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Fragmental Modification of Standard Model for Estimating Funding into Kosovo's Mandatory Health Insurance Fund

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Abstract: This paper extends previous works by Bislimi et al (2012), Muhaxheri et al (2014), and Muhaxheri (2017) in investigating scenarios for fragmented funding into Kosovo's mandatory health insurance fund, under forecasted actual growth forecasts. The analysis shows that a Ceiling Threshold Model is sustainable and does not affect the overall funding, and may even be the catalyst for a range of mandatory health insurance products in the private insurance sector. However, government should not consider the case of a Flooring Threshold Model as it will create a considerable shortfall in funding versus the standard model, and thus create additional burden on its finances and therefore on all those who contribute through general taxation.

Keywords: Healthcare Financing, Public Health Insurance, Universal Healthcare

JEL Classification: G220; I130

1. Introduction

A country's healthcare is system is one of the most important pillars for the welfare, wellbeing and productivity of its citizens. Kosovo, as Europe's youngest country, despite seeing a slight progress in its healthcare system, still suffers from underfunding and degrading infrastructure, and declining morale among its healthcare workers. Year 2014 was a very important year, in such that the government of Kosovo passed the law on health insurance. The law on health insurance stipulates the creation of a mandatory health insurance fund (HIF), where Kosovo citizens are obligated to participate, through defined contributions totalling 7% (3.5% employee + 3.5% employer)[2]. The law on HIF also defines exempted groups, such as those out of work or on state's welfare benefits, thus making it a truly universal. However, despite a number of attempts to start the HIF, pressure from groups within and outside parliament have made its start unsuccessful, though regrettably a necessity, given a prolonged delay in setting up the governing board, as mandated by the law, and that no staff training has taken place.

This paper merges ideas presented by Muhaxheri and Meksi (2014)[3], and Muhaxheri (2017)[4]. First idea furthers scenarios developed by Bislimi et al (2012)[5] by creating two separate fragmentations that partially simulate contributions into (1) a model based on the German health insurance schemes (in this paper defined as 'ceiling threshold model'), and (2) a model based on National Health Service (NHS) in

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[2] In line with Bislimi and Muhaxheri (2012).
[3] Muhaxheri, Edmond; Meksi, Ermelinda, "Extensions of Premium Setting for a Health Insurance Fund for Kosovo", 2014.
[4] Muhaxheri, Edmond, "Growth Forecasts and Sustainability for Kosovo's Mandatory Health Insurance Fund, 2017.
[5] Bislimi, Besnik; Muhaxheri, Edmond, "Financial Sustainability of a Health Insurance Fund for Kosovo", 2012.

the United Kingdom (in this paper defined as 'flooring threshold model'). The second paper, contributes by developing forecasts for Kosovo's economic growth, and showing stability of initial scenarios upon which Kosovo's contributions have been developed and adopted.

2. Methodology Behind Contribution Rate

Advances in data collection in recent years are still lagging behind in Kosovo and as such getting accurate statistics is still difficult, with different agencies reporting different figures for same indicators. This provided an opportunity to present a number of basic assumptions used in the methodology for establishing the contribution rate:

1. Average wages and cost of health care packages grow in line with GDP
2. Public and private sectors have equal productivity growth
3. Population grows 1.18% per year
4. Public sector employees numbers grow 1% per year, whereas private sector employee numbers grow 2% per year (double the rate of public number)
5. GDP for 2017 is 6.38 bn Euros (Medium Term Expenditure Framework 2018 - 2020)
6. Public sector employees are 83,304 (Republic of Kosovo Budget [2017])
7. Total number of employed persons is estimated at 325,049 (Kosovo Pensions and Savings Trust, active contributors, end of Q3 bulletin)
8. Average annual wages is 3550 Euros (Ministry of Finance)
9. Population of Kosovo is approximately 1,783,531 million (Kosovo Agency of Statistics, Population Assessment 2016).
10. Cost of family health package is estimated at 250 Euros per year. Individual and individual plus spouse were also considered, but were deemed to be inappropriate and that they would not gather sufficient support without other family members being covered, and would have also increased the burden on the government.
11. Cost for individuals covered by the government estimated at 150 Euros per year.
12. Calculation of Covered Persons Multiplier (CPM): starting from the assumption that around 20% of employed persons have another employed person in their family. Hence the number of employed persons, 325,049 is equivalent with 260,039 families that would be covered from HIF via direct contributions. Then using Kosovo 2011 census, where average household size is 5.9 persons, a conclusion that on average 5.9*0.8 = 4.7 members from each family will be covered from the system. So: 260,039 families x 4.7 = 1,227,385 covered persons. This means that 325,049 employed persons need to pay for costs of health package for 1,227,385 covered persons. By dividing 1,227,385 with number of employed persons, we get the multiplier of "3.8".

