AN EMPIRICAL STUDY OF THE IMPACT OF IGNWPS PROGRAMME ON HOUSEHOLD CONSUMPTION EXPENDITURE

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Abstract: This study has been undertaken to evaluate the impact of Indira Gandhi National Widow Pension Scheme (IGNWPS) on the household consumption expenditure. The present study uses IHDS round I (2004-2005) and IHDS round II (2011-2012) data on the IGNWPS beneficiaries. A difference in difference model frame work has been employed to analyze the impact of the programme on the consumption expenditure of the household. A set of covariates are also used for the analysis purpose. The study found an evidence for positive impact of the IGNWPS on the consumption expenditure of the programme beneficiary households.

Index Terms **- Impact analysis, IGNWPS, Consumption Expenditure, Difference-in- Difference**

I. INTRODUCTION

India's approach to fight against the poverty and to ensure a minimum standard of living for its citizens, we stress on the targeted noncontributory cash transfers, generally called "Social Pension" in India. The social pensions are provided to specific social groups- the elderly, widows and disabled- but are small by comparison. The Indira Gandhi National Widow Pension Scheme (IGNWPS) is one of the wide spread pension scheme in India, aimed to ensure the social benefit of widows. The scheme was launched by the central government in 1995 as a part of the National Social Assistance Programme. Based on the eligibility criteria, a widow with age of 40 years and above in the BPL category are eligible for a monthly pension of 300 rupees provided by the central government.

Increasing longevity, decreasing fertility, perishment of age-old family system and increasing inequality necessitate strengthening our national pension framework. India's pension system is currently facing various changes in terms of new programme additions and merging of existing programs. While our social pension system faces these changes, it is important to analyze the impact of these existing pension system on its beneficiaries to make an appropriate decision regarding changes and improvements to be introduced in these programs in order to make them more efficient. Thus, the present study is an attempt for analyze the impact of IGNWPS on household consumption expenditure**.**

II. THEORETICAL AND EMPIRICAL LITERATURE

A number of theories tries to explain the social, economic and critical reasons for social security programs. According to the optimal distributional theory the social assistance in terms of poverty alleviation and social pensions helps in the resources transfer from the younger generations to the older generation. This ensures the welfare of the older generations (Sala-i-Martin, 1996). The intrafamily bargaining hypothesis (Chiappori 1997), states that elderly people seek to improve their own interests when they obtain more economic resources of their own. These additional economic resources increase their self-esteem and they may get more respect from the other members. The joint utility maximization theory suggests that the pension beneficiaries share the benefit of the pension programme with the other household members and with the pension not only the particular individual but the entire family get benefited. Family economics offers various estimates of the extent to which children and grandchildren share pension income. Bestangli et al. (2016) explained the theory of change behind cash transfer programme on the consumption expenditure. The most immediate response of recipients to a cash transfer programme is to increase their general household consumption expenditure, food expenditure, and spending on other necessities. The arrival of additional income also eases the money deficit faced by the household, and this can have a positive effect on the household assets.

It was explained in many previous works that compare to men; women suffer more after the loss of their partner. Also, they tend to be more depend or their children or relatives for living. Posel et al. (2006) provides the evidence that after the introduction of a social pension program in South African women were more likely to migrate, perhaps become more independent and they share more of their pension incomes with the younger generations. Duflo (2000) analyzed the effect of the Old Age Pension programme in South Africa which took place in the early 1990's on child health. The results show a positive impact of the Old Age Pension programme on the health and nutrition of children. The impact is higher when the pension was received by women than men. However, the pension had an effect on the nutrition of female children, only when it was received by a woman.

Considering Indian studies, Rajan (2001) scrutinizes the effectiveness of National Social Assistance Scheme and its components on poor elderly in India. The paper criticizes the programme on the basis of the adequacy of the amount received and identifying the beneficiaries. They conclude by suggesting revamping the social security schemes with new eligibility conditions and an increase in the pension amount received. Garroway (2013) has conducted an ex-post evaluation of the National Social Assistance Programme (NSAP) using Indian Human Development Survey (IHDS) I (2004-05) data. The study found a positive impact on household consumption expenditure by the widow pension scheme.

