Poverty and Child Immunization in Pakistan

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Abstract

The purpose of the study was to investigate the association between poverty and Children immunizations in Pakistan. Using the data of 23 years from 1980-2012, which was collected from World Development Indicator (WDI), the Regression technique was employed for the analysis of data. The result of the study revealed that expenditure on health enhances child immunization. Furthermore, household consumption and population growth rate condense child immunization in the country. It has suggested that government need to allocate more budgets for health sector to increase child immunization. Through demonstration effect in our society encouraged to control un-necessary spending and government need to launch saving scheme that people should save more and later on use that savings for productive purpose. Government’s need some serious measures to control rapid population growth rate in Pakistan.

Keywords: Child Immunization, Poverty, Regression Analysis, Pakistan

1. Introduction

Vaccination is the method whereby an individual is made insusceptible or restricted to an irresistible illness and various kinds of diseases, regularly by the course of an immunization. Vaccinations stimulate the body's insusceptible structure to protect the single person against the additional in factious diseases, for example, diphtheria, pertussis, measles, tetanus, Hepatitis B, polio and tuberculosis (WHO, 2010).

Children’s are likewise more defenseless than grown-ups and the family's poor investment status affects children’s health destructively through lack of healthy food, poor hygienic conditions, absence of mindfulness and absence of health administrations. Since the turn of the twentieth century newborn child and child mortality in more created nations has reluctantly declined and right now has been decreased to just about negligible levels. Be that as it may, in Pakistan, this circumstance is not guaranteeing, baby mortality around 70 for every 1000 live births in 2005-06, was impressively far short of the sought targets set for the Millennium Development Goals (Mdgs).

Poorly health and overwhelming infections are commonly more reported reason for dismalness and mortality. One of the important underlying variables in most creating nations is the unregulated fruitfulness that influences maternal health and reduces the potential for sound newborn children mind. It is in this manner, essential to note that the health issues of mothers, children and newborn children are identified with the sick impacts of hunger, unregulated fruitfulness together with poor socio-monetary state of ladies, including the shortage of health offices and other social welfare (Joshi 1999). Likewise, Jamison et al., (2006) found that the Expanded Program on Immunization (EPI) has been started by the World Health Organization (WHO) in May 1974 so that world over children’s could be immunized through this project. By utilizing review and record measures it has been watched that expand in immunization is critical from 2008 to 2009 and afterward 2010 to 2011 in rural areas that were 74 to 79 percent, in as much as there was likewise build

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in urban regions from 60 to 62 percent from 2008 to 2009 than 2010 to 2011. In the year 2008 to 2009 rural zones was 40 percent though it was expanded to 49 percent in 2010 to 2011.

Vaccines are among the best corrective action. Proper immunization is presented for babies with the goal that they could utilize it as a part of routine which at last brought about massive decline of immunization procedure against preventable diseases. Since the begin of the extended program on vaccination in center and lower wage nations, worth specifying passing rate of 2 million have been diminished from Tuberculosis, Diphtheria, Tetanus, Peruses, Polio, and Measles. UNICEF (2002) reported that for the most part solution additionally have symptoms and immunizations are likewise not mischief free in regards to reaction and this is likewise a huge reason that folks keep away from their children to be immunized. Basically it has been watched that symptoms related immunizations are anaphylaxis, aggravation at inoculated territory, may be fever for few days and so forth. The immunization impacts like irritation don't live there for a long time and temperature likewise does not shows up to 10 days in the event of inoculation against whooping hack, polio, tetanus and diphtheria. Further this report highlighted that 30 percent of the aggregate universe of 515000 maternal passing’s happens in consistently in South Asian nations. The passing rate of moms in Pakistan is essentially high. 340 passing from 100,000 live births in Pakistan is unmistakable contrast as analyze the West, where just six get vanish of 100,000. The thrust of this study is to measure the relationship of poverty and immunization of children in Pakistan.

