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**Working Paper**

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# "I know my rights, but am I better off?": Institutions and Disability in Uganda

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**Abstract**

Uganda is internationally recognised for its extensive legal and constitutional provisions for ensuring the rights of the disabled, in addition to the presence of a number of impairment-specific disabled persons' organisations (DPOs), which provide informal advocacy and support structures. Using a unique dataset from a sample of 579 physically disabled Ugandans collected by the authors in June 2012, we investigate the factors that are correlated with knowledge of the formal institutions of disability. Subsequently, we analyse whether this specific knowledge results in higher incomes for the respondents. There is evidence of a clear gender distinction both in terms of the knowledge of the formal institutions, and in income. Specifically, a woman's education, a measure of their social empowerment and membership of external networks being important correlates to knowledge, whilst for men; their age is the significant factor. In terms of earnings, we find that women are most likely to benefit from the knowledge of formal institutions of disability. Through our analysis we have sought to expand the literature on disability in developing countries using a unique approach that merges concepts from the social capital and institutions literature. Our results provide insights into how legislative tools may be used to ensure social and economic objectives are more mutually reinforcing, as well as the mechanisms through which information can be transmitted effectively amongst marginalised socioeconomic groups.

**Keywords**: Development, Africa, Disability, Social Capital, Institutions

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**CREDIT Research Paper**

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# "I know my rights, but am I better off?": Institutions and Disability in Uganda

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## Introduction

This paper aims to take advantage of the relatively well-defined legislative and constitutional environment concerning disability that characterises Uganda, investigating whether this progressive stance has had any effect on the economic well-being of the disabled, specifically their income. We address two questions: firstly, what factors are associated with knowledge of the formal institutions of disability in Uganda by the physically disabled, and secondly, does this knowledge or awareness lead to better economic outcomes, such as higher earnings? The dataset used in this analysis is unique. It was collected by the authors through a comprehensive survey instrument implemented in Uganda in June 2012, as part as a wider randomised evaluation of the effectiveness of providing orthotic equipment (i.e. mobility devices such as crutches, calipers and adapted shoes) to a sample of physically disabled people from Kampala. In addition, a number of interviews were held with 16 key stakeholders concerning disability issues in Uganda.

Answering the title of the paper, yes, knowledge does make our disabled respondents better off, but only if they are women. We find evidence of a clear gender distinction both in terms of the knowledge of the formal institutions, and in income. Specifically, a women's education, a measure of their social empowerment and membership of external networks are important correlates to knowledge, whilst for men, their age and social empowerment are the statistically significant factors. In terms of income, we find that knowledge of the formal institutions of disability is a positive determinant of a woman's income (even after controlling for potential endogeneity), as is the number of years of their potential work experience. For men, being in wage employment is the only significant factor positively affecting their income. Further, knowledge does not appear to have any effect on the type of employment of the respondent i.e. whether wage or self-employed.

*"Disabilities is an umbrella term, covering impairments, activity limitations, and participation restrictions. An impairment is a problem in body function or structure; an activity limitation is a difficulty encountered by an individual in executing a task of action; while a participation restriction is a problem experienced by an individual in involvement in life situations. Thus disability is a complex phenomenon, reflecting an interaction between features of a person's body and features of the society in which he or she lives."* World Health Organisation

The World Health Organisation's definition of disability shown above is the outcome of an international disability movement that has undergone a number of substantial transformations. Prior to the 20th century the prevailing model of disability was one of charity and benevolence by individuals and institutions, and tended to perpetuate exclusion and segregation of the disabled from society, both literally and metaphorically. As the medical profession developed, this model of charity was replaced by one that was defined almost solely in terms of the medical impairment – the optimal policy response being to prevent the condition or treat medically the subsequent symptoms. Whilst the medical model provided services for the disabled, it became clear that disability was a condition not solely determined by the physiological; environmental and societal barriers still perpetuated the exclusion of the disabled from mainstream society. Disabled people themselves defined disability as being "something imposed on top of impairments by the way we are unnecessarily isolated and excluded from full participation in society"[1]. As such, appropriate government policy can mitigate against this exclusion (Yeo and Moore, 2003). Taking into account of the need for an accompanying set of socially-motivated policies, the medical model was replaced by the 'social' model (Oliver, 1983; Shakespeare and Watson, 1997; Hughes and Paterson, 1997).

