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The Impact of implementation of Health Reformation Plan on Fair Financial Contribution in Iran using Pseudo-Panel data

Atefi, M.[1], Raghfar, H.[2*], Mousavi, M.[3], Safarzadeh, E.[4]

Abstract

This study aims to analyze the impact of Health System Reformation Plan on the Fairness Financial Contribution Index (FFCI) based on the pseudo panel data. For this purpose, based on the method proposed by the WHO, the FFCI was calculated for the Iranian households in rural and urban areas. The household income-expenditure data that is available from 2014 to 2018 at Iran's Statistics Centre was used to calculate the index for weighted and non-weighted households between total households and households with health expenditures. The heads of households born between 1944 and 1993 were divided into ten age cohorts with a five-year interval. The EXCEL and STATA-SE13 were used for calculating the index. The Fairness Financial Contribution Index from 2014 to 2018 had mild fluctuations in rural and urban areas. FFC in the first generation (1944-1948) has increased slightly. The comparison of FFCI among ten cohorts shows that in most years the youngest generation and households in the urban area have had a higher FFCI. The results indicate that the FFCI changed from 0.8111 in 2014 to 0.823 in 2018, in rural areas for total households in the country following the implementation of the Health System Reformation plan. In urban areas, the FFCI for total households in the country changed from 0.841 in 2014 to 0.843 in 2018. According to the results of this study, the Health System Reformation Plan has not improved the FFCI for households in rural and urban areas during selected years. Health System Reformation Plan has not improved the FFCI during the selected years.

Keywords: Fairness Financial Contribution Index, Pseudo-panel, Health Reformation Plan, Iran

JEL Classification: I14, I18, I38, R28, R52

1. Introduction

Health, advances in medical knowledge, and water sanitation schemes are among the main factors in reducing deaths and major epidemics. But they also warn that the resistance of microbes and viruses against antibiotics and the

1. Ph.D student in Economics Qazvin Branch Islamic Azad University Qazvin Iran **Email:** mandana.atefi@gmail.com
2. Professor Department of Economics Al- Zahra University **Email:** raghfar@alzahra.ac.ir
3. Associate Professor Department of Economics Al-Zahra University **Email:** mousavi@alzahra.ac.ir
4. Assistant Professor Department of Economics Al-Zahra University **Email:** e.safarzadeh@alzahra.ac.ir

emergence of new diseases that are resistant to drugs could be catastrophic in the future, and that a new epidemic could break out at any moment, with many global casualties (Deaton, 2013). This topic, along with issues such as poverty, urbanization, population growth and population aging, imposes high costs on households and governments and leads to changes in their consumption patterns at different stages of life and reduced welfare. No country can provide all free services permanently, but by providing financial protection for the people, efforts are being made to minimize direct out-of-pocket payments for health services and no one should be deprived of these services due to financial problems (World Health Organization, 2019). Health Transformation Plan was implemented in Iran in May 2014 due to high share of people in financing, poor insurance coverage, lack of work force, lack of full-time specialized personnel, low quality of services and lack of medicine. One of its goals has been to increase fair financial contribution to protect people financially from paying for household health expenses. This article describes the level of success of this project in improving the FFCI in both rural and urban areas in weighted and non-weighted mode for all households and households with health costs, using pseudo-panel data in the time range of 2014-2018.

2. Method

The household income-expenditure data available from 2014 to 2018 at Iran's Statistic Centre was used to calculate the index. Ten cohorts with five years gap are made based on the age of the head of the household between 20 and 69 years (they were born from 1944 to 1993). Based on the following equation, for example, the average age of the households within the first generation is 67 years in 1392.

$$\text{age} = \text{year} - \text{cohort} - 1 \quad (1)$$

Year: Year of sampling, cohorts: Year of birth of the head of the household, age: the average age. If this generation is tracked in time, one unit is added to the average age of the head of the household each year, so this function is a dynamic mechanism. Table 1 shows the cohorts of head households in the years 2014 to 2018.