2. Literature Review

Danish & Ayaz (2014) documented child immunization and its association with the household, socio demographic characteristics which effect child immunization of children aged 12 to 23 months Pakistan. The analysis in this study is based on the Household level data taken from the Pakistan Social and Living Standard Measurement Survey (PSLM) 2010 - 2011 carried out by the Federal Bureau of Statistic, Government of Pakistan. The results indicate that in case of child immunization, not only child’s age, but also child’s gender, resident of the child and he/she parents education, household income and family size plays a significant role. The gender differentials are more prominent in rural areas where negative impact on child immunization also exists due to the higher income inequality, among, household. The analysis of socio demographic characteristic provides the researchers, educationists and policy makers with a critical review of the issues at hand, so that appropriate policies and programmers can be designed for increasing child immunization in the country.

Uzma and Butt (2008) highlighted distinctive socio monetary variables and children mortality with respect to different age level in Pakistan. They attempt to test the part of family units and explosion of children mortality. Additionally, Asma & Arif (2012) focus the monetary, demographic, ecological and geological variables of children dreariness among the sampled children’s. It has confirmed the positive role of components incorporating land and animals regarding children health. Arif (2004) has inspected the health status of Pakistani children utilizing two vital pointers, horribleness and unhealthiness measured by weight for age and stature for age. Vaccinated children were more reluctant to be wiped out contrasted with the individuals who did not have immunization. Babies of working mothers were at more serious danger of being injured intimating these mothers had less time for children care. Suzy, et al (2005) found that when children’s needed to send to healing facility or wellbeing office for breath related issue than 58.5 percent kids lay open to get check vaccination status. Koehlmoos (2011) showed that for annihilation of measles 90 to 95 percent medicine needed through immunization. The measles rate in Bangladesh at present arrived at to 80%-85% percent. Victor & Chatterjee, (2003) said that tremendous data related vaccination and immunization is available on the site in everywhere throughout the world. Bawah (2006) showed reliably that parental neediness and low instructive achievement unfavorably influence children survival. Wallace & et al., (2012) examined distinctive reports related program and administrations gave related immunization. These reports have been completely examined by diaries database, sites and associations with concerned affiliations. Gordon et al (2005) evaluated the impact of resources and families' structure on vaccination, different family units like individuals, dual folks and broadened, likewise measured wage level and its impact on
immunization. Dayrit, (1999) discovered throughout a group based examination extend that kid immunization developing projects and diarrheal ailments are managed by more than 80 percent center directors and cutting edge health care experts.

Dobson et al., (1993) found that irresistible problem of kids like diphtheria, tetanus; poliomyelitis, purulent meningitis, measles, mumps and rubella are the primary driver of expanded disease and passing rate among children’s. Brodovich et al., (1985) found in their examination that children essential prerequisite is to get immunized in time particularly there ought not to be any issue with kids who don’t have expected weight; immunization must be carried out at the sequential age.

Look into all through Africa has demonstrated that parental destitution and low educational achievement are violently connected with the survival of children’s (Muhuri 1995; Nathan et al. 2005). Broad investigative confirmation likewise shows that minimal effort antibodies are feasible in decrease children mortality (Nyarko et al. 2001). In this way, the poor children survival impacts of poverty and low parental educational are broadly thought to be balanced by the advancement of thorough children Immunization (Sachs and Macarthur 2005), and immunization has turned into a basic part of approaches that intend to address health inequity (Gwatkin et al. 2005). Regardless, an examination of the effect of vaccination on the relationship in the middle of poverty and children survival ought to be evaluating straightforwardly. Health conditions, especially for children’s, are compounding all through sub-Saharan Africa in spite of the across the board advancement of immunization in the surroundings (Ahmad et al. 2000; Black et al. 2003; Hill 1993). Extrapolations of patterns propose that the Millennium Development Goals (Mdgs) for children survival are not being accomplished (Sahn and Stifel 2003).

