PFRDA(WPS):2022-23(2)

PFRDA WORKING PAPER SERIES

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SEPTEMBER 2022

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Pension for the Common Person: Progress of Atal Pension Yojana

By

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Abstract

Atal Pension Yojana (APY), a minimum guaranteed flagship pension scheme of the Government, has made old-age income security accessible to the common person. Enrolment numbers crossed the four crore mark in 2021-22 with good spatial distribution and also gender and age balance. Empirical exercise in this paper shows that state-level per capita income and spread of banking infrastructure, particularly banking facilities to the under-privileged through PMJDY accounts, are the key determinants of APY expansion across states.

JEL Classification: H55, C31

Key Words: APY, Income-Security, Pension

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The authors are grateful to Shri Supratim Bandyopadhyay, Chairperson, PFRDA for his insights and suggestions during the course of this research.

I. Introduction

India is a populous-young country, with a median age of 29 years. Its economic structure is increasingly being dominated by the services sector with a corresponding reduction in the share of agriculture. It, however, continues to be rural in nature; still, half of its population is dependent on agriculture for its sustenance. Even the services sector as also industry are largely dominated by the informal-sector and small businesses. Thus, the overwhelming part of the labor force is underlined by its unorganized nature. Hence the bulk of the labor force is not entitled to any employer-driven social security benefits. In this scenario, providing some form of pension and old-age income security becomes a huge challenge as relatively a very small proportion of the workforce is in salaried employment.

Pension, meaning a regular monthly flow of income in one's post-working age, was a privilege of a few salaried employees, mostly with the governments, till recently. With the introduction of the Atal Pension Yojana (APY) in 2015, access to pension has become broad-based. Now, the common person, irrespective of her/his employment status, could aspire to some regular income stream in old age.

Against this backdrop, this paper examines the progress of APY. Section II reviews the features and progress of APY since its inception. Section III delineates the determinants of APY in their economic, social and regional dimensions. Section IV concludes with some suggestions for further expanding the pension universe.

II.1 Features of APY

Atal Pension Yojana (APY) is a pension scheme open to all individuals, including a common person, in the age group of 18-40 years. It is particularly aimed at underprivileged, unorganized, and low-income individuals. The scheme design is very attractive.

The uniqueness of APY is marked by its triple benefits: First, it gives a life-time monthly fixed pension in the range of ₹1,000-5,000 post-60-year of age depending on the person's choice and corresponding contribution. Second, the person's spouse gets the same amount of pension for a lifetime on the subscriber's demise. Third, the contributed amount with interest is returned to the nominee on the demise of both the subscriber and spouse.

There is no restriction on the number of persons in a family who can have APY. For example, if the husband and wife opt for a monthly pension of 5,000 each, the surviving member could get a pension of Rs. 10,000 with a full return of accumulated corpus with interest to their nominee. Since its inception, APY has given an annual return of almost 9.0 percent. It could thus be viewed not only as a family pension product but also as a long-term savings instrument. Moreover, the scheme is guaranteed by the Government, so there is no risk of non-payment.

II.2 Progress of APY

Since its inception, APY has made significant strides. As of end-March 2022, the total subscriber enrolments stood at 401.27 lakh. The annual enrolments have been improving. Even in the peak of the COVID pandemic year 2020-21, nearly 80 lakh persons were enrolled and in the last financial year 2021-22, almost 100 lakh subscribers were enrolled. This was the highest enrolment in a single financial year ever. One could gauge the coverage from the fact that only 36 countries out of 235 countries in the world have a population of over 400 lakh.

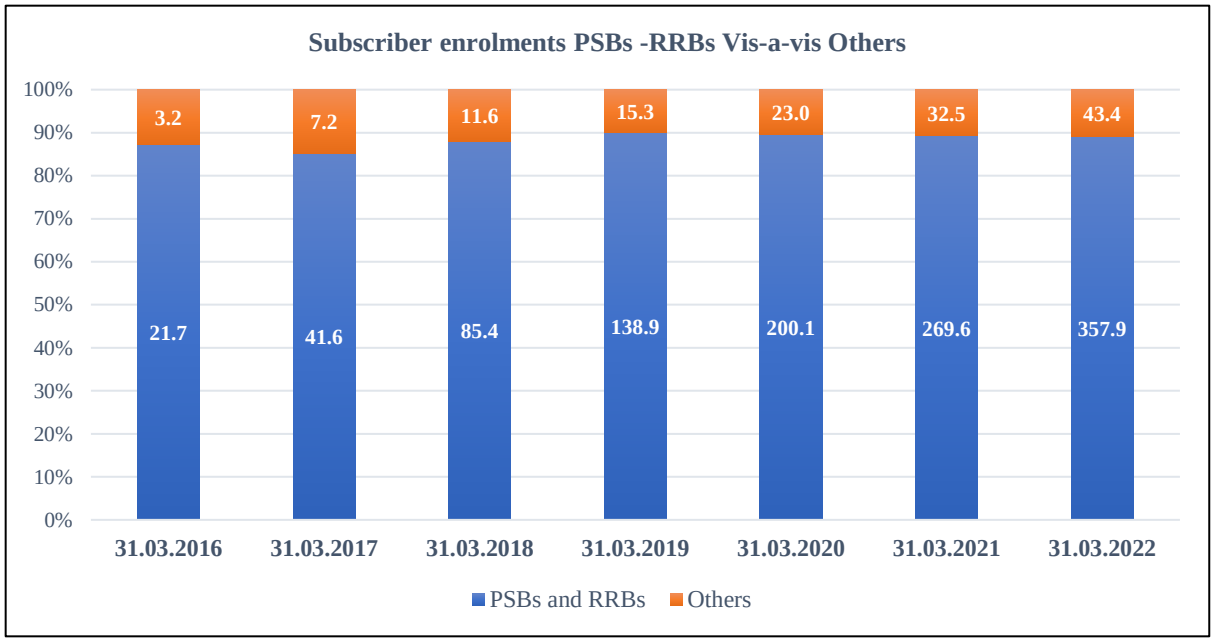
The Public Sector Banks and Regional Rural Banks together are contributing an average of 88 percent of total enrollment since its launch in 2015. Subscriber enrolment has expanded over sixteen-fold in six years (**Table 1 and Chart 1).**