Table 1: cohorts from 2014 to 2018

year / cohort	2014	2015	2016	2017	2018
Cohort one (1944-1948)	65-69	66-69	67-69	68-69	69
Cohort two (1949-1953)	60-64	61-65	62-66	63-67	67-69
Cohort three (1954-1958)	55-59	56-60	57-61	58-62	63-67
Cohort four (1959-1963)	50-54	51-55	52-56	53-57	54-58
Cohort five (1964-1968)	45-49	46-50	47-51	48-52	49-53
Cohort six (1969-1973)	40-44	41-45	42-46	43-47	44-48
Cohort seven (1974-1978)	35-39	36-40	37-41	38-42	39-43
Cohort eight (1979-1983)	30-34	31-35	32-36	33-37	34-38
Cohort nine (1984-1988)	25-29	26-30	27-31	28-32	29-33
Cohort one (1989-1993)	20-24	21-25	26-30	27-31	32-36

FFCI is an indicator of financial fairness. It was constructed to vary from 0 to 1; the fairer the health financing system, the closer FFC will be to 1. The "Fair Financial Contribution" index reflects inequalities in the financial contribution of households in the health system, specifically indicating households that face catastrophic health expenditures.

$$\mathrm{FFC} = 1 - \sqrt[3]{\frac{\sum_{h=1}^{n} |HFC_h - HFC0|^{3}}{n}} \tag{2}$$

where:

$$\mathrm{HFC0} = \frac{\sum \mathrm{oop_h}}{\sum \mathrm{ctp_h}} \tag{3}$$

HFC0: The ratio of total out-of-pocket payments to total capacity to pay
HFCh: The ratio of out-of-pocket payments to household capacity to pay
W_h is a weight that is added to the formula in order for adjustment according to the characteristics of the community to combine observations to present analysis at the national level.

$$\mathrm{FFC} = 1 - \sqrt[3]{\frac{\sum_{h=1}^{n} W_h |HFCh - HFC0|^{3}}{\sum_{h=1}^{n} W_h}} \tag{4}$$

where:

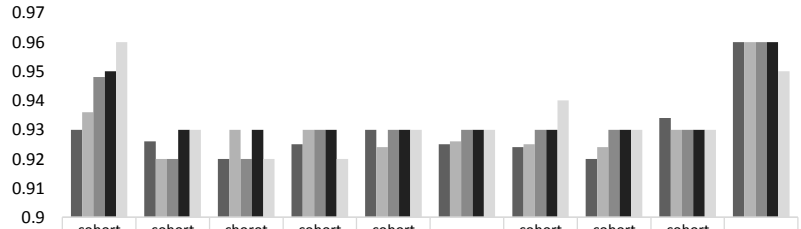
$$\mathrm{HFC0} = \frac{\sum \mathrm{W_h\, oop_h}}{\sum \mathrm{W_h ctp_h}} \tag{5}$$

HFC0: The ratio of total out-of-pocket payments to total weighted capacity to pay.

HFCh: The ratio of out-of-pocket payments to household weighted capacity to pay.

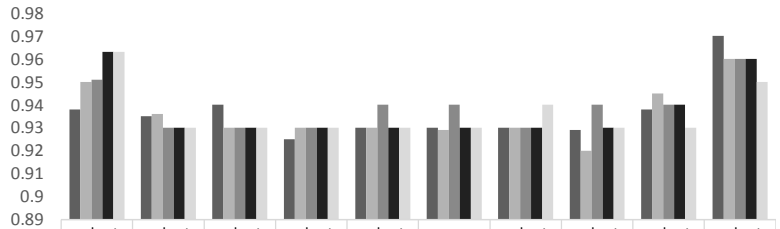
3. Results

Figures 1 and 2 show the FFCI index in rural and urban areas.



	cohort one	cohort two	chorot three	cohort four	cohort five	cohort six	cohort seven	cohort eight	cohort nine	cohort ten
2014	0.93	0.926	0.92	0.925	0.93	0.925	0.924	0.92	0.934	0.96
2015	0.936	0.92	0.93	0.93	0.924	0.926	0.925	0.924	0.93	0.96
2016	0.948	0.92	0.92	0.93	0.93	0.93	0.93	0.93	0.93	0.96
2017	0.95	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.96
2018	0.96	0.93	0.92	0.92	0.93	0.93	0.94	0.93	0.93	0.95