III. RESEARCH METHODOLOGY

The present study uses the two rounds of India Human Development Survey data, conducted in 2004-2005 and 2011-2012. This survey is a nationally representative, multi topic panel survey of 42,152 households in 384 districts, 1420 villages and 1042 urban neighborhoods across India. 83% of individuals interviewed as part of IHDS-II were interviewed for the first time in 2004-2005 as part of IHDS-I. For the analysis we use only those households who are interviewed both the rounds. Also, we dropped the information on the individuals who received the program treatment in IHDS round I in order to estimate the pure impact of the programme. Thus, our treatment group will be those households who joined the programme after IHDS round I. After eliminating the missing observations our sample size was 67453.

The difference in difference model that we used for the present analysis can be represented as the follows:

$$Outcome\ var = \beta_0 + \beta_1 * t_i + \beta_2 * T_i + \beta_3 * t_i * T_i + \beta_4 X_i + e_i$$

t = 0 for IHDS I
= 1 for IHDS II
T = 0 for IGNWPS non beneficiary
= 1 for IGNWPS beneficiary
X = a vector of household characteristics.

- β_0 – the mean outcome of the control group at the baseline.
- $\beta_0 + \beta_1$ – the mean outcome of the control group in the follow-up.
- β_2 - the single difference between the treated and the control groups at the baseline.
- $\beta_0 + \beta_2$ - the mean outcome of the treated group at the baseline.
- $\beta_0 + \beta_1 + \beta_2 + \beta_3$ - the mean outcome of the treated group in the follow-up.
- β_3 - the DID estimated or the programme impact estimated.

IV. EMPIRICAL ANALYSIS

The Table 1 provides the descriptive statistics of the sample as a whole. The variable SURVEY is a binary variable which assumes value 0 for IHDS round I and the value 1 for IHDS round II. The variable T indicates the household is an IGNWPS beneficiary or not. It assumes value 1 for the beneficiary (treatment group) and 0 for the non-beneficiary (control group). L_MC_P, L_MFC_P and L_MNFC_P are the dependent variable for the analysis. All the other variables are the covariates that we used for the estimation.

Table 1: Overall Descriptive Statistics

Variable	Description	Observations	Mean	Std. Dev.	Min	Max
SURVEY	IHDS I or IHDS II	67,453	0.504	0.500	0	1
T	Beneficiary or Non-Beneficiary	67,453	0.046	0.210	0	1
L_MC_P	Log of per capita monthly consumption expenditure	67,453	7.282	0.699	4.853	11.338
L_MFC_P	Log of per capita monthly food consumption expenditure	67,453	6.524	0.523	2.653	9.142
L_MNFC_P	Log of per capita monthly non-food expenditure	67,453	6.531	0.957	2.313	11.334
BPL	Have BPL card	67,453	0.337	0.473	0	1
Antodaya	Have Antodaya card	67,453	0.040	0.197	0	1
HEM	Have an elderly member in the family	67,453	0.376	0.484	0	1
HH_EDU	Highest education in the HH	67,453	1.777	1.047	0	3
news_W	Women have access to news paper	67,453	0.299	0.458	0	1
NPERSONS	Number of persons in the HH	67,453	5.408	2.700	1	21

The Table 2 provides the descriptive statistics of the treatment and control groups separately.

Thus, we have the data on 1553 household who participated in the IGNWPS after IHDS round I and this is our treatment group. The control group consist of 64347 observations in total for both the rounds.

Table 2: Descriptive statistics- Beneficiary and Non-beneficiary

Variable	Non-Beneficiary					Beneficiary				
	Obs.	Mean	Std. Dev.	Min	Max	Obs.	Mean	Std. Dev.	Min	Max
L_MC_P	64,347	7.290	0.700	4.853	11.338	3,106	7.116	0.654	5.007	10.671
L_MFC_P	64,347	6.530	0.522	2.653	9.142	3,106	6.399	0.520	4.638	8.444
L_MNFC_P	64,347	6.541	0.958	2.313	11.334	3,106	6.328	0.899	3.126	10.590
BPL	64,347	0.329	0.470	0	1	3,106	0.499	0.500	0	1
Antodaya	64,347	0.038	0.192	0	1	3,106	0.085	0.278	0	1
HEM	64,347	0.368	0.482	0	1	3,106	0.540	0.498	0	1
HH_EDU	64,347	1.792	1.044	0	3	3,106	1.473	1.080	0	3
NPERSONS	64,347	5.422	2.702	1	21	3,106	5.125	2.635	1	20

A difference-in-difference have been done with the help of a set of covariates which will indicate the household characteristics. Three models have been chosen for the impact analysis; each model for each dependent variable. The model I indicates impact on log of monthly consumption per capita expenditure (Table 3), the model II indicates the impact on log of monthly food consumption per capita expenditure (Table 4) and finally, model II indicates the impact on log of monthly non-food consumption per capita expenditure (Table 5).

Table 3: Impact on the monthly consumption expenditure per capita expenditure (Model I)

REPORT - COVARIATES AND COEFFICIENTICIENTS				
Variable(s)	**Coefficient**	**Std. Err.**	**t**	**P>|t|**
BPL	-0.202	0.005	-41.728	0.000
Antodaya	-0.296	0.011	-25.85	0.000
HEM	0.033	0.005	7.003	0.000
HH_EDU	0.167	0.002	68.904	0.000
news_W	0.334	0.005	61.433	0.000
NPERSONS	-0.079	0.001	-92.557	0.000
DIFFERENCE-IN-DIFFERENCES ESTIMATION				
Outcome var.	**L_MC_P**	**S. Err.**	**t**	**P>|t|**
Baseline				
Control (β_0)	7.27			
Treated ($\beta_0 + \beta_2$)	7.184			
Diff (β_2)	-0.086	0.015	-5.78	0.000***
Follow-up				
Control ($\beta_0 + \beta_1$)	7.497			
Treated ($\beta_0 + \beta_1 + \beta_2 + \beta_3$)	7.442			
Diff (β_3)	-0.055	0.015	-3.7	0.000***
Diff-in-Diff	0.031	0.021	1.49	0.136
R-square:	0.33			
No. of obs.	67453			

Note: Means and Standard Errors are estimated by linear regression
**Inference: *** p<0.01; ** p<0.05; * p<0.1

The Table 3 shows the impact on consumption per capita expenditure. All the chosen covariates are found to be significant for the analysis of model I. In the difference-in difference analysis the impact is 0.031 percent. That is the treatment group have a positive impact of 0.031 per cent in the monthly consumption expenditure per capita compare to the control group. However, the value is statistically significant.

Table 4: Impact on the monthly food consumption per capita expenditure (Model II)

REPORT - COVARIATES AND COEFFICIENTICIENTS				
Variable(s)	**Coefficient.**	**Std. Err.**	**t**	**P>|t|**
BPL	-0.191	0.004	-51.273	0.000
Antodaya	-0.301	0.009	-34.175	0.000
HEM	0.022	0.004	6.267	0.000
HH_EDU	0.100	0.002	53.694	0.000
news_W	0.193	0.004	46.123	0.000
NPERSONS	-0.066	0.001	-101.073	0.000
DIFFERENCE-IN-DIFFERENCES ESTIMATION				
Outcome var.	**L_MFC_P**	**S. Err.**	**t**	**P>|t|**
Baseline				
Control (β_0)	6.651			
Treated ($\beta_0 + \beta_2$)	6.585			
Diff (β_2)	-0.066	0.011	-5.75	0.000***
Follow-up				
Control ($\beta_0 + \beta_1$)	6.785			
Treated ($\beta_0 + \beta_1 + \beta_2 + \beta_3$)	6.734			
Diff (β_3)	-0.051	0.011	-4.44	0.000***
Diff-in-Diff	0.015	0.016	0.95	0.340
R-square:	0.30			
No. of obs.	67453			

Note: Means and Standard Errors are estimated by linear regression
**Inference: *** p<0.01; ** p<0.05; * p<0.1

Table 4 shows the analysis of model II. The report on the covariates shows the selected covariates are significant for the analysis. The DID part shows a positive impact of 0.015 per cent increase in the food consumption per capita in comparison to the control group. But the DID estimate is not statistically significant.