The social or rights-based model focuses not on the person's impairment, but their functionality and integration with respect to activities; social participation being key to determining whether or not a person is classed as disabled (Loeb *et al.*, 2008). Any limitations imposed resulting from a medical impairment are considered disabling (Grut and Ingstad, 2005) and often a person's reduced capabilities (either physical or mental) are used as justification for

[1] Union of the Physically Impaired against Segregation, Founding Statement, 1976.

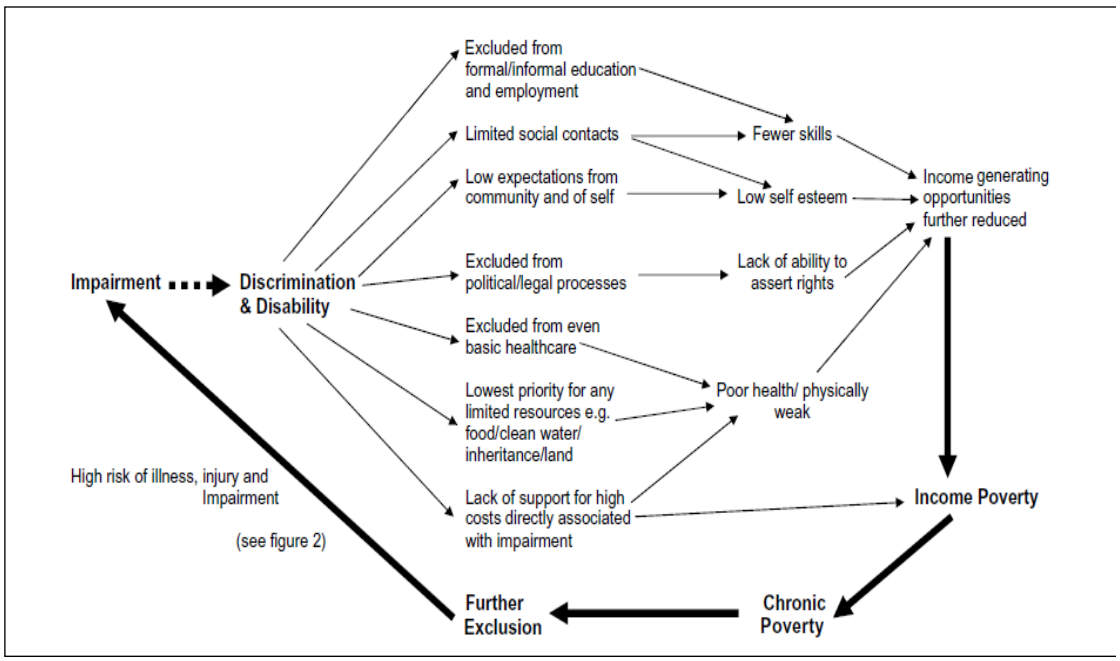
exclusion. However in a modern society, policies and practical measures can be implemented to ensure that this does not occur (Russella and Malhotra, 2002).

In practice, the implementation of the social model has resulted in the proliferation of numerous international accords and conventions, as well as legislation at the national level to define and protect the rights of the disabled. Whilst being a marked improvement on the initial 'charity' model, a common criticism of the social model is its legalistic approach, ultimately that it is difficult to implement and enforce in practice (Handley, 2000; Sheldon, 2005). As such, there has been an explosion of non-governmental, rights-based organisations that have sought to address these deficiencies often without the obvious backing of the government. In the words of Young and Quibell (2000, p.758), "what is a right, when it means nothing legally?".