Fig. 1: FFCI in all rural households for 10 cohorts from 2014 to 2018

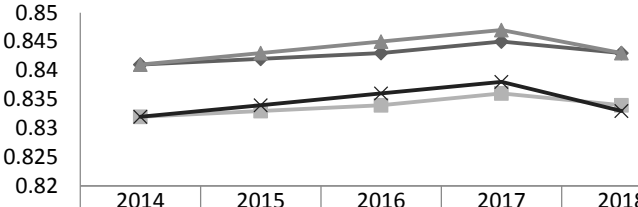


	cohort one	cohort two	cohort three	cohort four	cohort five	cohort six	cohort seven	cohort eight	cohort nine	cohort ten
۲۰۱۴	0.94	0.94	0.94	0.93	0.93	0.93	0.93	0.93	0.94	0.97
۲۰۱۵	0.95	0.94	0.93	0.93	0.93	0.93	0.93	0.92	0.95	0.96
۲۰۱۶	0.95	0.93	0.93	0.93	0.94	0.94	0.93	0.94	0.94	0.96
۲۰۱۷	0.96	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.94	0.96
2018	0.96	0.93	0.93	0.93	0.93	0.93	0.94	0.93	0.93	0.95

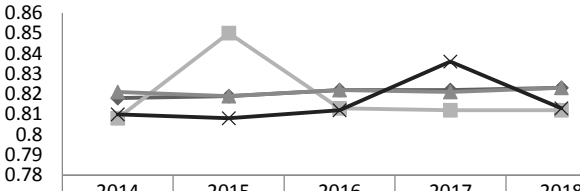
Fig. 2: FFCI in all urban households for 10 cohorts from 2014 to 2018

The index is slightly higher in the urban sector than in the rural area. After the implementation of the HSRP, the index has slightly improved. In all cohorts, this rate is higher than 90%, which shows that in all cohorts, there are different types of income groups. In other words, the index is the average of FFC of households.

Figures 3 and 4 show the FFCI of rural and urban households in the whole country.



	2014	2015	2016	2017	2018
all households	0.841	0.842	0.843	0.845	0.843
households with oop	0.832	0.833	0.834	0.836	0.834
wighted householdes	0.841	0.843	0.845	0.847	0.843
weighted households with oop	0.832	0.834	0.836	0.838	0.833



	2014	2015	2016	2017	2018
all households	0.818	0.819	0.822	0.822	0.823
households with oop	0.808	0.85	0.813	0.812	0.812
weighted households	0.821	0.819	0.822	0.821	0.823
weighted households with oop	0.81	0.808	0.812	0.836	0.813

Fig. 3: FFCI in rural areas for all households and households with health expenses in weighted and non-weighted households: 2014-2018

The index in the urban sector shows an upward trend until 2016 and, then, it slightly decreases. In the case of surveying households with health costs, the index is slightly lower than the survey of total households, and in the case of weighting households, it is slightly higher. In 2015, the index in the rural areas for households with health costs, has significantly improved and then decreased again. Due to the fact, the Health Reformation Plan has paid more attention to the treatment sector, families with health costs, especially those in the rural area, have benefited from this plan.

4. Conclusion

The results of the present study showed that in most cohorts, the index has not changed significantly. The fair financial contribution index for the first cohort

has been increasing with the age of head of households, but at a very gentle pace. Among all studied years, the tenth cohort has faced more fairness in terms of financial contribution in the health sector, due to the similarity of household characteristics such as their income, consumption and physical condition. Surveying the heads of households of the fourth to seventh cohorts in the rural area, the rate of fair financial contribution of households in providing health care was lower than that of other groups.

Among the benefits of this plan is the improvement of household financial protection against the costs of health services, especially in low-income groups and some high-income groups. But because this plan cares more about treatment than prevention and health, providing health expenses will be problematic in the future due to the increasing needs of health services and increasing treatment costs. Due to the high volume of resources used in this project, the impact of this project was expected to improve the relevant indicators, including fair financial contribution. The results show that development policies in the HSRP have not been sufficiently effective in increasing FFCI in the health sector. One of the drawbacks of this plan has been the induced demand for treatment; Also, the decrease in oil revenues, the existing sanctions, the increase in inflation and the overall unsustainable credit resources of this plan, along with the lack of proper management of resources, have led to its continued failure and caused many households, to allocate a higher proportion of their financial resources to meet the expenditures and exposing them to catastrophic health expenditures and impoverishment.

References

Murray & et al (2003). "Assessing the Distribution of Household Financial Contributions to the Health System", *Health Systems Performance Assessment*, 520.

Deaton Angus (2013). *The Great Scape, Health, Wealth, and the Origins of Inequality*, Princeton University Press.

Ke,Xu. (2005). Distribution of health payments and catastrophic expenditures: methodology. WHO.

The World health report (2003). Health systems: improving performance. WHO.

The World health organization (2019) https://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-(uhc).