Table 5: Impact on the monthly non-food consumption per capita expenditure (Model III)

REPORT - COVARIATES AND COEFFICIENTICIENTS				
Variable(s)	**Coefficient.**	**Std. Err.**	**t**	**P>|t|**
BPL	-0.212	0.007	-31.355	0.000
Antodaya	-0.284	0.016	-17.804	0.000
HEM	0.038	0.007	5.898	0.000
HH_EDU	0.235	0.003	69.757	0.000
news_W	0.467	0.008	61.508	0.000
NPERSONS	-0.089	0.001	-74.772	0.000
DIFFERENCE-IN-DIFFERENCES ESTIMATION				
Outcome var.	**L_MNFC_P**	**S. Err.**	**t**	**P>|t|**
Baseline				
Control (β_0)	6.354			
Treated ($\beta_0 + \beta_2$)	6.251			
Diff (β_2)	-0.103	0.021	-4.94	0.000***
Follow-up				
Control ($\beta_0 + \beta_1$)	6.698			
Treated ($\beta_0 + \beta_1 + \beta_2 + \beta_3$)	6.644			
Diff (β_3)	-0.054	0.021	-2.61	0.009***
Diff-in-Diff	0.049	0.029	1.67	0.096*
R-square:	0.31			
No. of obs.	67453			

**Inference: *** p<0.01; ** p<0.05; * p<0.1

Table 5 shows the analysis of the model II. In this model all the covariates used for estimation are significant. The DID estimated for this model is 0.049 and it significant at 10 per cent. This indicates that IGNWPS have a significant positive impact on the monthly non-food consumption per capita expenditure.

Finally, to check the robustness of our analysis a balancing test have been conducted for each model. The results of the analysis are given in Table 6. It indicates the mean values of the treatment and control groups are different and it is statistically significant.

Table 6: Balancing test results

	Variable(s)	Mean Control	Mean Treated	Diff.	|t|	Pr (|T|>|t|)
Model I	L_MC_P	7.126	6.955	-0.171	9.66	0.0000***
	BPL	0.320	0.471	0.151	12.40	0.0000***
	Antodaya	0.020	0.044	0.024	6.45	0.0000***
	HEM	0.352	0.470	0.119	9.49	0.0000***
	HH_EDU	1.727	1.415	-0.312	11.38	0.0000***
	news_W	0.286	0.193	-0.093	7.93	0.0000***
	NPERSONS	5.922	5.517	-0.405	5.24	0.0000***
Model II	L_MFC_P	6.426	6.304	-0.122	9.19	0.0000***
	BPL	0.320	0.471	0.151	12.40	0.0000***
	Antodaya	0.020	0.044	0.024	6.45	0.0000***
	HEM	0.352	0.470	0.119	9.49	0.0000***
	HH_EDU	1.727	1.415	-0.312	11.38	0.0000***
	news_W	0.286	0.193	-0.093	7.93	0.0000***
	NPERSONS	5.922	5.517	-0.405	5.24	0.0000***
Model II	L_MNFC_P	6.306	6.088	-0.218	8.66	0.0000***
	BPL	0.320	0.471	0.151	12.40	0.0000***
	Antodaya	0.020	0.044	0.024	6.45	0.0000***
	HEM	0.352	0.470	0.119	9.49	0.0000***
	HH_EDU	1.727	1.415	-0.312	11.38	0.0000***
	news_W	0.286	0.193	-0.093	7.93	0.0000***
	NPERSONS	5.922	5.517	-0.405	5.24	0.0000***

*** p<0.01; ** p<0.05; * p<0.1

V. CONCLUSION

The estimation of this study indicates that the IGNWPS have a positive impact on the household consumption expenditure. Even though all the DID estimates are came as positive only the household non-food consumption expenditure per capita came as positive and significant. Thus, the IGNWPS is effective in order to increase the welfare of its beneficiaries if we analyze them by the consumption expenditure.

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