Using the social model of disability as a foundation, one can see more clearly the way in which people with disabilities may be excluded from society, and not solely in the literal sense. This can happen in three main ways: economically, socially and politically. From an economic perspective, they may face obstacles to participation in livelihood activities, especially those of an income generating nature. This also extends to a lack of access to financial resources and credit, where they are viewed as being extremely high risk. The nature and extent of social exclusion differs across societies, but discrimination either explicitly or implicitly does take place. Consequently, if the disabled are not recognised in these other facets of life, then they are unlikely to gain political representation. As a result of exclusion, the disabled often do not fully benefit from poverty reduction programmes. As Sen (2009) notes, the dynamics between disability and poverty are complex and intricate – poverty increasing the risk of disability and disability increasing the risk of poverty.

The reverse causality between disability and poverty, highlighted in Figure 1, in conjunction with a lack of data makes analysis difficult. As a result, there is little economic literature on the effects of disability and even less with a developing country focus.

**Figure 1: The Disability-Poverty Cycle**




Source: Yeo and Moore (2003)

This paper aims to address this latter issue and takes the following structure: section 2 describes the Ugandan disability context outlining the nature of the formal and informal institutions present. Section 3 provides a brief outline of the conceptual framework underpinning our analysis, whilst section 4 describes the data used in the empirical analysis. The empirical methodology and subsequent results are in section 4, with extensions to the analysis provided in section 5. Conclusions are presented in section 6.

## 1 Disability in Uganda

In 2011, the World Health Organisation revised its estimate of the number of disabled in the world to 15 per cent of the global population[2] - an increase from 10 per cent. However, data on disability is particularly difficult to obtain, partly due to the fact that there is not one universal

[2] WHO, Disability and Health, Fact Sheet no. 352, June 2011.

definition[3], but also given that in some societies disability remains a social taboo and is highly unreported. As a result the data is widely considered inaccurate and in many cases conflicting. This is a reality in the Ugandan context. The most recent national disability statistics were gathered through the 2002 National Population and Housing Statistics and reported 838,000 people as being disabled, out of a population 24.6 million, approximately 3.4 per cent[4] (see Table 1). It is widely believed that this number is underestimated due to both statistical and societal reasons. In fact, the Uganda Demographic and Health Survey (2006), using an improved methodology for capturing disability[5] shows evidence of a disability prevalence rate of 20 per cent for the population aged 5 years old and above. In stark contrast to another source of data, the Uganda National Household Survey (2005-2006) reported an estimate of 7.2 per cent.

**Table 1: Prevalence of Disability in Uganda**

| | Male | Female | Total | Number ('000) |
|---|---|---|---|---|
| **Persons with Disabilities (PWDs)** | | | | |
| All PWDs[1] | --- | --- | --- | 838 |
| Physical | 48.0 | 45.4 | 46.7 | 392 |
| Hearing problem | 15.8 | 17.6 | 16.6 | 139 |
| Sight Problem | 23.9 | 27.2 | 25.4 | 213 |
| Speech Problem | 5.6 | 4.5 | 5.0 | 42 |
| Mental Retardation | 4.3 | 3.9 | 4.1 | 34 |
| Mental Illness | 4.3 | 3.9 | 4.1 | 34 |
| Others | 10.3 | 11.5 | 10.9 | 91 |

*[1] Some persons had more than one disability, therefore cases do not add up to PWDs*

Source: Uganda National Housing and Population Census 2002

### *Formal Institutional Environment*

Defining institutions, like defining disability, is not straight forward. For the purpose of this research, we will use the institutional definition proposed by North (1994, p.316):

[3] Although this is changing with the UN Washington Group on Disability Statistics, working towards implementing common definitions and measurement parameters for the collection of data on disability.

[4] Uganda displays a significant number of physically disabled people as a result of injuries inflicted by the guerrilla war perpetrated by the Lord's Resistance Army (LRA) that took place in the north of the country from 1987-2008. Although more recently, road traffic accidents have become the predominant cause.

[5] Formulated by the UN Washington Group on Disability Statistics, http://unstats.un.org/unsd/methods/citygroup/washington.htm

"Institutions are the humanely devised constraints that structure human interaction. They are made up of formal constraints (e.g. rules, laws, constitutions), informal constraints (e.g. norms of behaviour, conventions, self-imposed codes of conduct) and their enforcement characteristics".