Table 1: Subscriber enrollments have multiplied in 6 Years. (in lakh)

Category of Banks	31.03.2016	31.03.2017	31.03.2018	31.03.2019	31.03.2020	31.03.2021	31.03.2022
PSBs	16.93	30.47	65.53	107.20	156.75	212.52	282.61
Private Banks	2.18	4.97	8.74	11.45	15.63	19.86	25.08
Small Finance	-	-	-	0.09	0.16	0.35	0.86
Payment Bk	-	-	-	0.48	3.44	8.19	12.88
RRBs	4.76	11.15	19.87	31.71	43.30	57.11	75.28
DCCBs	0.21	0.30	0.34	0.39	0.49	0.55	0.63
SCBs	0.00	0.01	0.01	0.01	0.05	0.05	0.06
UCBs	0.00	0.04	0.11	0.14	0.17	0.20	0.24
DOP	0.75	1.90	2.45	2.70	3.03	3.32	3.62
Total	**24.85**	**48.84**	**97.05**	**154.18**	**223.02**	**302.16**	**401.27**

Source:https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1751093 & Economic Times (April, 21 2022)

Chart 1: Enrolments are led by PSBs and RRBs. (in lakh)



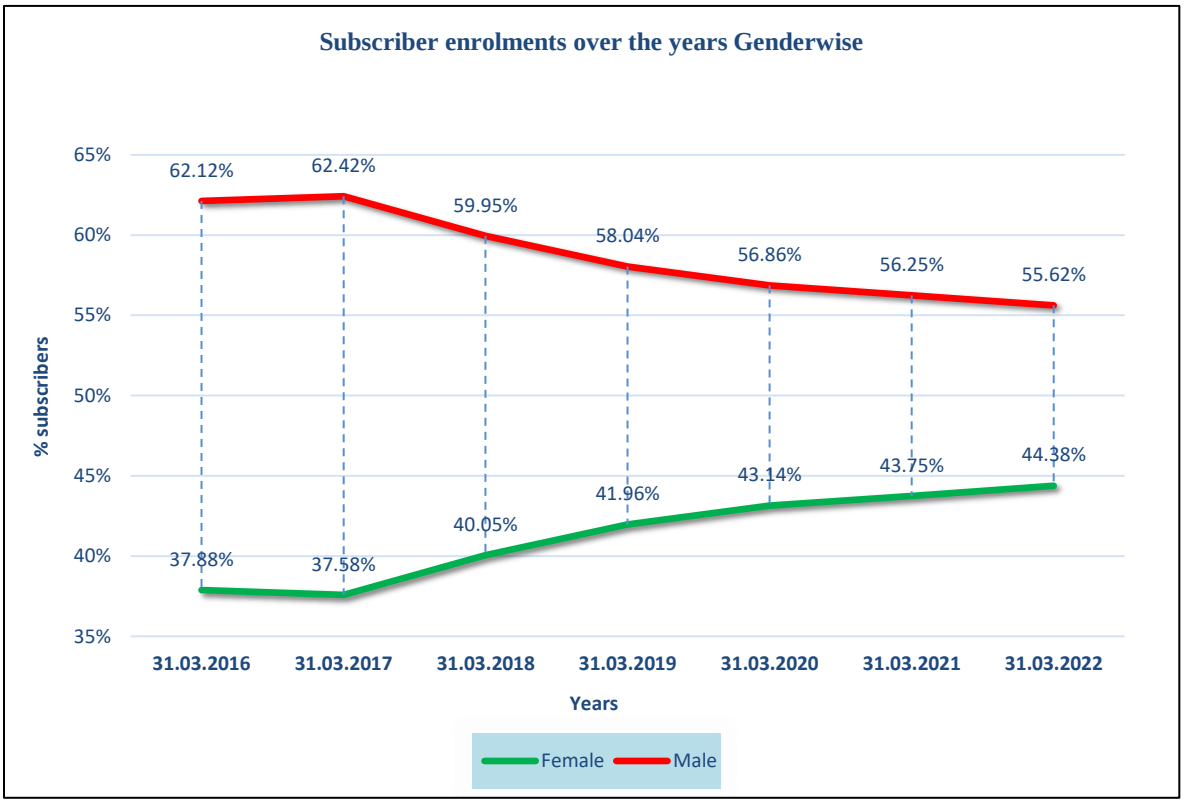
The gender distribution of APY subscribers shows that female subscribers have increased over the period from nearly 38 percent in the initial years of the scheme to over 44 percent by march 2022 **(Table 2 and Chart 2).**

Table 2: Gender distribution over time has improved. **(**in lakh)

Gender	As on 31.03.2017	As on 31.03.2018	As on 31.03.2019	As on 31.03.2020	As on 31.03.2021	As on 31.03.2022
Female	18.37	38.87	64.70	96.21	132.19	178.05
Male	30.51	58.17	89.44	126.76	169.90	223.13
Transgender	0.01	0.02	0.04	0.06	0.07	0.10

Source: Pension Bulletin, July 2022

Chart 2: Female participation made notable gains. **(**in percent)



