

Does Fiscal Decentralization Nexus with Life Expectancy? Evidence from Pakistan

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¹Abstract:

The magnitude of this study is to explore association between fiscal decentralization and life expectancy in Pakistan. Panel data approach was used to detect the empirically friendship between life expectancy and fiscal decentralization over the period of 1990-2010 in Pakistan. Life expectancy is used as dependent variables. The results of empirical analysis suggest that there is **positive** association between fiscal decentralization and life expectancy in Pakistan.

Key words: **Fiscal decentralization, life expectancy, midwives, hospitals, registered doctors**

1. Introduction

Fiscal decentralization encompasses the allocation of monetary features to local and regional government. Fiscal decentralization describes mainly two problems. The first is the distribution of outlay tasks and income sources between national, regional and local authorities. The second is the amount of discretion given to regional and local governments to find their expenditures and revenues.

Therefore, fiscal decentralization plays a key role in each sector of economy; consequently many countries give their preferences in decentralization process over the last decade. The policy makers, economist, anthropologists, sociologists and researchers can capture advantage from process of fiscal decentralization. Giannoni and Hitiris, 2002; Cantarero, (2005) looked into the characteristics of fiscal decentralization and suggest that fiscal decentralization puts positive effect on health. Cantarero et. al (2008) suggested that life expectancy and infant mortality play significant roles in fiscal decentralization. They emphasize that local governments, planners and policy makers can improve efficiency as well as fairness and health outcomes of people by decentralization of fiscal policy. However, this study presents a minute experiential verification and analyzes the impact of the decentralization on life expectancy. This study is based on Pakistani provinces. The consequences of this experimental research suggest that fiscal decentralization has appropriate and significant impact on **the** life expectancy of human **beings**.

Khaleghian, 2004, Uchimura, and Jutting (2010), Robalino (2001) suggested that the main aim of decentralization is to provide more financial obligations and efficient services to health sector in local, regional and national levels of government. Nevertheless, Fiva, (2005) describes that there is a common findings in the research literature that local spending is more approachable to increases in international transfers and to bring improvement in health sector and this phenomenon is known as the *flypaper effect*.

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The benefits of decentralization are based on decision of policy making authorities. For this reason many authors are doubtful regarding the successful implementation of decentralization in less developing countries. This is so because in less developing countries policy makers have weaker administrative capacity as compared to developed countries (Khaleghian, 2004).

In light of the compelling theoretical arguments decentralization policy may not be successful without some limitations (Gravelle, 2003; Khaleghian, 2004). Regarding economies of scale, decentralization might generate inefficient location of facilities such as local electors erected hospitals at wrong locations. Finally, Mahal et al. (2000) use data from rural villages in India for 1970-94 and find positive impact of fiscal decentralization on child mortality. The statistical values of coefficients for decentralized states have the positive effect on indicators of health, while the election frequency variable has no effect on health. Asfaw et al. (2004) used the previous data 1970-1994 for rural India using an index of fiscal decentralization and his results show that effectiveness of fiscal decentralization is based on level of political decentralization. Habibi et al. (2003) study Argentinean provinces over the period 1970-1994 and their result shows that the percent of revenue raised locally and the percentage of revenue over the total have a negative and significant association with infant mortality rates.

Robalino et al., (2001) in his study used a panel data of low and high income countries and have found that there is negative association between fiscal decentralization and infant mortality rates during the period 1970-1995. The study of Yee (2001) over the period 1980-1993 suggests that the results of the fixed effects and random effects estimations for a panel data of Chinese provinces that fiscal decentralization is beneficial to the health sector in terms of reducing mortality rates and increasing local expenditure on health care.

Uchimura and Jütting (2009) study shows that fiscal decentralization of Chinese counties has negative relationship with infant mortality between 1995 and 2001. Finally, Cantarero and Pascual (2008) and Jiménez-Rubio (2010) also find an inverse relationship between fiscal decentralization and infant mortality rate. A few other studies such as Ebel and Yilmaz (2002) and Khaleghian (2004) find that positive relationship between decentralization and immunization coverage rates in six developing countries over the period 1970-1999.

The organization structure of this study is as follows. Section II represents structure of the model. III section depicts results of the empirical study. Finally, the concluding comments are given in Section IV.