Forecasted GDP growth rates were achieved using the following logarithmic formula:

$$y_t = 0.1559 \ln(x_t) + 3.8011$$

Where

y_t = forecasted GDP growth at time (year) t

x_t = time (year) code value, with first forecasted $x_1 = 1$

Resulting forecasted values are in table 4, with a goodness of fit of $R^2 = 0.9584$.

Table 1. Forecasted GDP Growth Rates (%)

Year	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Year Code	1	2	3	4	5	6	7	8	9	10	11
Forecasted Growth Rate (%)	3.80	3.91	3.97	4.02	4.05	4.08	4.10	4.13	4.14	4.16	4.17

Using these assumptions a number of different scenarios, based on economic growth were simulated, and table 2 shows the forecasted growth scenario. Furthermore, this funding rate assumed family insurance, as individual or married couples insurance were not considered financially feasible.

Table 2. Forecasted Growth Scenario, Standard Model

					Total Employment: 325049						
1	2	3	4	5	6	7	8	9	10	11	12
Year	Population	GDP	Average Wage	Cost of health package	Employment	Covered Persons	Total Cost	% from private sector	% of average wage	Non - Contributors	Cost for Non-Contributors
2017	1,783,531	6.3800	3,550	250.00	325,049	1,235,186	81,262,250	74%	7.0%	548,345	82,251,720
2018	1,804,577	6.6295	3,689	259.78	334,800	1,272,242	86,972,792	75%	7.0%	532,335	79,850,232
2019	1,825,871	6.8926	3,835	270.09	344,844	1,310,409	93,138,380	75%	7.0%	515,462	77,319,245
2020	1,847,416	7.1697	3,989	280.95	355,190	1,349,721	99,789,019	76%	7.0%	497,695	74,654,195
2021	1,869,215	7.4601	4,151	292.32	365,846	1,390,213	106,945,389	76%	7.0%	479,003	71,850,375
2022	1,891,272	7.7645	4,320	304.25	376,821	1,431,919	114,648,024	77%	7.0%	459,353	68,902,928
2023	1,913,589	8.0828	4,497	316.72	388,126	1,474,877	122,929,050	77%	7.0%	438,712	65,806,843
2024	1,936,170	8.4166	4,683	329.81	399,769	1,519,123	131,846,201	78%	7.0%	417,046	62,556,950
2025	1,959,016	8.7651	4,877	343.46	411,762	1,564,697	141,423,773	78%	7.0%	394,319	59,147,916
2026	1,982,133	9.1297	5,080	357.75	424,115	1,611,638	151,726,212	79%	7.0%	370,495	55,574,238
2027	2,005,522	9.5104	5,292	372.67	436,839	1,659,987	162,794,790	79%	7.0%	345,535	51,830,243

Legend:

GROWTH RATE		**INITIAL INPUTS**	
GDP	See table 1 for yearly growth rates	Public Sector Employees	83,304
Population	1.18%	GDP (EURO bn)	6.38
Employed Persons	3.00%	Population	1,783,531
Average Wage (Annual)	See table 1 for yearly growth rates	Employed Persons	325,049
Costs of Health Care Package	See table 1 for yearly growth rates	Average Wage (Annual)	3,550.00
Public Sector Employees	1.00%	Costs of Health Care Package	250.00
		Costs of Health Care Package for Non-Contributors	150.00
		Covered Persons Multiplier	3.8

3. Rationale Behind German and UK Comparisons

From an analysis viewpoint, both German and UK healthcare systems are prime examples of successful universal coverage, though in set-up they do differ. While Kosovo is still pursuing initial steps of its universal healthcare system, it has a lot to learn from different funding perspectives and impacts they

may have upon its mandatory health insurance fund (HIF). Both these models are more complex in nature, and other models of health insurance systems may have attributes of one or of both of these, and some fragments of funding of structure for these two models provide a great starting point to research further possibilities for the evolution of HIF in Kosovo.