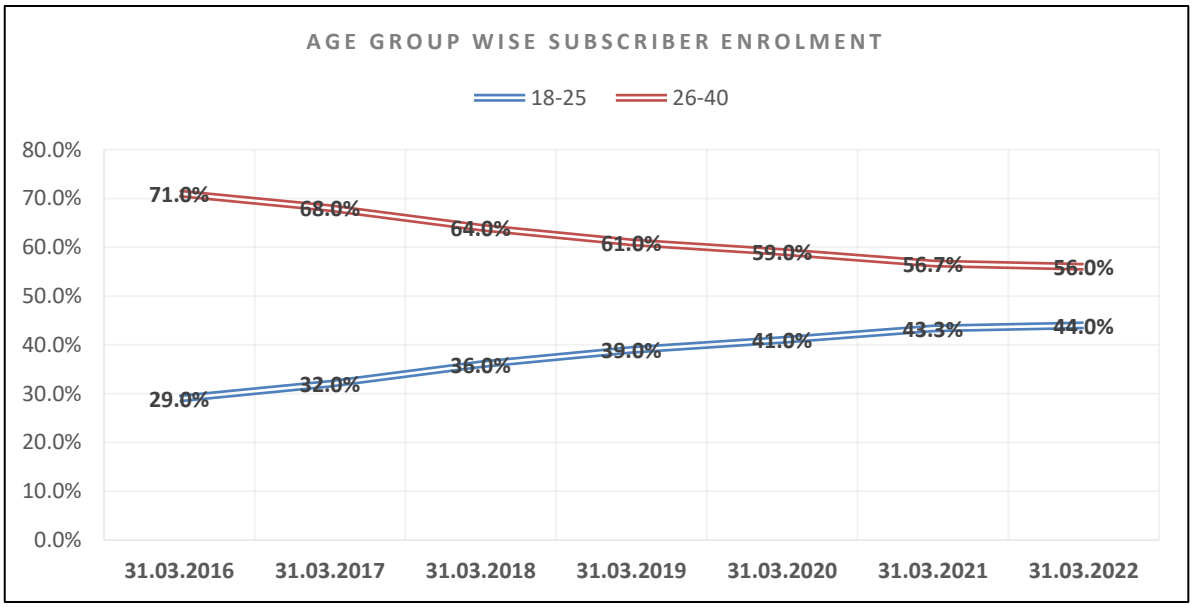
The demographic information suggests that the enrolments in younger age (i.e. in the age group of 18-25 years) have increased significantly in recent years. Consequently, the ratio of 18-25 years to 26-40 years has moved up from 29:71 to 44:56 (**Table 3 and Chart 3).**

Table 3: Young subscribers have increased. (in lakhs)

	31.03.2017	31.03.2018	31.03.2019	31.03.2020	31.03.2021	31.03.2022
Between 18 to 20 Years	4.66	10.90	19.78	32.15	47.62	66.87
Between 21 to 25 Years	11.09	23.91	39.68	59.76	83.34	112.16
Between 26 to 30 Years	13.10	25.73	40.29	57.12	76.00	99.31
Between 31 to 35 Years	12.02	22.50	33.95	46.42	60.14	77.76
Above 35 Years	8.02	14.01	20.49	27.56	35.05	45.17

Source: Pension Bulletin, July 2022

Chart 3: Age-group-wise participation is towards younger age. (in percent)



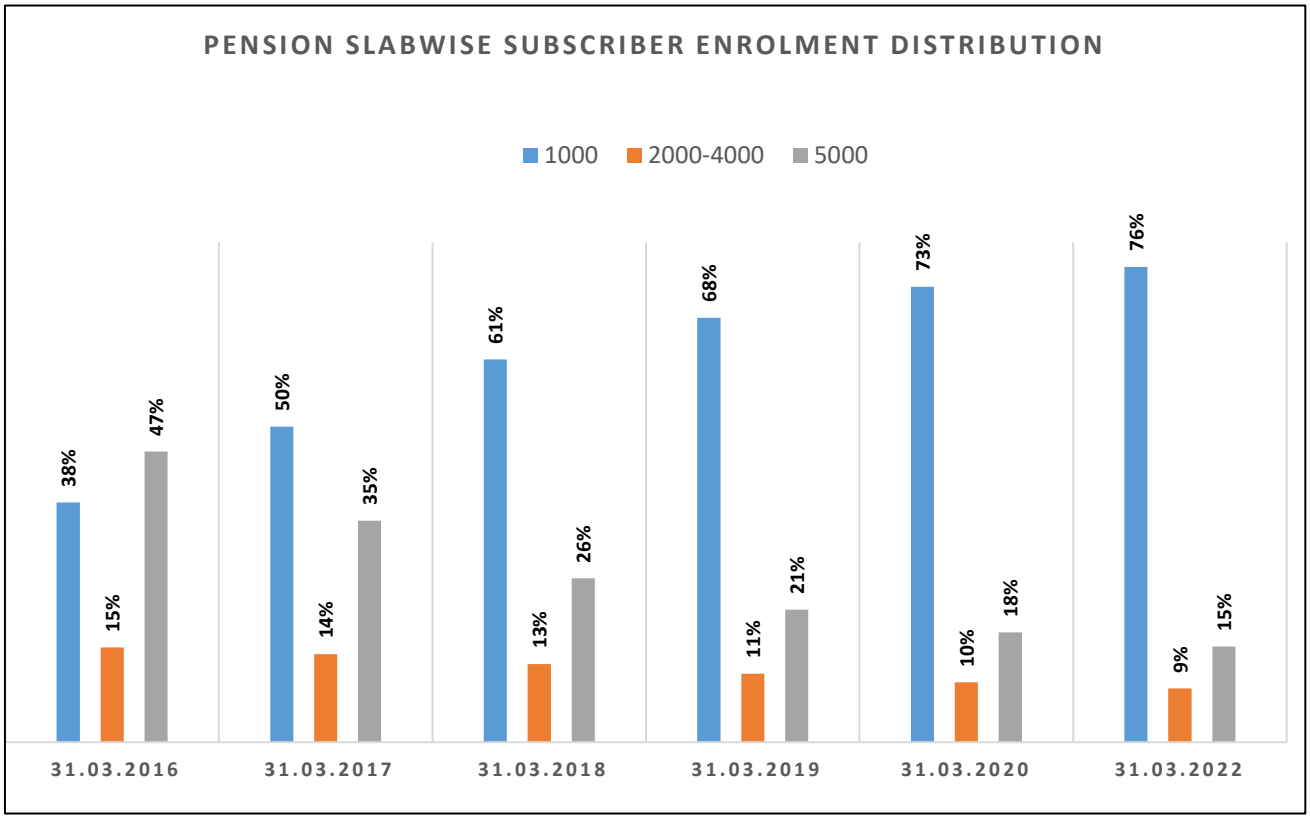
In terms of pension amount, the bulk, 76 percent, have opted for a monthly pension of ₹1,000, followed by 15 percent for ₹5,000, with the balance of 9 percent being in-between **(Table 4 and Chart 4).**

Table 4: Most subscribers opted for the lowest pension slab. **(**in lakh)

Pension Amount	31.03.2017	31.03.2018	31.03.2019	31.03.2020	31.03.2021	31.03.2022
1,000	24.67	59.46	104.65	162.46	231.46	320.13
2,000	3.78	6.92	9.79	12.50	15.09	17.61
3,000	2.17	3.68	5.01	6.34	7.47	8.59
4,000	0.94	1.55	2.06	2.53	2.92	3.32
5,000	17.32	25.45	32.67	39.19	45.22	51.62

Source: Pension Bulletin, July 2022

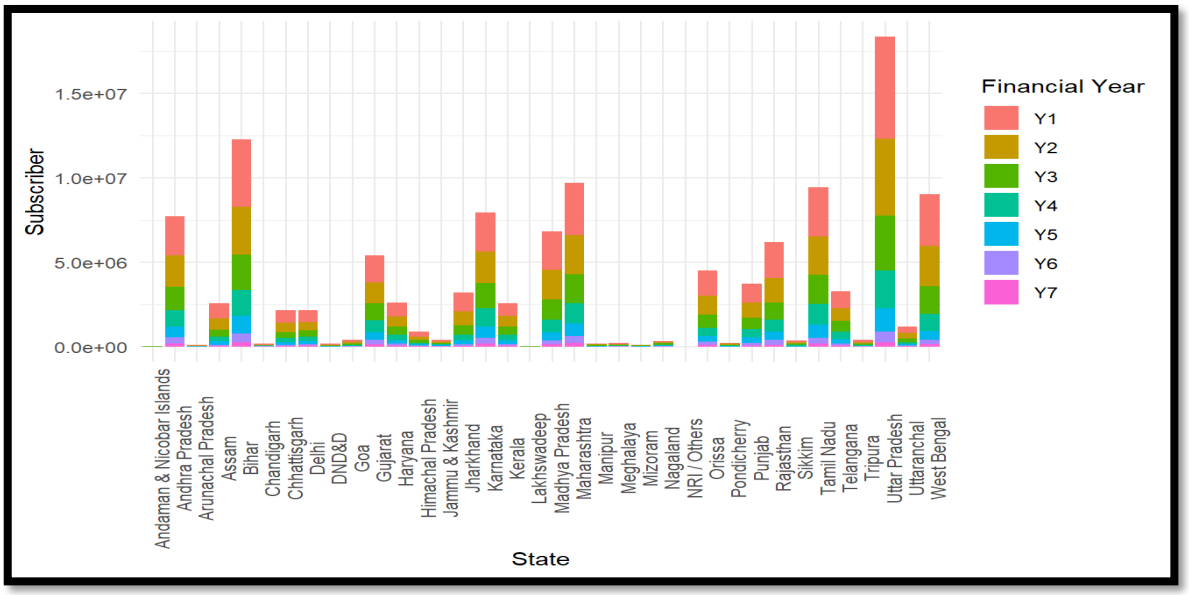
Chart 4: Preference in either the lowest or highest pension slabs. (in percent)



III.1 Determinants of APY

In this section, we examine the expansion of APY across the country in terms of its proximate determinants. Given the disaggregated nature of the data a panel regression approach has been preferred over OLS (Ordinary Least Square) regression. The OLS regression assumes the homogeneity of errors (i.i.d); however, here the time series data has been considered with another variation due to states. Hence, panel regression is more appropriate to examine the relationship among relevant variables.

Chart 5: APY enrolment across states

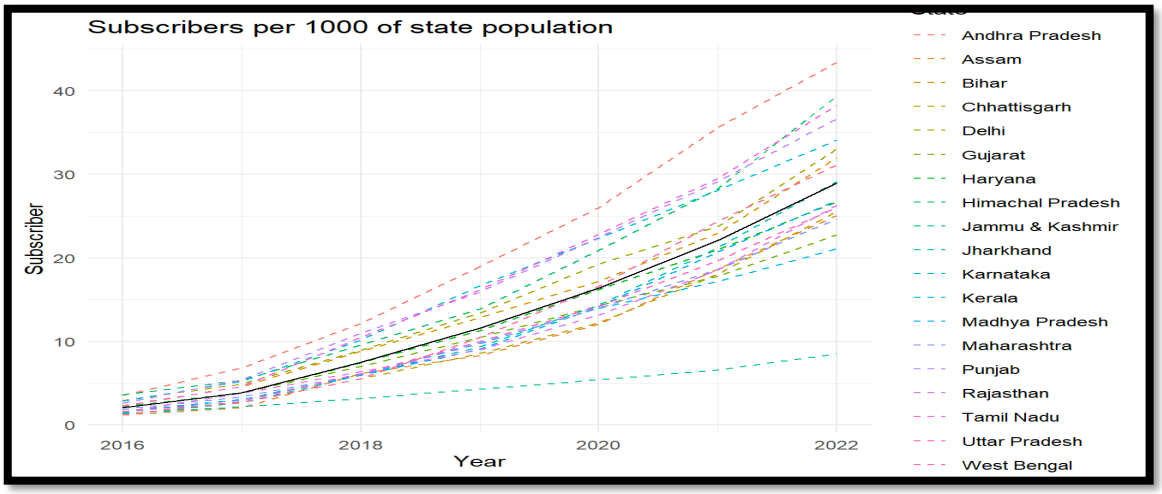


APY enrollments for 7 years of our sample period from 2015 to 2022 show that there is considerable variation across states (**Chart 5).** As could be expected, enrolments were higher in populous states; for example, Bihar, Maharashtra, Uttar Pradesh and West Bengal.

For the purpose of analysis to cover maximum subscribers while avoiding outliers that may arise due to small states, the top 19 states/ union territories (UTs) in terms of APY subscriber enrolments have been considered. The states/UTs considered are Andhra Pradesh, Assam, Bihar, Chhattisgarh, Gujarat, Haryana, Himachal Pradesh, Jammu and Kashmir, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Tamil Nadu, Telangana, Uttar Pradesh and West Bengal. The data for the period 2015-16 to 2021-22 for these states/UTs covers almost 90 percent of the subscriber base[2].

[2] Data for 2015-16 is for 10 months as APY became operational on 1st June, 2015.

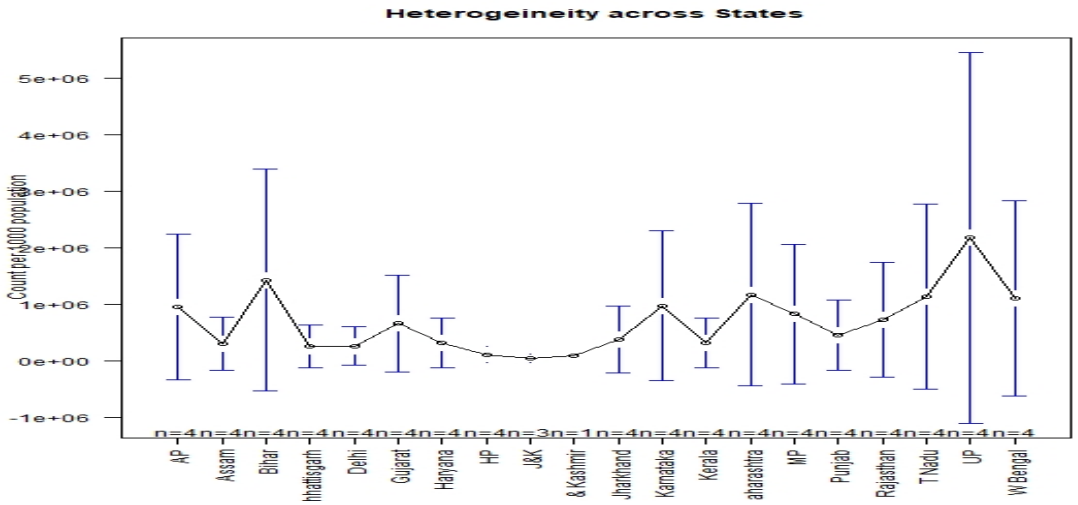
Chart 6: Subscribers per 1000 of population in States/UTs.



State-wise subscriber numbers normalized to per 1000 population indicate a non-linear trend **(Chart 6).** The all-India average subscriber number has increased from 2 subscribers per 1000 population in March 2016 to 29 subscribers per 1000 population by March 2022. The relative position of states suggests above-average coverage for Andhra Pradesh, Assam, Bihar, Himachal Pradesh West Bengal, Karnataka, Punjab and Tamil Nadu and below the average APY coverage for Chhattisgarh, Delhi, Gujarat, Jharkhand, Jammu & Kashmir, Kerala, Maharashtra, Madhya Pradesh, Rajasthan and Uttar Pradesh.

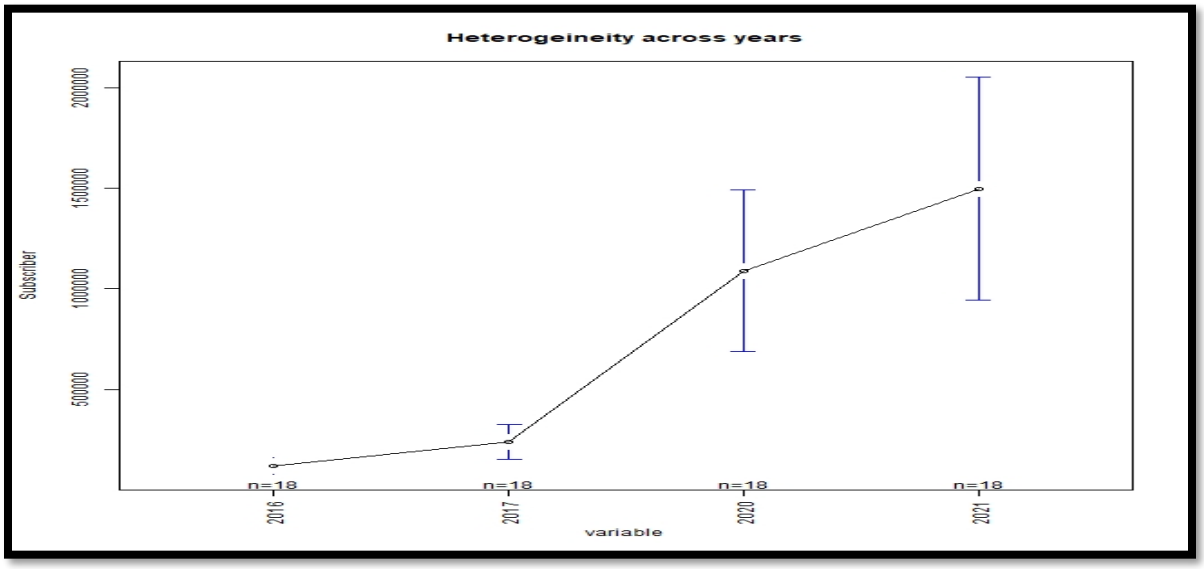
Even though the broader trend of subscriber enrolment is similar, there was variability within the states and across the time span (**Chart 7).** In the case of Andhra Pradesh, Bihar, Karnataka, Maharashtra, Uttar Pradesh and West Bengal, such variation is greater as compared to states like Chhattisgarh, Delhi, Gujrat, Jharkhand, Kerala and Punjab. The states like Haryana and Himachal Pradesh have shown minimal variability over time.

Chart 7: Variation over time for states.



In terms of enrolment during the initial phase of the scheme, variability was lower as compared to the later years; it peaked in 2021 being a pandemic year (**Chart 8).**

Chart 8: Variation across states over time.



III.2 Explanatory variables

In order to gauge the progress of APY subscription, for empirical estimation, the following relevant variables were considered: (i) income, (ii) banking penetration, and (iii) general socio-economic condition.

APY subscribers were normalized with state–wise population. The dependent variable is taken as state-wise APY accounts per 1000 population.

In terms of explanatory variables income is represented by real per capita income measured by per capita net state domestic product (NSDP) at constant (2011-12) prices. Income is important as APY is a contributory pension scheme and the subscriber has to generate a surplus; however small may be, beyond meeting daily necessities.

Since APY is a bank-led model and the subscribers necessarily have to have a bank account to subscribe to APY, banking penetration is measured by two indicators. First, the standard variable: is the number of branches per 10,000 population. However, banking was taken to the masses in India through an unprecedented number of account-opening for the poor and underprivileged in the far-flung areas of the country through Pradhan Mantri Jan Dhan Yojana (PMJDY) accounts largely with the help of business correspondents (BCs), who act as agents of the banks, and provide the last mile access. Accordingly, second, PMJDY accounts per 1000 population is taken as an additional variable for inclusive banking.

Life expectancy is taken as a catch-all variable for overall socio-economic condition and general well-being. Given the larger subscriber base in the rural areas, the ratio of rural to the urban population of the sample states was taken to check for rural orientation of APY subscription.

As a first step, we check the correlation of the dependent variable with the explanatory variables across states **(Chart 9 a & b).**

Chart 9(a): Correlation plots of subscriber base per 1000 population[3].

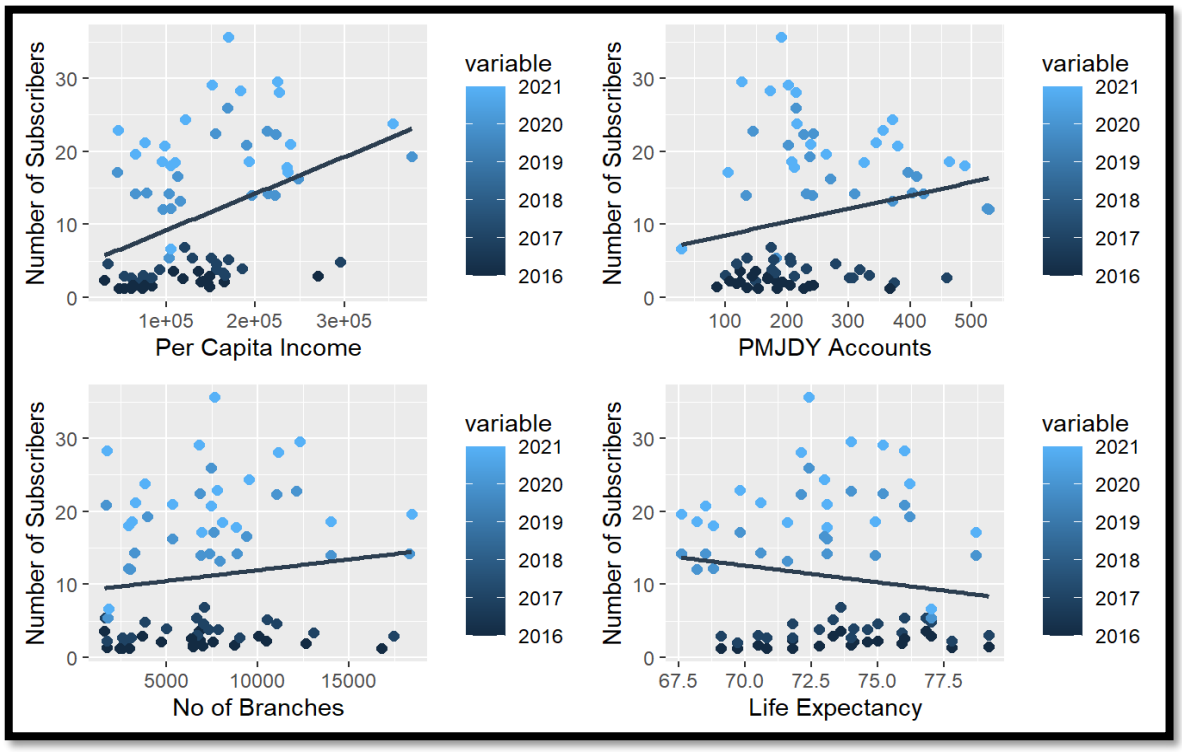
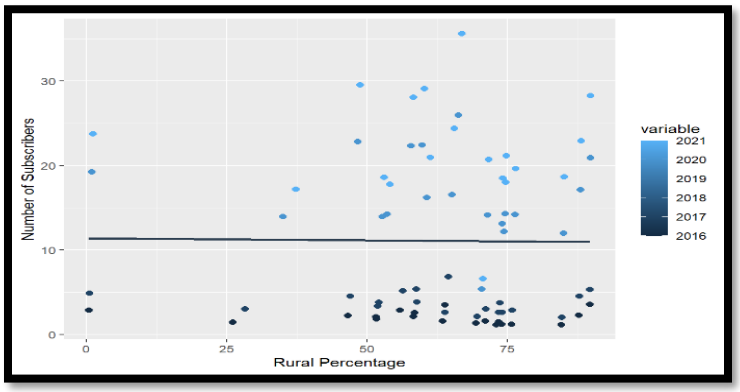


Chart 9 (b): Ratio of rural to urban population.



[3] The points represent the individual states over the period March 2016 – March 2022.

The corellogram **(Chart 9)** suggests that our dependent variable (scaled APY subscriber count) is positively correlated with the indicators of banking penetration (PMJDY accounts per 1000 population and number of bank branches per 10,000 population) and state-level per capita income. However, the correlation between scaled APY subscribers and life expectancy is negative. It could be that states with higher prosperity have a lower preference for APY as they consider pension amount under APY to be small; as gleaned from in field-level interactions. The correlation with the rural population was mildly positive implying that states with a relatively higher share of the rural population had more APY subscribers.

III.3 Model specification and estimation

For empirical analysis, we specify a panel regression model. However, a choice needs to made between fixed effect and random effect panel regression for arriving at relevant conclusion.

III.3.1 Fixed effect panel regression

Equation 1 specifies a panel regression with fixed effect:

$$y_{it} = \beta_0 + \beta_1 x_{it} + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots \quad (1)$$

Where: y_{it}: represents state-wise scaled APY subscribers count per 1000 population.

x_{it} : represents state-wise scaled PMJDY count per 1000 population.

$\varepsilon_{it} = \mu_i + \nu_{it}$, μ_i is the state specific unobservable effect and

ν_{it} is the remaining error.

The following results are obtained:

Equation 1	**Coefficient (β_1)**	**Std. Error**	**t value**	**Prob(>|t|)**
	9.0049e-07	1.8691e-07	4.8178	1.257e-05***

Equation 1	**R-Squared**	**Adjusted R-squared**	**F statistics**	**p value**
	0.30457	0.068382	23.2115	1.2565e-05***

Equation 1	**Chi- square**	**Df**	**p-value**
	30.559	1	3.238e-08***

Notes: 1. p-values are mentioned in the parentheses. ***The rejection of the null hypothesis at 0.001 level of significance; ** rejection at 0.01 level of significance and * rejection at 0.05 level of significance.

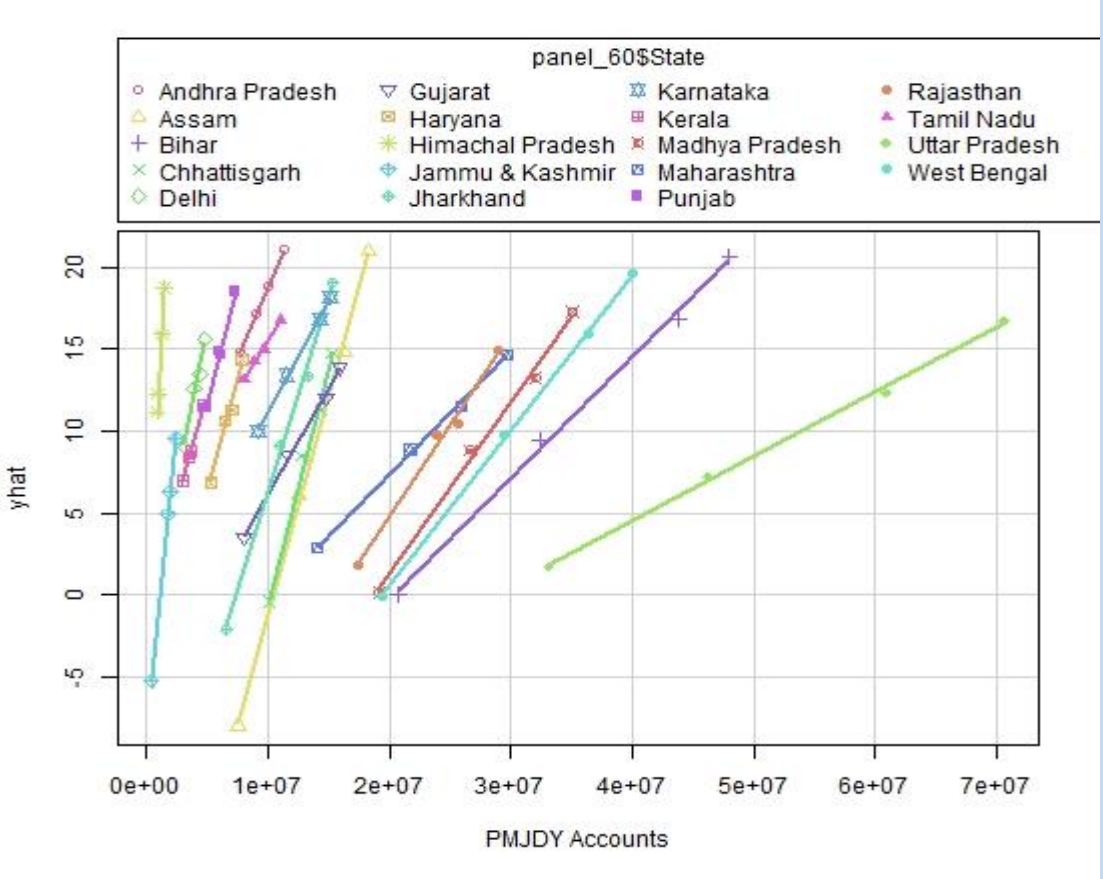
β_1 turned out to be highly significant. But the explanatory power of the equation was weak with adjusted R^2 being small at about 0.07 pointing to missing variables.

The output from Hausman's test suggested that errors are fixed effect when one variable is taken, implying that a random effect model in appropriate.

Further model diagnostics are given in **Box. 1**

Box. 1 Mode diagnostic: Approach under Equation 1

If we consider a simple regression model with states as a factor, a scatterplot of $\hat{y}$ with x across the states suggests that the effect of x is mediated by the differences across states and the time factor still remains unaccounted. Hence Equation 2 helps in estimating the actual effect of PMJDY accounts on subscriber count by taking into account the variation across time.



The rising trend in each state's line corresponds to the variability arising due to time, which has been taken into consideration in Equation 2. The next step is to validate the assumption of fixed effect errors. The Hausman test is used to differentiate between the random effect model and fixed effect model. Further the homogeneity of the residual errors has been validated in equation 2.

III. 3.2 Random effect panel regression

We specify a panel regression with random effect, augmenting Equation 1 with other socio-economic indicators.

$$y_{it} = \beta_0 + \beta_1 x_{1it} + \beta_2 x_{2it} + \beta_3 x_{3it} + \beta_4 x_{4it} + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Where: y_{it} : represents state-wise scaled APY subscribers count per 1000 population,

x_{1it} : represents state-wise scaled of PMJDY accounts per 1000 population,

x_{2it} : bank branches per 10,000 population,

x_{2it} : per capita real income (NSDP at 2011-12 prices) of states,

x_{3it} : percentage of rural population of states,

x_{4it} : life expectancy at birth state.

III. 3.3 Results of equation 2

Equation 2 had a good explanatory power as reflected in adjusted R^2 of 0.59 and the explanatory variables had expected signs and statistical significance. It is also to be mentioned that the Hausman test had suggested the suitability of random effect errors for equation 2. Further, the heteroskedasticity for the residuals has been checked with Breusch-Pagan test.

Real per capita income was highly significant and had a positive impact on APY subscribers. Banking infrastructure, both branches and PMJDY accounts, had positive and significant effect on APY expansion.

States with higher rural population had greater APY subscription.

The sign for life expectancy turned out to be negative. It implies that states which had higher life expectancy showed a lower preference for APY. It could be that people from better off states are not too enthused towards APY given the limited amount of pension APY offers. Notwithstanding the negative sign, life expectancy was not statistically significant at the acceptable level.

Table 5: Output from equation 2

Regressor	Equation 2
Per Capita NSDP	1.688e-04 (<2.2e-16)***
PMJDY Accounts per 1000 population	2.8042e-02 (0.02843)*
bank branches for 10,000 population	6.2516e-04 (0.03391)*
rural percentage share of rural population	0.37717 (2.82e-06)***
life expectancy at birth	-4.7253e-04 (0.45295)
R squared	0.61962
Adj- R Squared	0.59245
F statistics/Chi-Square	114.025 (< 2.22e-16)

Notes: 1. p-values are mentioned in the parentheses. ***The rejection of the null hypothesis at 0.001 level of significance; ** rejection at 0.01 level of significance and * rejection at 0.05 level of significance.

III.3.4 Regional variability

Equation 2, the panel regression with random effect, was extended to examine regional variability with respect to APY coverage. For this purpose, the states under consideration were divided into six regions namely: Northern, Southern, Central, Western, Eastern and Northeast. Northeast is represented by Assam as in other smaller states APY penetration remains low.

$$y_{it} = \beta_0 + \beta_1 x_{1it} + \beta_2 x_{2it} + \beta_3 x_{3it} + \beta_4 x_{4it} + \beta_5 x_{5it} + \beta_6\, dummies(Region) + \varepsilon_{it} \ldots\ldots\ldots (3)$$

III. 3.5 Results of equation 3

Addition of regional factor by adding dummy variables identifying regions did not diminish the explanatory power of the standard variable that were used in Equation 2. Rather baking infrastructure represented by PMJDY accounts showed a higher significance.

Interestingly, life expectancy with negative sign turned out to be statistically significant suggesting that better-off states had a lower preference for APY.

In term of regional variation, the Central Region had a statistically significant negative sign suggesting relatively lower penetration of APY. Though Western Region had a negative sign it was not statistically significant.

Northern, Southern and Eastern regions had positive signs, though statistically not significant, suggesting relatively better APY penetration.

Table 6: Output from equation 3

Regressor	Equation 3
PMJDY Accounts per 1000 population (β_1)	**3.5235e-02 (0.003135)****
bank branches for 10,000 population (β_2)	**6.4460e-04 (0.012027)***
rural percentage share of rural population (β_3)	**3.7552e-01 (2.048e-08)*****
Per Capita NSDP (β_4)	**1.5919e-04 (1.971e-14)*****
life expectancy at birth (β_5)	**-1.2016 (0.016494)***
Factor (Central) (β_6)	**-1.1812e+01 (0.026323)***
Factor (Northern) (β_7)	**9.5935e-01 (0.817932)**
Factor (Southern) (β_8)	**5.0512 (0.329763)**
Factor (Western) (β_9)	**-3.2178 (0.558385)**
Factor (Eastern) (β_{10})	**5.9397 (0.093248)**
R squared	**0.62688**
Adj- R Squared	**0.576**
F statistics/Chi-Square	**110.886 (< 2.22e-16)**

Notes: 1. P-values are mentioned in parentheses. ***The rejection of the null hypothesis of at 0.001 level of significance; ** rejection at 0.01 level of significance and * rejection at 0.05 level of significance.

IV. Conclusion

First, the paper reveals that there is a strong interconnection between banking infrastructure and APY coverage. States with more bank branches and PMJDY accounts have better pension (APY) coverage. This includes states like Andhra Pradesh, Assam, Bihar, Tamil Nadu, Uttar Pradesh and West Bengal. Further, greater usage of technology is the way forward as in many places in our country the geographical challenges limit physical banking infrastructure. In such cases, technology and presence of local business correspondent (BC) could help to reach to the last mile. In this direction, PFRDA has made APY available on mobile app and net banking. Also, that a large chunk of rural population still does not have net banking, APY enrolment using web-portal has been advised to all banks.

Second, APY enrollment is positively correlated with state-level per-capita income. States like Andhra Pradesh, Himachal Pradesh, Karnataka, and Punjab having higher per-capita

income showed better APY coverage. As the state economies continue to grow, there is potential for APY to further expand.

Third, states having higher life expectancy had relatively lesser APY coverage. APY being a pension scheme, states having higher life expectancy need products like APY more to manage longevity risks as no single scheme could provide adequate coverage. While sensitizing states such as Delhi, Jammu & Kashmir, Kerala, Maharashtra, and Uttarakhand will help, it may be desirable to explore raising the current upper limit of pension amount of Rs. 5,000 so as to expand the pension coverage.

Fourth, research suggests that at a younger age, retirement and pension is the least of financial priorities unless it is statutorily offered by the employer. It is in their middle years, people start thinking of saving for retirement. In this context, it may be desirable to explore the possibility of raising the upper age limit of APY enrolment from the current age of 40 years to expand APY coverage.

Fifth, APY penetration is more in rural population as states with higher rural population had more APY subscribers. Hence, there is a need for added focus to bring the urban-poor under the pension umbrella. As migrant workers working on construction sites, factories, etc. on daily wages are barely covered under any social security schemes, an increasing number of urban BCs could help promote urban financial inclusion.

Sixth, from the descriptive analysis, it is evident that APY enrollment over the years has moved in the desired direction of bridging gender gap and more younger people are joining APY. However, subscriptions remain skewed towards extreme pension slabs. Hence, there is a need for sensitizing the distribution channels for upgrading pension slabs of subscribers.

In sum, APY has an important role to play in securing old-age income for the common person. All stakeholders need to work together to expand the coverage by using technology extensively for ease of enrolment, and with some attention also to cover urban-poor.

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