Thattakkat, et al (2006) analyzed immunization with reference to hospitalization and transfers cases to see unfavorable occasions. An arrangement of immunized children’s has been defined in the wake of getting mechanisms agree and mobilization in the district of the healing facilities throughout one year. Moreover, study characterized healing facility based vaccination is not proper and there is have to sharpen open about this vital viewpoint. Biswas (2001) analyzed the scope of children vaccination and attempted to distinguish the variables influencing the acknowledgement of immunization practice among children’s.

3. Data Source and Model

The study at hand explores the relationship between Poverty and child immunization specifically. Biwas et al. (2011) use multinomial logistic Regression; Asim et al. (2010) used chil-square, for the study of child immunization. Modifying the model in this study Regression approach is adopted for the analysis.

\[ \ln \text{C.Immu} = \alpha + \beta_1 \ln \text{Uempl.}+ \beta_2 \ln \text{GDP PC} + \beta_3 \ln \text{pop.} + \beta_4 \ln \text{H.Exp} + \mu \]

Where, \( \ln \text{C.immu} \) is the natural log of child immunization, \( \ln \text{Uempl.} \) is the natural log of employment, \( \ln \text{GDP PC} \) is the natural log of GDP per capita, \( \ln \text{pop.} \) is the natural log of population growth rate and \( \ln \text{H.exp} \) is the natural log of Health expenditure. The time series data for the period 1990–2012 for the underlying study have been collected from the World Development Indicator (WDI).

4. Results and Discussions

Nonetheless, the use of time series data for analysis calls for testing of stationary of all the variables. This is an essential requirement for avoiding the problem of spurious regression. If the variables are non-stationary and are still used in the level form, then the coefficients obtained as a result of Ordinary Least Square (OLS) regression will be meaningless. One may argue that these variables can be made stationary by differencing. Thus, there is a need for a methodology that can use the variables in the level form, so that the long-run information is contained, and can avoid the problem of spurious regression at the same time.
Table 1: Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>Gdppercapita</th>
<th>Cimmun</th>
<th>Healthexpe</th>
<th>Unemp</th>
<th>Pop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>0.790348</td>
<td>4.127251</td>
<td>2.979578</td>
<td>1.770173</td>
<td>0.762757</td>
</tr>
<tr>
<td>Median</td>
<td>0.747134</td>
<td>4.110874</td>
<td>2.748909</td>
<td>1.757858</td>
<td>0.733032</td>
</tr>
<tr>
<td>Maximum</td>
<td>1.748380</td>
<td>4.418841</td>
<td>3.688879</td>
<td>2.054124</td>
<td>0.980332</td>
</tr>
<tr>
<td>Minimum</td>
<td>-0.034546</td>
<td>3.850148</td>
<td>2.566667</td>
<td>1.458615</td>
<td>0.521833</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>0.602117</td>
<td>0.186570</td>
<td>0.375800</td>
<td>0.190541</td>
<td>0.179627</td>
</tr>
<tr>
<td>Skewness</td>
<td>0.266576</td>
<td>0.293841</td>
<td>0.768080</td>
<td>0.047124</td>
<td>0.046743</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>1.747923</td>
<td>1.689214</td>
<td>1.994171</td>
<td>1.866525</td>
<td>1.223456</td>
</tr>
<tr>
<td>Jarque-Bera</td>
<td>1.466126</td>
<td>1.633628</td>
<td>2.669087</td>
<td>1.024139</td>
<td>2.505504</td>
</tr>
</tbody>
</table>

The use of time series data necessitates the investigation of unit roots in variables as a first step. Therefore, following Dickey and Fuller (1979), the study uses the augmented Dickey–Fuller (ADF) test in order to identify the order of integration of the variables. It is evident from the Table 2 that all the variables are non-stationary at level but stationary at first difference. Hence, ADF test confirmed that all the series are integrated of order one. Once the order of integration of variables is identified, the next step is to investigate whether or not there is a relationship among these variables.