II. Methodology

The central point of this realistic research is to assess the relationship between fiscal decentralization and life expectancy, where the fiscal decentralization measure the share of autonomous tax revenue of local government over the general government tax revenue. Fiscal decentralization put positive effect on life expectancy. Registered doctors, numeral of hospitals, and registered midwives are taken as explanatory variables. To examine the relationship, panel data of Pakistani provinces is used for the period 1990 -2010. Life expectancy shows the status of health. Life expectancy is an important gauge of health in a society (Robts, 2001). The structure and definition of variables is given as below:

Table. 1 Variables and definitions

Dependent Variables	Definitions	Source
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LNLFE	Logarithm of life expectancy.	Population Census of Pakistan
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Table.2

Independent Variables	Definitions	Source
LNRPCI	Logarithm of real per capita income	Economic Survey of Pakistan
LNNH	No of Hospitals	Economic Survey of Pakistan and Ministry of health, Finance Division
LNRD	Registered Doctors	Ministry of health and Pakistan Medical, Dental Council of Pakistan
LNRMW	Registered Midwives	Economic Survey and Ministry of health

Source: Authors own's Elaboration.

Precisely, it is difficult to find the measure of health care decentralization. Government of Pakistan spends very little bit percentage of GDP on health.

The following health production function in previous studies (e.g. Uchimura and Jutting (2009), Or (2005)), then general model is given below as:

$$H_t = \alpha + \beta_1 X_t + \beta_2 Z_t + \epsilon_t \quad \text{----- (1)}$$

Where t represents time, H denotes health status, X denotes the fiscal decentralization and Z denotes a vector of control variables employed in the estimations.

Thus mechanism of dependent and explanatory variables is written as:

$$\ln LFE_t = \alpha + \beta_1 \ln RPCI_{rt} + \beta_2 NH_{rt} + \beta_3 RD_{rt} + \beta_4 RMW_{rt} + \lambda_{rt} \quad \text{----- (2)}$$

Where LFE_t denotes life expectancy in logarithm form; $RPCI_t$:shows real per capita income in logarithm form; RD_t represents registered doctors in logarithms; NH_t represents no of hospital; RMW_t shows registered midwives represents acute care beds (density per 1000 population): λ_{rt} stand for the standard residual. It has zero mean. It is uncorrelated with other independent variables. Where r shows homoskedastic and t is time from 1990 to 2010.

III. Results and Discussions

In this section, results of estimation of life expectancy and fiscal decentralization in provinces of Pakistan are presented. STATA 12.0 is used to carry out the analysis. The standard panel data techniques are used to detect the association between dependent and independent variables for the econometric estimation. Panel data has an

advantage over cross sectional data by controlling individual heterogeneity (Greene, 2003). Mostly, panel data is used to find fixed effects, while Hausman's test is used to find random effects. The results of estimation are represented in Tables 2. It is very interesting to point out that the results show that RPCI, NH, RMW and RD are positively associated to life expectancy. Finally, R^2 shows the levels of explanation, which is acceptable. The log of variables has been taken for smoothness. The sign of variables are also acceptable but some variables are significant, while resting all are of statistical insignificance. By this reasons very low percentage of GDP is being spent on explanatory variables.

Table 2. Results

Dependent variable: Log of life expectancy

Variables	Fixed Effects	Random effects
RPCI	0.0341	0.0342
t-Statistic	13.47	(14.62)
NH	0.0002	0.0002
t-Statistic	(1.52)	(0.98)
RD	0.0045	0.004
t-Statistic	(1.73)	(1.46)
RMW	0.0075	0.0088
t-Statistic	(2.42)	(2.34)
R^2 : within	0.7347	0.765
R^2 : between	0.2822	0.235
R^2 : overall	0.6370	0.567
F-Statistic and Prob	2228.72 (0.0000)	
Wald chi2 statistic		736.62
Prob (Chi2)		(0.000)
Hausman statistic	64.32	
Prob (Hausman)	(0.000)	

IV. Conclusions

The study explores the association between dependent and explanatory variables. The appropriate indicator of health is life expectancy which is positively related to real per capita income, registered doctors, number of hospitals and registered midwives but numbers of hospitals are statistically insignificant. Some explanatory variables are insignificant; this is so because a little bit percentage of GDP is being spend on these variables. Furthermore, the results of the econometric estimations suggest that fiscal decentralization is positively associated to life expectancy in Pakistan to some extent. These consequences should be used in order to make adequate health policies in provinces of Pakistan. If government spends more percentage of GDP in health sector, then health of nation would be better and they can perform very better role to improve level of economy.

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