Uganda is unique not only from a developing country perspective, but also globally. Considered by many to be at the vanguard of the disability-rights movement, it has at its foundation a legislative environment that is disability-specific (Lwanga-Ntale, 2003). It is signatory to, and has ratified, a number of international and regional agreements committing itself to ensuring and protecting the rights of marginalised groups and where applicable, specifically people with disabilities (see **Figure 2**).

**Figure 2: International Conventions Ratified by the Republic of Uganda**

- The United Nations Convention on the Rights of Persons with Disabilities (CRPD)
- The UN Washington Group on Disability Statistics (2001)
- The Universal Declaration of Human Rights
- The Economic Covenant on Economic, Social and Cultural Rights (ICESCR)
- The Convention on the Elimination of Discrimination Against Women (CEDAW)
- The Convention on the Rights of the Child (CRC)
- African Charter on Human and Peoples' Rights
- The Convention Concerning Discrimination in Respect of Employment and Occupation
- The Convention Concerning Vocational Rehabilitation and Employment (Disabled Persons)
- African Decade of Persons with Disabilities (2000-2009)

These international commitments have also been translated domestically. The rights of the disabled are recognised in the Constitution of the Republic of Uganda (1995), which additionally recognises sign-language as an official language of the country – Uganda being the second country in the world to do so. The Persons' with Disability Act (2006) is a piece of disability-specific legislation that translates the ideas of the social model of disability (i.e. covering a range of social factors such as education, health, employment, accessibility, discrimination) into a law. The Parliamentary Elections Statue (1996) requires that there are five seats in Parliament that are dedicated to persons with disabilities – one for each of the four regions of Uganda as well as

a women's representative[6]. In addition, it is often stated that Uganda has the highest number of disabled people represented in government in the world – a total of 47,000 at the local, regional and national government – which is attributed to the Local Government Act (1997) (Lwanga-Ntale, 2003). The rights of the disabled are also recognised in broader sectoral legislation that includes (but is not limited to): health, education, labour, and roads and highways. Most recently, a disabled person's organisation (DPO), the Uganda National Action of Physically Disabled (UNAPD), has led a campaign to have the building standards legislation amended to legally ensure physical accessibility for people with disabilities in all newly constructed public buildings. These amendments are currently being debated in Parliament. Whilst the list of laws and conventions to which Uganda is party to is impressive and constitutes the formal institutional environment for the purpose of this study, the translation of these provisions into tangible improvements for the lives of the disabled in Uganda is less apparent.

***Informal Institutional Environment***

With the lack of an effective social security system, depending on the extent of their disability, disabled people are typically reliant on their family and community networks for survival. However, in recognition of the absence of direct support from the Government, civil society has responded and created an informal institutional structure.

In general non-governmental organisations involved in the disability agenda have typically worked on "cure" and medical prevention of impairment rather than focusing on ensuring the mainstreaming of disability issues in the national poverty-reduction framework (Yeo and Moore, 2003). However, as in the case of Uganda, advocacy and more socially-related aspects of disability are becoming the predominant modus operandi. A search of the Ugandan Ministry of Internal Affairs' Register of NGOs for 2008, yields the names of over 300 disability-related

[6] These seats are determined following election by a caucus of disabled people all of which are members of the National Union of Disabled People in Uganda (NUDIPU).

organisations, both local and international - an increase from around 70 in 2002[7]. And whilst finances are typically scarce advocacy activities under the umbrella organisation – the National Union of Disabled Persons of Uganda (NUDIPU) – is strong. In fact, NUDIPU count amongst their many achievements, the lobbying and successful addition of the requirement for disabled people to be represented in Parliament, as mentioned previously. That is not to say that disabled persons organisations (DPOs) do not suffer from their own challenges: it is still the case that some groups of disabled people are marginalised (even within this informal environment), specifically those with mental or behavioural impairments, in addition whilst being run 'for' people with disability, a number of the organisations are not run 'by' the disabled (again depending on the type of disability being represented) and this limits the extent to which the disabled are truly included. In this analysis we consider informal institutions of disability to be an all-encompassing term for any structures that are not legal instruments or are not implemented by the Government of Uganda.

