 0.001)	0.183
health expenditure	-0.003 (-0.006 : 0)	0.081	-0.002 (-0.006 : 0.001)	0.133
tax revenue	0.003 (-0.001 : 0.007)	0.089	0.001 (-0.003 : 0.005)	0.629
Manufacturers	-0.012 (-0.041 : 0.017)	0.402	-0.015 (-0.045 : 0.016)	0.342
Year:2005	-0.031 (-0.259 : 0.197)	0.791	-0.05 (-0.29 : 0.19)	0.682
Year:2006	-0.343 (-0.562 : -0.124)	0.002	-0.371 (-0.601 : -0.14)	0.002
Year:2007	-0.667 (-0.886 : -0.447)	0.000	-0.675 (-0.906 : -0.443)	0.000
Year:2008	-0.863 (-1.081 : -0.645)	0.000	-0.837 (-1.067 : -0.607)	0.000
Year:2009	-1.283 (-1.503 : -1.063)	0.000	-1.256 (-1.488 : -1.024)	0.000
Year:2010	-1.615 (-1.838 : -1.392)	0.000	-1.635 (-1.87 : -1.4)	0.000
Year:2011	-1.915 (-2.14 : -1.69)	0.000	-1.85 (-2.087 : -1.613)	0.000
Year:2012	-2.031 (-2.26 : -1.803)	0.000	-1.998 (-2.239 : -1.757)	0.000
Year:2013	-2.122 (-2.355 : -1.89)	0.000	-2.132 (-2.377 : -1.887)	0.000
Lag 2(Treatment X Post)	0.027 (-0.063 : 0.116)	0.560	0.033 (-0.061 : 0.127)	0.493
Lag 1(Treatment X Post)	-0.012 (-0.116 : 0.092)	0.818	-0.003 (-0.112 : 0.106)	0.954
lead1(Treatment X Post)	-0.015 (-0.119 : 0.088)	0.770	-0.023 (-0.132 : 0.086)	0.684
Lead2 (Treatment X Post)	-0.001 (-0.099 : 0.097)	0.980	0.033 (-0.071 : 0.136)	0.536
Treatment X Post	-0.173 (-0.291 : -0.055)	0.004	-0.209 (-0.333 : -0.085)	0.001
treated	-0.405 (-1.251 : 0.441)	0.348	-0.365 (-1.255 : 0.525)	0.422

* Treatment X Post is the term of interaction showing difference-in-difference.

* Lag 1 and lag 2 are the coefficients of lagged variable of interaction term 'Treatment X Post', while lead1 and lead2 are the coefficients of the lead variable of interaction term 'Treatment X Post'.

*95% CI in parentheses

Table 3 : Difference-in-difference analysis- Regression approach

	GLM		GLM	
	Ex works price	p-value	Incoterms price	p-value
Transaction_volume	0 (0 : 0)	0.147	0 (0 : 0)	0.352
HIV prevalence	0.037 (0.004 : 0.07)	0.029	0.035 (-0.001 : 0.071)	0.055
GNI	0 (0 : 0)	0.965	0 (0 : 0)	0.761
CPI	0 (-0.002 : 0.001)	0.400	-0.001 (-0.002 : 0)	0.063
health expenditure	-0.003 (-0.005 : 0)	0.016	-0.002 (-0.004 : 0)	0.017
tax revenue	0.004 (0 : 0.007)	0.054	0.001 (-0.002 : 0.004)	0.543
Manufacturers	-0.012 (-0.037 : 0.012)	0.324	-0.015 (-0.043 : 0.012)	0.276
Year:2005	-0.032 (-0.183 : 0.118)	0.673	-0.057 (-0.228 : 0.115)	0.517
Year:2006	-0.347 (-0.497 : -0.197)	0.000	-0.383 (-0.551 : -0.215)	0.000
Year:2007	-0.673 (-0.821 : -0.525)	0.000	-0.688 (-0.854 : -0.522)	0.000
Year:2008	-0.871 (-1.025 : -0.718)	0.000	-0.851 (-1.019 : -0.683)	0.000
Year:2009	-1.294 (-1.445 : -1.143)	0.000	-1.273 (-1.438 : -1.108)	0.000
Year:2010	-1.635 (-1.796 : -1.475)	0.000	-1.664 (-1.842 : -1.485)	0.000
Year:2011	-1.928 (-2.098 : -1.758)	0.000	-1.87 (-2.054 : -1.686)	0.000
Year:2012	-2.031 (-2.213 : -1.849)	0.000	-2.007 (-2.2 : -1.815)	0.000
Year:2013	-2.125 (-2.296 : -1.954)	0.000	-2.148 (-2.333 : -1.964)	0.000
Treatment X Post	-0.177 (-0.247 : -0.107)	0.000	-0.213 (-0.287 : -0.139)	0.000
treated	-0.511 (-1.168 : 0.147)	0.128	-0.598 (-1.43 : 0.233)	0.159

Note: Treatment X Post is an interaction term showing the effect of difference-in-difference.

*95% CI in parentheses

Table 4 : Bootstrap simulation on interaction term

Variable	Replication		Difference-in-difference	Bias	95% confidence interval	p-value (Cluster)†	p-value (wild cluster bootstrap)††
TreatmentXPost	1000	Ex works price	-0.174	0.0048	-0.272 : -0.063	<0.001	0.028
TreatmentXPost	1000	Incoterms price	-0.217	0.0055	-0.320 : -0.117	<0.001	0.010

*Replication : 1000 times.

†P value was calculated with cluster robust error.

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