3.1 Ceiling Threshold Model - CTM

Under this model a ceiling cap approach is adopted, so that those that earn more than 5 times the minimum wage ("ceiling threshold") opt out of the HIF, and they and their families are exclusively covered through private insurance. According to Kosovo Census 2011, eight percent of those employed earned more than this ceiling threshold, approximately 26,004 persons. Allowing for covered-persons-multiplier of 3.8, it is implied that 26,004 * 3.8 = 98,815 persons are removed from HIF for contribution purposes; with 26,004 removed from employed persons list and 98,815-26,004 = 72,811 persons removed from the total population data. Table 3 below provides the forecasted growth scenario under this assumption. The following important remarks are observed:

- The 7% joint contribution is maintained.
- The overall funding into HIF is reduced slightly. We compare the overall contribution by adding columns 8 and 12, direct funding from the contributors and those covered by the government. In year 2017, in the standard model there is total of 163,513,970 Euros of contributions, whereas in CTM there is a total of 160,913,600 Euros. By year 2027 the total contributions under the standard model and CTM are forecasted to be 214,625,033 Euros and 209,240,279 Euros, respectively.
- The share of contributions coming from the private sector still increases under CTM, but its overall share is lower. Observing column 9, it is noticed that in year 2017 share of the contributions coming from the private sector is 74% under the standard model and 72% under CTM. By year 2027, the respective shares of contributions from the private sector under the standard model and CTM are 79% and 77%.

Table 3. Forecasted Growth Scenario, Ceiling Threshold Model

					Total Employment: 299045						
1	2	3	4	5	6	7	8	9	10	11	12
Year	Population	GDP	Average Wage	Cost of health package	Employment	Covered Persons	Total Cost	% from private sector	% of average wage	Non - Contributors	Cost for Non-Contributors
2017	1,710,720	6.3800	3,550	250.00	299,045	1,136,371	74,761,250	72%	7.0%	574,349	86,152,350
2018	1,730,906	6.6295	3,689	259.78	308,016	1,170,462	80,014,947	73%	7.0%	560,444	84,066,655
2019	1,751,331	6.8926	3,835	270.09	317,257	1,205,576	85,687,287	73%	7.0%	545,755	81,863,280
2020	1,771,997	7.1697	3,989	280.95	326,775	1,241,743	91,805,873	74%	7.0%	530,254	79,538,044
2021	1,792,906	7.4601	4,151	292.32	336,578	1,278,996	98,389,732	74%	7.0%	513,911	77,086,634
2022	1,814,063	7.7645	4,320	304.25	346,675	1,317,365	105,476,154	75%	7.0%	496,697	74,504,598
2023	1,835,469	8.0828	4,497	316.72	357,075	1,356,886	113,094,696	75%	7.0%	478,582	71,787,345
2024	1,857,127	8.4166	4,683	329.81	367,788	1,397,593	121,298,472	76%	7.0%	459,534	68,930,136
2025	1,879,041	8.7651	4,877	343.46	378,821	1,439,521	130,109,836	76%	7.0%	439,521	65,928,082
2026	1,901,214	9.1297	5,080	357.75	390,186	1,482,706	139,588,077	77%	7.0%	418,508	62,776,142
2027	1,923,648	9.5104	5,292	372.67	401,891	1,527,188	149,771,167	77%	7.0%	396,461	59,469,112

Legend:

GROWTH RATE		**INITIAL INPUTS**	
GDP	See table 1 for yearly growth rates	Public Sector Employees	83,304
Population	1.18%	GDP (EURO bn)	6.38
Employed Persons	3.00%	Population	1,710,720
Average Wage (Annual)	See table 1 for yearly growth rates	Employed Persons	299,045
Costs of Health Care Package	See table 1 for yearly growth rates	Average Wage (Annual)	3,550.00
Public Sector Employees	1.00%	Costs of Health Care Package	250.00
		Costs of Health Care Package for Non-Contributors	150.00
		Covered Persons Multiplier	3.8

3.2 Flooring Threshold Model - FTM

In this model those that earn below a certain threshold are exempt from contributions yet still enjoy its full benefits. The minimum threshold considered is the minimum wage for Kosovo, which currently stands at 170 Euros per month or 2,040 Euros per year. Data from Kosovo Census 2011 show that 22% of employed population earn less than the minimum wage, this amounts to a total of 71,511 employed persons being exempt from contributions, therefore the overall number of employed persons fall to 253,538. Allowing for covered-persons-multiplier of 3.8, it is implied that 71,511 * 3.8 = 271,741 more persons than in the standard model are covered by the government during the first year alone, thus increasing the burden and solidarity by all others. This scenario is presented in table 4 and leads to following implications and remarks:

- From columns 12 in the standard model (table 2) and FTM (table 4) can be observed that there would be an increase in the overall contributions into HIF, but this would come by extra numbers of non-contributors that would be financed by the government, and therefore place even more strain on its finances; with additional share of contributions by the government increasing from 82,251,720 Euros to 123,012,990 Euros (a difference of 40,761,150 Euros) in the first year alone. By year 2027 this difference would rise even further to 54,779,738 Euros.

- The overall contributions in the first year would be 183,397,490 Euros compared to 163,513,970 under the standard model, and by year 2027, total contributions into HIF 233,589,808 compared to 214,625,033 in the standard model.

- Share of contributions coming would be 67% in 2017, and would increase to 73% by year 2027.

Table 4. Forecasted Growth Scenario, Flooring Threshold Model

					Total Employment: 253538						
1	2	3	4	5	6	7	8	9	10	11	12
Year	Population	GDP	Average Wage	Cost of health package	Employment	Covered Persons	Total Cost	% from private sector	% of average wage	Non - Contributors	Cost for Non-Contributors
2017	1,783,531	6.3800	3,550	250.00	253,538	963,444	63,384,500	67%	7.0%	820,087	123,012,990
2018	1,804,577	6.6295	3,689	259.78	261,144	992,348	67,838,719	68%	7.0%	812,229	121,834,340
2019	1,825,871	6.8926	3,835	270.09	268,978	1,022,118	72,647,874	68%	7.0%	803,753	120,562,876
2020	1,847,416	7.1697	3,989	280.95	277,048	1,052,782	77,835,368	69%	7.0%	794,634	119,195,135
2021	1,869,215	7.4601	4,151	292.32	285,359	1,084,365	83,417,331	70%	7.0%	784,850	117,727,544
2022	1,891,272	7.7645	4,320	304.25	293,920	1,116,896	89,425,381	70%	7.0%	774,376	116,156,412
2023	1,913,589	8.0828	4,497	316.72	302,738	1,150,403	95,884,576	71%	7.0%	763,186	114,477,931
2024	1,936,170	8.4166	4,683	329.81	311,820	1,184,915	102,839,947	71%	7.0%	751,254	112,688,171
2025	1,959,016	8.7651	4,877	343.46	321,174	1,220,463	110,310,447	72%	7.0%	738,554	110,783,073
2026	1,982,133	9.1297	5,080	357.75	330,810	1,257,076	118,346,342	72%	7.0%	725,056	108,758,450
2027	2,005,522	9.5104	5,292	372.67	340,734	1,294,789	126,979,826	73%	7.0%	710,733	106,609,981

Legend:

GROWTH RATE		**INITIAL INPUTS**	
GDP	See table 1 for yearly growth rates	Public Sector Employees	83,304
Population	1.18%	GDP (EURO bn)	6.38
Employed Persons	3.00%	Population	1,783,531
Average Wage (Annual)	See table 1 for yearly growth rates	Employed Persons	253,538
Costs of Health Care Package	See table 1 for yearly growth rates	Average Wage (Annual)	3,550.00
Public Sector Employees	1.00%	Costs of Health Care Package	250.00
		Costs of Health Care Package for Non-Contributors	150.00
		Covered Persons Multiplier	3.8

4. Conclusions and Recommendations

As first choice the government should stay with the standard model, and should consider the Ceiling Threshold Model (CTM) only if it provides the necessary legal ground work for those earning more than five times the minimum wage to purchase mandatory 'higher earners health insurance'. The 'higher earners insurance' would provide the insurance market with an injection of income and thus provide a stimulus into more 'exotic' health insurance products. However, the government should not consider extending the base of persons that are exempt from contributions, under the Flooring Threshold Model (FTM), as it adds to its own financial strain and may be forced to increase taxation (in a very small and fragile economy) in order to meet its new obligations towards HIF. Instead, the government should work on increasing overall employment, thus ensuring more shared burden by those employed, a lower burden on its own finances, and perhaps more importantly a greater sense of ownership by the people and therefore more accountability.

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