Table 2: Stationary ADF test results

<table>
<thead>
<tr>
<th>Variable</th>
<th>1%</th>
<th>5%</th>
<th>t-value</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gdppercapita</td>
<td>-3.92</td>
<td>-3.06</td>
<td>-4.01</td>
<td>0.0084</td>
</tr>
<tr>
<td>Hconsumption</td>
<td>-4.0044</td>
<td>-3.0988</td>
<td>-4.70</td>
<td>0.0029</td>
</tr>
<tr>
<td>Healthexpenditure</td>
<td>-3.95</td>
<td>-3.08</td>
<td>-3.45</td>
<td>0.0252</td>
</tr>
<tr>
<td>Population Growth</td>
<td>-3.80</td>
<td>-3.02</td>
<td>-7.87</td>
<td>0.0000</td>
</tr>
<tr>
<td>Immunization</td>
<td>-3.78</td>
<td>-3.01</td>
<td>-5.69</td>
<td>0.0002</td>
</tr>
</tbody>
</table>

The results in the table 03 highlighted that the co-efficient of GDPPERCAPITA is 0.001096 but the t-value is 0.9654 which confirm the insignificant relationship between the income of individual household and child immunization. While the co-efficient of household consumption is -0.0373 in the model and the t-value is -2.46, indicate that there is significant relationship between household consumption and child immunization in Pakistan. Child immunization is decreased by 3% with 1% increase in household consumption, so the household consumption have negative on child immunization. The co-efficient value of Health Expenditure in the table is 0.30 while the t-value is 4.34, which confirm positive and significant relationship between expenditure on health and child immunization. Furthermore, 1% increases in expenditure on health, the child immunization increased by 30%. In the same way, the co-efficient of Population growth rate is -0.42 and the t-value is -3 which means population growth is significant but negatively associated with child immunization in Pakistan. 1% increase in population growth rate would decrease the child immunization by 42%.

R-square is 0.93 which shows that 93 % of variation in Child immunization is due to the dependent variable and the remaining is due to some other factors.
Table 3: Regression Matrix

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>3.553111</td>
<td>0.304146</td>
<td>11.68227</td>
<td>0.0000</td>
</tr>
<tr>
<td>Gdppercapita</td>
<td>0.001096</td>
<td>0.024856</td>
<td>0.044102</td>
<td>0.9654</td>
</tr>
<tr>
<td>Hconsumption</td>
<td>-0.037327</td>
<td>0.015000</td>
<td>-2.488466</td>
<td>0.0047</td>
</tr>
<tr>
<td>Healthexpenditure</td>
<td>0.309186</td>
<td>0.071133</td>
<td>4.346588</td>
<td>0.0007</td>
</tr>
<tr>
<td>Population Growth</td>
<td>-0.423763</td>
<td>0.140815</td>
<td>-3.009368</td>
<td>0.0094</td>
</tr>
</tbody>
</table>

R-squared: 0.932488  Mean dependent var: 4.109542
Adjusted R-squared: 0.913199  S.D. dependent var: 0.190352
S.E. of regression: 0.056082  Akaike info criterion: -2.703079
Sum squared resid: 0.044032  Schwarz criterion: -2.454542
Log likelihood: 30.67925  Hannan-Quinn criter.: -2.661016
F-statistic: 48.34244  Durbin-Watson stat: 2.032311
Prob(F-statistic): 0.000000

5. Conclusion

The purpose of the study was to investigate the relationship between poverty and child immunization. Population growth rate, health expenditure, unemployment and GDP per Capita are used to measure the poverty in the model. The results of the study revealed that there is no relationship of between GDP per capita and Child immunization in Pakistan. Also it has observed from the underline study that Health expenditure enhance Child Immunization. It is a common observation that spending more on health would improve the welling being of the children the process of child immunization should be enhance through allocating more and more budget to Health sector. Furthermore, the findings of the study show that household consumption and population growth rate tetrads child immunization in Pakistan. Keeping in view the finding of the study it has suggested that government need to allocate more budgets for health sector to increase child immunization. Through demonstration effect in our society encouraged to a control un-necessary spending and government need to launch saving scheme that people should save more and later on use that savings for productive purpose. Government’s need some serious measures to control rapid population growth rate in Pakistan.

References:


