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PEOPLE WITH DISABILITY AND ACCESS TO FINANCIAL SERVICES: EVIDENCE FROM ODISHA

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Abstract

The purpose of this study is to examine the effects of disability on access to financial services in Odisha. Data for the study were obtained from the Odisha Economic Survey 2021-22. We used an instrumental variable (IV) regression approach to examine the effect of disability on the use of formal financial institutions and mobile money. We find that the likelihood of having access to finances and using any of the financial institutions, or having at least a product/service with a bank reduces for people with disability. Further, our results show that while people with disability are less likely to use commercial banks (6.3%), rural banks (4.8%) and at least one financial service (6.3%), they are 53.7% more likely to use mobile money. Collaborative actions are needed to raise awareness on mobile money and other Fintech solutions, as well as accessibility functions that can support the inclusion of persons with disabilities into the financial system

Keywords: financial services; Odisha; mobile money; people with disability

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INTRODUCTION

The need to advance disability inclusion around the globe is essential to achieving the Sustainable Development Goals (SDGs) (Hák et al., 2016). Ensuring that the vulnerable and people with disability are served in the financial markets also calls for innovative financing solutions. Persons with disabilities are specifically referenced 11 times in the 2030 Agenda for Sustainable Development, with a further six references to persons in vulnerable situations (Lockwood & Tardi, 2014). This means that issues about disability are at the core of the global development agenda. Persons with disabilities, whether in developed or developing countries, have limited access to financial services, including traditional and alternative banking, online payment services and financial transactions, as well as mobile banking (Yeo & Moore, 2003). This is primarily due to the fact that their constituency has not been recognized as a large customer base by most financial service providers. Indeed, reasoning and conceptualizing from the social model of disability Anastasiou & Kauffman, (2013), these disability statuses of people as defined in society do exist because of the physical and social barriers in society. Thus, disability-related obstacles affect the participation of individuals at every stage of development intervention intended to boost livelihoods. Key among the resources

essential for enhancing the livelihoods of individuals is access to financial resources for under-taking economic activities. Unfortunately, over the years, traditional banks do not seem to have served people with disability-related obstacles. Households with disability have different relationships with banks than those without disability (Goodman et al., 2017). Economic and demographic characteristics such as race, age, income or home ownership are among other reasons that may contribute to the lower likeliness of people with disability (PwDs) and the vulnerable to be fully banked. Moreover, adults with disabilities are more likely than those without disabilities to have lower incomes, lower levels of education, less attachment to the labour force and higher expenses Goodman et al., (2017), thus affecting their financial capability. All these factors contribute to the financial vulnerability of people with disability (Olga et al., 2018).

Economically, PwDs may not be able to access financial services because of their low-income earning capacity. For instance, Mactaggart et al., (2018) found that adults with disabilities are significantly less likely to be employed compared with those without disabilities, and those who work are engaged in lower-productive activities and lowerwage jobs. In some cases, PwDs may also not be engaging in any economic activity at all, especially when their level of disability is extremely debilitating. The hope was that microfinance, as a form of informal financial service that targets the entrepreneurial poor and the vulnerable, could reach out to such groups of people and uplift them from poverty. Microfinance is perceived as a tool for reducing poverty and achieving economic empowerment of people with disabilities Armendariz & Labie, (2011), and is also expected to meet the financial needs of clients with disabilities and support them to invest in economic activities which can enhance their living standards. In contemporary times, there is doubt about informal financial institutions regarding the vulnerable and people with disability. A search for alternative banking systems for people with disability is, therefore, essential (Wentz et al., 2019). In this regard, mobile money seems to offer people with disability opportunities to access financial services. Mobile money has also become an innovative financial solution to reach the unbanked, under-banked and those that have been neglected by the formal financial systems (David-West et al., 2018). As a recent technological innovation, mobile money provides financial transaction services via mobile phone, including to the unbanked global poor and people living with disability. To the best of our knowledge, we are not aware of the extent to which mobile money serves the vulnerable, such as people living with disability (Peprah et al., 2022).

Aside from the limited academic literature on financial services and disability Mersland et al., (2009), little is known in the odisha context about the level of financial services among PwDs. Besides, no policy has been put in place to ensure that such groups of people have equal access to financial services as do their counterparts. Embedded in this problem is the fact that there seems to be a low level of savings and access to credit, as well as limited access to alternative financial services among vulnerable households and individual and PwDs, which compounds their perceived unproductively. The problem may become severe for PwDs in the informal sector compared with those in the formal sector. The uniqueness of this paper is that we provide a novel analysis of the determinants of access and assess the level of informal financial services and the use of mobile money among PwDs. Our argument is that if PwDs are denied the use of financial services which worsens their disability status as defined by society (Tsatsou, 2021), then the alternative could be the use of mobile money which provides remote financial transactions. In doing this, we use the recent living standards survey to examine the level

of financial services among PwDs. Controlling for other factors; we examine the effect of having a disability status on the use of financial services.

Even though not documented, it is well known that PwDs face several challenges in society, including access to financial services. However, in the context of Odisha, no study has investigated the extent to which this issue exists; in addition to examining the effects of having a disability status on access to financial services, we also contribute to investigating the extent to which having some form of disability affects access to financial services in Odisha. We document policies that will contribute to bridging the gap between PwDs and those without. Based on the concepts of the social model of disability, these are expected to reduce the disability status of people as defined by society through the barriers. The remaining sections of the paper are organized as follows: the next section reviews related literature; section three discusses disability and access to financial services; the methodology and identification strategy are discussed in section four; in section five we present the results and discussion; and the final section concludes with recommendations

RESEARCH METHODS

To examine the level of access to financial services among PwDs, we use data from Odisha Economic Survey 2021-22 (McGarity & Caplan, 2019). This is the latest national representative survey about Odisha individuals and households. The survey was conducted in 2020/2021 across all the regions of Odisha. In this dataset, the following files were merged: health, poverty, expenditure, credit, assets, savings and use of financial services. These files contain information about the disability conditions of individuals, socioeconomic and demographic characteristics, and access to financial services by respondents. A sample of 860 individuals (1.47%) out of 58,596 live with several forms of disabilities including hearing, speech, physical, intellectual, emotional and others. The financial services file contains information about credit, assets, savings and use of financial services by respondents. Table presents the description and measurement of variables that were used in the study. Disability was measured as 'Yes = 1' if an individual is living with any form of disability.

Table-1
Description of Variable

Description of variable							
Variable	Description	Type					
Disability status	Whether an individual of the household has disa	$\overline{\text{bility0} = \text{no, 1} = \text{yes}}$					
	or not?						
Disability type	Sight, hearing, physical, emotional, sp	eech,Categorical					
	intellectual, other	_					
Access to mo	bile Does a member have mobile money?	0 = no, 1 = yes					
money							
Access to	Does a member have commercial bank?	0 = no, 1 = yes					
commercial bank	ζ.						
Access	toDoes a member have community and rural	bank 0 = no, 1 =					
community	andaccount?	yes					
rural bank		-					
Ownership of b	bankWhether a member have at least one bank accou-	nt. 0 = no, 1 = yes					
account		•					
Phone	Does member own a mobile phone (p	$\frac{1}{\text{ohone } 0 = \text{no, } 1 = 0}$					
	ownership)?	yes					

Expenditure on phone	Total expenditure on mobile phone	Continuous			
Sex	Sex of respondent	0 = male,			
		1 = female			
Age	Age in years	Continuous			
$\frac{Age}{Age^2}$	Age in years square	Continuous			
Location	Location of the respondent	1 = rural			
		0 = urban,			
Education level	Levels of educational attainment	Categorical			
Religious affiliation	on Religious affiliation	Categorical			
Marital status	Marital status	Categorical			
Welfare	Per adult equivalent annual household consumptionContinuous				
	expenditures	•			
Type of FI havi	ngIn what type of financial institution do you ha	ave the Categorical			

account with

Source: Compiled from Odisha economic survey (Pani & Mishra, 2022)

Model specification

The probit model was used to estimate access to financial services (access to commercial bank, community and rural bank accounts) while the instrumental variable (IV) probit was used to estimate the effect of access to mobile money services. Just like any limited dependent variable model, the dependent variable is dichotomous. Thus, an individual takes a value of 1 if they have access to an account or use a financial service with a particular financial institution, or 0 otherwise. Following Wooldridge (2016), the probability of having access to financial services is given by:

FSi $\frac{1}{4}$ 1 if FS ω i >0 0 if FS ω i \leq 0

Where FSi is financial service for individual i. Econometrically, FS ω i is expressed as: FS ω i $\frac{1}{4}$ ω i β θ iXi β \forall i β ϵ 1i δ 1 β

This equation describes the probability of an individual having access to a particular financial institution account or mobile money (FSi ω P as influenced by a set of independent variables Xi (vector of individual characteristics, household characteristics, community characteristics) while \forall i denotes individual-specific, time-invariant observables (sex). FSi ω is a dichotomous variable that takes 1 if an individual has access to a financial service and 0 if the individual does not. With equation (2) we use the probit model to estimate the effect of disability status on access to financial services (commercial bank, rural bank account and at least one financial institution). This is expressed as:

FSi ¼ γ 1 þ γ 2Disabi þ γ 3 Welfarei þ γ 4Sexi þ γ 5Agei þ γ 6Agesqri þ γ 7Locationi þ γ 8Edui þ γ 9Relii þ γ 10Maritali þ ei δ 2Þ

The financial services (FS) in the model are commercial banks, rural and community banks (RCBs) and at least one financial institution, and disability status (Disab), age square (agesqr), educational level (Edu), religious affiliation (Reli) and marital status (marital) are included. The results of equation 2 are presented in Table 3.

In the case of access to mobile money (Momo), phone ownership was included since it influences access to Momo. Meanwhile, it is argued that there exists a bi-causality between access to Momo and phone ownership. This causality makes the use of the traditional probit model inappropriate in our estimation. Hence, the use of instrumental variable probit model (IV Probit) estimation. Thus, we instrument mobile phone

ownership with expenditure on mobile phone. The intuition is that expenditure on mobile phone (the cost of the mobile in the past 12 months) influences ownership of mobile phone but does not directly influence access to a mobile money account. Even though some people receive mobile phones as gifts, cost could still be an issue to the buyer. Cost or price of mobile phone has been used in previous studies as an instrument for cell phone use (Sridhar & Sridhar, 2007). Hence the two-stage IV probit was specified. The first stage of the model is equation (3). This was first estimated and the predicted values were used in equation four (4).

Phonei $\frac{1}{4}$ $\gamma 1$ β $\gamma 2$ ExpPhonei β $\gamma 3$ Disabi β $\gamma 4$ Welfarei β $\gamma 5$ Sexi β $\gamma 6$ Agei $\beta \gamma 7$ Agesqri β $\gamma 8$ Locationi β $\gamma 9$ Edui β $\gamma 10$ Relii β $\gamma 11$ Maritali β β $\gamma 11$ Mobile phone ownership (Phone), Expenditure on phone (ExpPhone).

MoMoi ¼ γ1 þ γ2Disabi þ γ3Phonei þ γ4Welfarei þ γ5Sexi þ γ6Agei þ γ7 Agesqri þ γ8Locationi þ γ9Edui þ γ10Relii þ γ11Maritali þ ei ð4Þ

The marginal effects of access to mobile money (equation 4) is presented in Table 5, whereas the first stage results and the comparison between the traditional probit model and the IV probit model is presented in Appendix A3.\

Robustness checks

To statistically verify the existence of bi-causality which leads to the use of IV probit, the Wald test of exogeneity was conducted. The null hypothesis of no endogeneity was rejected at 5% alpha level since Prob > chi2 = 0.0003. This implies that endogeneity exists and hence, presenting the IV probit result is appropriate (see Table 3) as opposed to the traditional probit model. Again, the test implies that error terms in both the structural and reducedform equations for the endogenous variable (phone ownership) are correlated.

RESULT AND DISCUSSION

In this section, we present the results and discussions of the study. First, we present the summary and descriptive statistics of the variables that were used in our estimations. Second, we discuss the findings from access to financial services and the extent to which disability affects the use of mobile money.

People with disability and access to financial services

In general, access to financial services continues to be low in Odisha despite several efforts made by the government to promote financial inclusion. Table 2 presents the distribution of access to financial services in people with disability and those without disability. Financial services include ownership of a bank account, and the type of bank that individuals deal with, savings accounts, mortgage or investment accounts, savings accounts with microfinance institutions, and mobile money accounts. The Pearson chi-square shows that there exist significant differences between having access and no access to financial services and products in people with disability compared with those without disability

Table-2 Financial Services and disability

Access to financial service	Non-PwDs (%)	PwDs (%)	Total (%)	Pearson Chi ²	
Bank account (formal)					
No access	50.89	71.21	51.46	62.47 (0.00)	
Have access	49.11	28.79	48.54		
Commercial bank					
No access	78.96	89.46	79.25	25.37 (0.00)	
Have	21.04	10.54	20.75		
Rural Bank					
No access	90.97	93.83	91.05	3.79 (0.05)	
Have access	9.03	6.17	8.95		
Savings account					
No access	70.08	84.06	70.47	35.50 (0.00)	
Have access	29.92	15.94	29.53		
Investment/mortgage					
No access	97.59	98.46	97.61	1.23 (0.27)	
Have access	2.41	1.54	2.39		
Savings and loans scheme					
No access	94.91	98.20	95.01	8.60 (0.00)	
Have access	5.09	1.80	4.99		
Susu scheme (informal)					
No access	94.80	97.43	94.87	5.38 (0.02)	
Have access	5.20	2.57	5.13		
Mobile money					
No access	85.75	88.95	85.84	3.16 (0.07)	
Have access	14.25	11.05	14.16		
Total	100.00	100.00	100.00		

Source: Author Calculations from Odisha economic Survey (Goodman et al., 2017)

Across all the financial products and services, more people with disability have limited access compared with their counterparts, and in terms of access, people with disability lag behind. For instance, while 49.11% of peo- ple without disability have formal banks, only 28.79% of PwD do, and only 10.54% of PwD reported having access to commercial banks compared with people without disability (21.04%). It is worrying to note that rural banks that operate mostly in rural communities serve only a little above 6% of people with disability. This indeed re-echoes their disability status as they are deprived of financial opportunities. The situation is worse in terms of savings and loans, not only for people with disability (1.80%) but also for those without disabilities (5.09%). Besides formal bank account ownership, mobile money seems to be promising as it serves a little above 11% of people with disabilities.

People with disability and use of financial services

Access to banking services has become an increasingly important tool for financial inclusion, and it gives people control over their care and support, including managing personal budgets, as well as promoting control and Independence. Evidence from the Odisha Economic Survey in Odisha shows that PwD are deprived of the use of banking services after controlling for individual and household characteristics.

Table 3 Marginal Effects

Tubic o ivini ginar Errocus								
	Commerc	cial Bank	RCI	3	At least o	At least one Financial		
Variable	service	ce						
	Dy/Dx	Std. error	Dy/Dx	Std. error	Dy/Dx	Std. error		
PWD	-0.063	0.030	-0.048	0.026	-0.063	0.030		
Age	0.007	0.002	0.006	0.002	0.007	0.002		
Relegion								
Hindu	0.090	0.019	0.050	0.017	0.090	0.019		
Chiristian								
Muslim	0.064	0.023	0.053	0.020	0.064	0.023		
Traditional	-0.027	0.031	0.063	0.028	-0.027	0.031		
Region								
North	0.082	0.019	0.025	0.016	0.082	0.019		
South	0.097	0.020	0.141	0.017	0.097	0.020		
East	0.083	0.019	0.041	0.017	0.083	0.019		
West	0.013	0.018	-0.043	0.015	0.013	0.018		
Welfare	0.000	0.000	0.000	0.000	0.000	0.000		
Sex								
Female	-0.045	0.012	-0.06	0.010	-0.045	0.012		
Male	-0.063	0.018 -	0.072	0.017	-0.052	0.018		
Location								
Rural	0.093	0.010	-0.095	0.008	-0.093	0.010		
Urban	0.064	0.008	00	00	- 0.086	0.012		
Education								
Metric	0.139	0.012	0.105	0.009	0.139	0.012		
+2	0.272	0.015	0.28	37 0.014	0.272	0.015		
Territory	0.460	0.014	0.520	0.018	0.460	0.014		

Table 3 presents the probit regression results (marginal effects) of people living with disability on the use of financial services. The use of financial services includes having an account with a commercial, rural or community bank, and having at least one financial product or service with a bank. Being a person with disability reduces the likelihood of dealing with a commercial and rural bank, but the likelihood is greater for commercial banks (0.063) compared with rural banks (0.026). In the same way, being a person with disability reduces the probability of having at least one financial product or service with a bank. Thus, PwDs are 6.3% less likely to have at least one financial product or service with a bank. The reduced likeliness of peo- ple with disability using financial services might be a result of several reasons. For instance, PwDs are perceived to be risky by financial institutions because they might not have collateral security. In addition, people with disability are perceived to be low-income earners or have no source of income at all. The limited access to finance is also basi- cally based on the assumption about what people with disability are able and unable to do (Teles, 2016), such as their capacity to write and read, as well as the ability in making relevant independent financial decisions.

It is also important to note that the nature of banking halls can deprive such persons of accessing them. The absence of disability-friendly structures, such as building ramps and the like, reduces their accessibility.

Again, for personal reasons, most PwD may voluntarily exclude themselves from going to the bank to transact business because they are discouraged by their own perception that their applications would be denied. The physical design of some bank premises and other storefront financial service providers do not ensure access for a range of consumers with disability. Besides, people with disability are more likely to self-select out of the credit market because of low perceived creditworthiness. This situation is likely to contribute to the financial vulnerability of people with disability.

With reference to males with disability, their female counter parts are less likely to use financial services, indicating that gender gap also exists among people with disability. Thus, being a female reduces the likelihood of using commercial banks, rural and community banks, and having at least one financial service or product by 4.5%, 6.6%, and 4.5% respectively (Table 3), which is not the case for mobile money.

Table 4 Extent of effect of disability on access to financial services.

Sight		Hearing		Physical		Other PWD		
Outcome variable	es Dy/dx	S	Dy/dx	SE	Dy/dx	SE	Dy/dx	SE
Comm Bank	0.096*	0.056	0.067	0.083	0.011	0.039	0.172*	0.091
RCB	-0.023	0.048	0.040	0.067	-0.029	0.03	0.0159***	0,060
At least one FS	0.007	0.040	-0.009	0.060	-0.002	0.030	0.003	0.067
Control variables		Yes		Yes		Yes		Yes

Abbreviations: NB: Comm Bank = access to commercial bank; RCB = access to rural and community bank; At least one FS = access to at least one financial service; control variables = all control variables used in the earlier estimations.

In general, marital status influences the use of financial institutions, except for consensual habitation. For example, being married influences having an account with a traditional bank, especially commercial banks, and also enables access to at least one financial product. Among people with disability, sex matters. In a study by Zins and Weil (2016) in India, a similar result was obtained that being a woman decreases the probability of having a mobile account and of owning a formal account (1.9% and 1.7%, respectively). Location matters for the use of financial services. In all the models, being resident in a rural area with reference to urban locations reduces the likelihood of having an account with a commercial bank. This is not surprising because financial institutions are usually located in urban communities, so naturally rural dwellers are usually excluded from the use of traditional commercial banks.

^{***}p < 0.01,

^{**}p < 0.05,

^{*}p < 0.1.

Extent of the effect of disability on access to financial services

We also examine the extent to which the various dimensions of disability status affect access to financial services (see Table 4). Some disability types present more challenges than others. People with disabilities constitute diverse groups of people with a wide range of types and severity of disabilities (Morris, 2018). In this study, we group disabilities into hearing, sight, physical and other impairments. Controlling for all variables (as in Tables 2 and 3), we examine the extent to which different disability statuses affect access to financial services. In terms of commercial banks, people with sight impairment are 9.6% less likely to access products and services, while those with other disabilities are 17.2% less likely to use commercial banks. The extent of inaccessibility of financial services is greater for people with other forms of disability compared with those with sight, hearing and physical challenges. People with disability related to sight and hearing mostly are capable of reading and writing. Accessing of formal financial services is mostly based on one's ability to read and write Mersland et al., (2009), hence it is not surprising that people with sight- and hearing-related disabilities have higher chances of accessing financial services and products compared with the other forms. Other forms of disabilities include people with severe impairments such as deaf and dumb, visual and cripple, among others. In terms of access to at least one financial service, the disability status does not matter since we found no statistically significant coefficient.

CONCLUSION

This paper examined access to financial services among PwDs using national representative data from Odisha. In terms of usage of financial services, the proportion of people without disability is higher than those with disability. With mobile money, the likelihood of having access to finances and using any of the financial institutions or having at least one product/service with a bank reduces for people with disability. However, our findings established that disability status does not reduce the likelihood of using mobile money. Thus, in this study, we conclude that to a large extent, mobile money acts as a substitute for standard banking services by increasing the probability to send and receive money among people living with disability. We also find that mobile money services could be used to enhance the financial capability of PwD, especially in rural areas. The extent of the effect of disability on access to financial services is greater for people with certain forms (emotional and intellectual disability) of disability compared with those with sight, hearing and physical challenges.

Even though the likelihood of participating in the traditional banking financial market reduces for PwD, the need for policies that target these groups of the population, particularly those that are financially excluded, and identify the main obstacles they face is crucial. This study recommends an affirmative approach to support the participation of persons with disabilities in financial services. Thus, priorities should be given to PwDs in financial services. The financial services industry should give employment to PwDs and implement assistive technologies such as braille readers and alternative and augmentative communication devices. Indeed, financial institutions should include PwDs when making discussions relating to expanding and strengthening financial independence. There is also the need to make smart phones more affordable for persons

with disabilities to tackle significant barriers, as would providing digital skills training designed to support the learning journey of persons with different types of disabilities. Again, as part of the monthly transfer payment made by the government to PwDs, one-time mobile phones can be provided, especially to those who do not have one

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