

Supply-Side Shocks: Strikes and Utilization of Contraception in Kenya Are Doctors or Nurses More Essential for a Thriving Family Program?

Kristin Bietsch, Priya Emmart, and Hellen Sidha

The issue of how shocks affect health utilization has been extensively studied, with fewer studies on the impact of shocks on preventative behavior, including family planning. Studies on shocks in family planning include evaluations of impact of economic crisis in Indonesia¹, the impact of environmental and economic shocks in Mozambique², agricultural shocks on planned postponement of fertility in Tanzania³ which show divergent results on fertility regulating behavior. This paper makes two important contributions to the literature on impact of shocks in family planning: it is the first to examine impact from the supply side perspective and the first to differentiate between withdrawal of services by type of provider on family planning.

Kenya's public health system suffered two major blows in 2017: a four-month doctors' strike followed two months later with a 5-month nurses' strike. The strike was aimed at pushing for the implementation of the collective bargaining agreement between the government at the national and county level and the service providers. The strike paralyzed the health sector in the country with patients forced to seek expensive services in private hospitals. Our paper analyses the distribution of family planning through the public health sector from December 2015 through August 2018, focusing on the dips and recoveries around the two strikes. We include family planning commodity and visits data in our analysis, taken from the Kenyan District Health Information System (DHIS2), which records monthly facility level data. The results presented below are for the whole of Kenya, the longer paper will examine county level differences.

A 100-day Doctor's strike began in December 2016, due to the demand for higher wages, better working conditions, and more doctor hires⁴. 2500 public health institutions were affected by the strike, which ended in March 2017. In June 2017, after a delay in agreed upon raises, nurses went on strike. The Kenya National Union of Nurses ended the strike November 2, 2017⁵. The strikes led to a rise in patients seeking treatment in the private sector⁶, but many died unable to access or afford private services⁷.

Using data from the DHIS2, we estimate the impact of the Doctors' and Nurses' strike on public sector family planning distribution. All health providers can distribute all methods, except for sterilizations, which must be in the gynecological ward by a doctor.

To understand the total distribution of family planning, we convert commodity data (which does not include sterilizations) into Couple Years of Protection (CYPs).

¹ McKelvey, C., Thomas, D., & Frankenberg, E. (2012). Fertility Regulation in an Economic Crisis. *Economic Development and Cultural Change* <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4384462/>

² Hernandez-Correa, J. "Economic and Risk Factors Associated with Sexual and Reproductive Health" (2010). Dissertation. <http://scholarworks.wmich.edu/dissertations/567>

³ Alam, S. & Portner, C. (2017) Income Shocks, Contraceptive Use, and Timing of Fertility. *Journal of Development Economics* <https://www.sciencedirect.com/science/article/pii/S030438781730086X>

⁴ <https://www.bbc.com/news/world-africa-39271850>

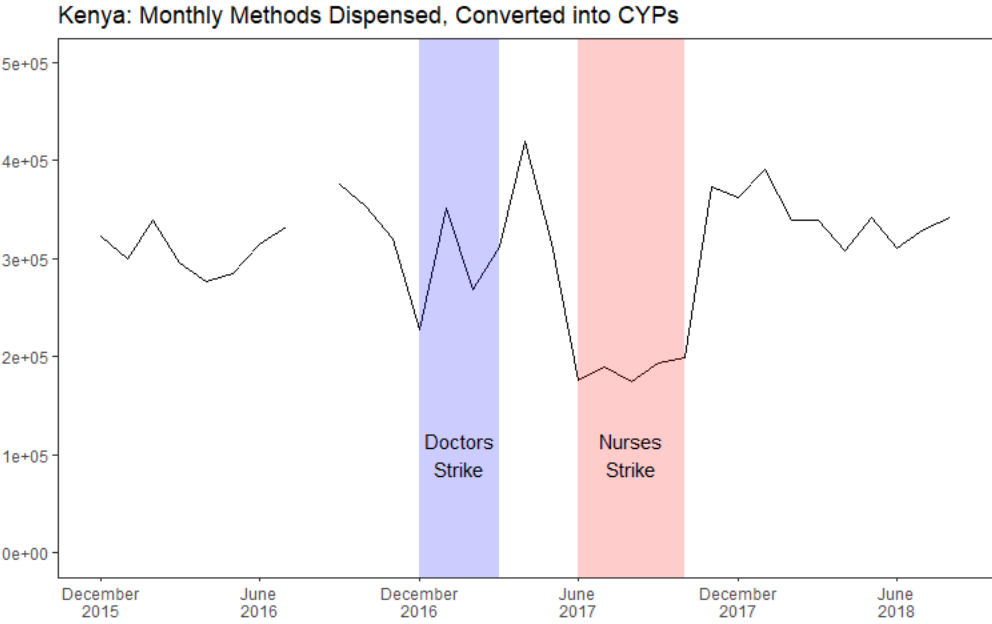
⁵ <https://www.capitalfm.co.ke/news/2017/11/five-months-nurses-strike-called-off/>

⁶ https://digitalcollections.sit.edu/cgi/viewcontent.cgi?article=3708&context=isp_collection

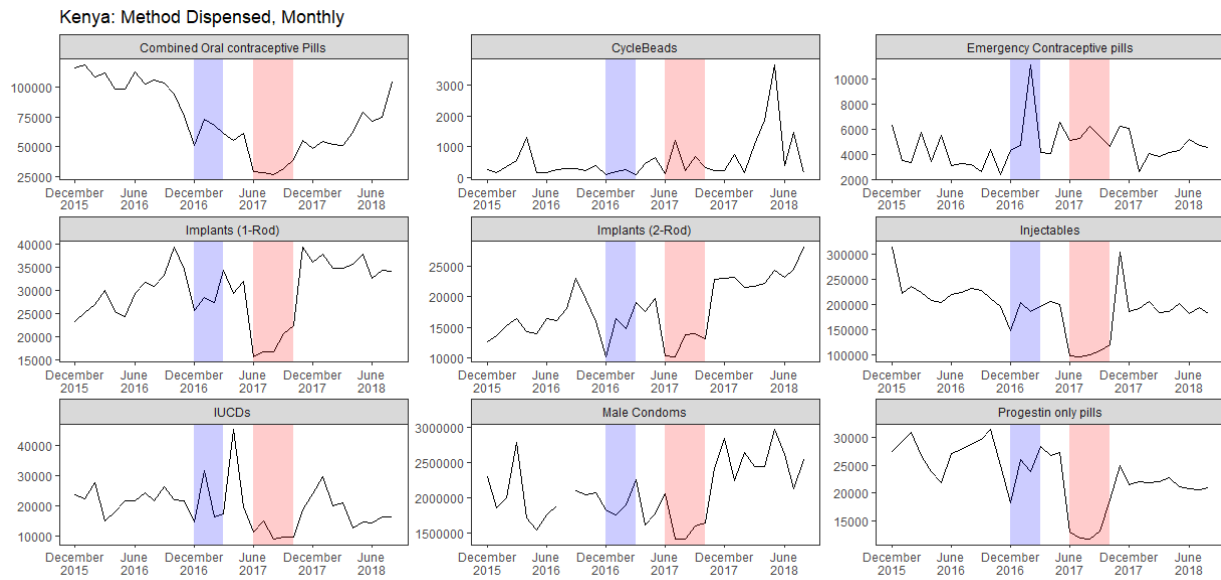
⁷ [https://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736\(17\)31661-6.pdf](https://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(17)31661-6.pdf)

Method	Couple Years of Protection
Combined Oral Contraceptive Pill	1/15
Cycle Bears	1.5
Emergency Contraception Pill	1/20
Implants- Implanon	2.5
Implants- Jadelle	3.8
Injectables- Depo Provera	¼
IUDs- Copper	4.6
Male Condoms	1/120
Progestin Only Pills	1/15

The figure below shows the per month distribution of CYPs, highlighting the Doctors’ strike in blue and the Nurses’ strike in red. The first month of each strike shows dramatic declines from the month before the strike- the Doctors’ strike saw declines from 319903 to 228050 CYPs, a decline of 29%, while the second strike saw CYPs decline from 316634 to 175994, a decline of 44%. We also see that CYPs increased, on average, through the Doctor’s strike, while the CYPs remained relatively stable and low during the Nurses’ strike.



Method Specific Effects



Method	First Month of Strike compared to Month Before		Mean During Strike compared to Month Before	
	Doctors	Nurses	Doctors	Nurses
Combined Oral contraceptive Pills	67%	48%	67%	56%
CycleBeads	29%	21%	71%	117%
Emergency Contraceptive pills	179%	79%	139%	131%
Implants (1-Rod)	74%	49%	74%	63%
Implants (2-Rod)	63%	53%	77%	70%
Injectables	76%	49%	87%	51%
IUCDs	69%	58%	90%	24%
Male Condoms	88%	116%	95%	101%
Progestin only pills	73%	48%	77%	51%

Looking across methods, we compare the distribution in the first month of each strike to the month before, and find that for all method but male condoms, the declines were greater with the Nurses' strike than the Doctor's strike.

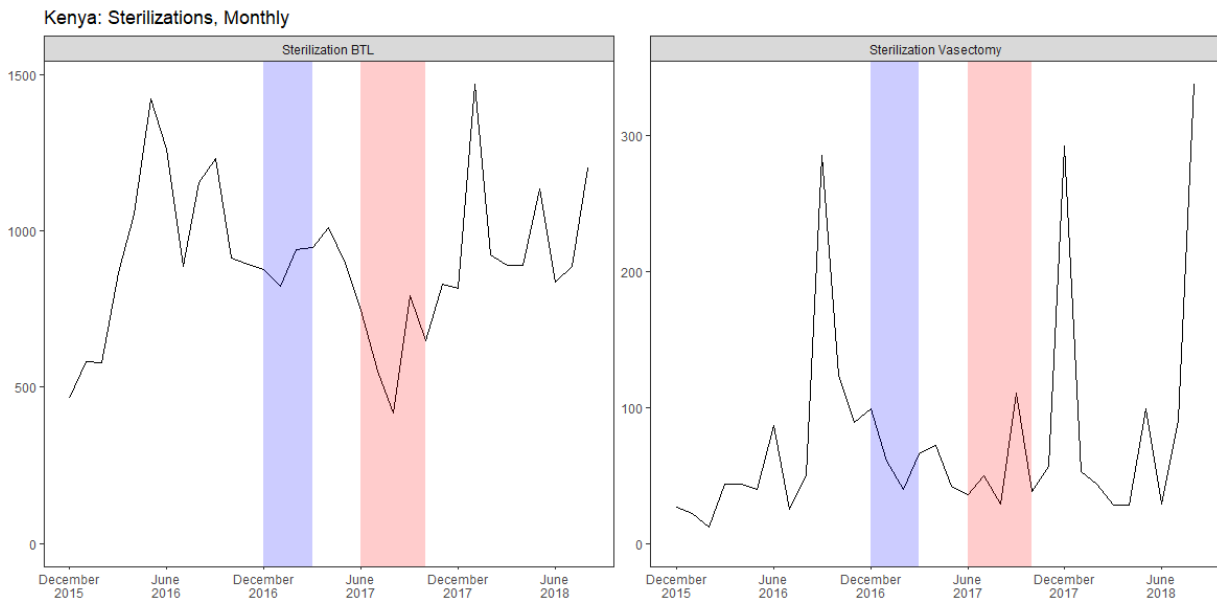
When looking at the mean distribution throughout the strikes, in both strikes there is an increase in Emergency Contraceptive use, compared to the month before each strike. We also see an increase in CycleBeads distributed during the Nursing strike.

Sterilizations

Above, we saw the declines in family planning distribution were greatest during the Nurses' strike, which follows the logic that nurses are more likely to distribute family planning than doctors. The two methods that are reserved for doctors are female and male sterilization. This data is captured in the monthly visit data in the DHIS2.

For the first month, there is little change in the Doctors' strike compared to the month before, however throughout the strike there was a 25% decline in vasectomies. For the first month of the Nurses' strike, both tubal ligation and vasectomies declined, and Tubal Ligations averaged 71% of pre-strike levels throughout the strike. This speaks to the fact that even though doctors preform sterilizations, nurses are needed in the operating theater.

Method	First Month of Strike compared to Month Before		Mean During Strike compared to Month Before	
	Doctors	Nurses	Doctors	Nurses
Sterilization BTL	98%	83%	101%	71%
Sterilization Vasectomy	111%	86%	75%	126%



Recovery

The analysis above has shown the greater impact on family planning commodities distribution during the Nurses' strike compared to the Doctor's strike. However, the Nurses' strike does not seem to have a lasting impact on family planning commodity distribution in 2018. October 2017, the last month of the Nurses' Strike saw 198,693 CYPs distributed, by November 2017 the CYPs increased to 373,200, almost doubling. Since the end of the strike, CYPs have remained above 300,000 CYPs per month.