## 2 Conceptual Framework

As mentioned previously, there is a very limited economic empirical literature focusing on disability and consequently a lack of an associated theoretical underpinning; as such, we attempt to motivate our analysis by implementing a conceptual framework that combines concepts from the social capital and political science literature (Torrance, 2013)[8]. In particular, this new framework merges a social capital framework presented in Woolcock and Narayan (2000) and the informal institutions typology of Helmke and Levitsky (2004). As a result, this new framework links the interaction of formal and informal institutions to socioeconomic outcomes, the transmission mechanism being the level of 'bridging' social capital (see Appendix 1). According to Putnam (2000), 'bridging' social capital is typically associated with that which

[7] Acknowledgement is made of the potential inaccuracies of this data source and given that a number of these organisations may not have been particularly active or survived, the increase in the number that actually approached the Ministry to register is still striking.

[8] Torrance (2013), Interaction between Formal and Informal Institutions, Social Capital and Socio-economic Outcomes: A New Conceptual Framework (Chapter from Doctoral Thesis).

results from the membership of groups with heterogeneous members and with external connections to other groups; whereas 'bonding' social capital is typically derived from close networks of family and friends. In brief, the framework characterises four possible outcomes:

1. In cases where informal institutions are complementary to formal institutions and outcomes of each converge and there are high levels of bridging social capital; we expect high levels of 'socioeconomic well-being'.
2. Where formal institutions are less effective, but outcomes are still likely to converge with those of informal institutions, the latter are considered substitutive to formal institutions and we observe a 'coping' state of economic well-being. Effectively, the informal institutions are compensating for the fact that the formal state is dysfunctional and high-levels of bridging social capital (and the associated superior skills/competences) allow this to be the case.
3. On the other hand, when bridging social capital is low i.e. "mainly in primary social groups disconnected from one another, the more powerful groups dominate the state, to the exclusion of other groups" (Woolcock and Narayan, 2000, p. 237), informal institutions are accommodating of formal institutions. They accommodate the latent conflict between groups, which results due to a break-down in state-societal relations and the presence of divergent outcomes between formal and informal institutions.
4. Lastly, where bridging social-capital is low, and informal institutions jostle for dominance over formal institutions that are ineffective (or have collapsed entirely), then the former are considered to be competing. Individual groups that may be high in bonding social capital, but lack the external connections to other groups attempt to fill the void left by the lack of formal institutions. In this instance, a state of conflict in terms of state-societal relations results, with divergent outcomes between formal and informal institutions and consequently, a complete breakdown in economic prosperity. The latter due to the fact that groups high in bonding social capital, but

lacking in bridging social capital are more inclined to perpetuate the exclusion of non-members and pursue solely the well-being of their own group members.

On this basis, we reflect the importance of social capital and in particular that of a 'bridging' nature in our empirical analysis. Specifically, attempting to take into account of the networks and connections that disabled people may possess, how the presence of such are associated with knowledge of the formal institutions of disability, and whether this impacts on their economic well-being. Both of these research questions will be addressed also taking into account the potential differing impact that gender may play. This is to reflect the rather gender-based roles that are often evident in African societies. In addition, as an attempt to establish whether or not the formal institutions of disability have been effective, we also undertake the analysis based on age cohort. This is on the assumption that the younger generation may be more likely to benefit from the institutional environment that has been created over time.

## 3 Data

### I. Fieldwork and Data Collection

This research into the institutions of disability in Uganda took place as part of a randomised controlled trial to measure the effects of providing orthotic equipment to disabled adults in Kampala, carried out over the period June 2012 to June 2013. It involved a pre-medical assessment, fitting of orthotic equipment (e.g. calipers, crutches, walking sticks, knee and ankle braces), post-medical assessment and socio-economic economic survey. One of the major considerations for choosing Uganda for the trial was its comparatively progressive approach to ensuring the rights of disabled people.

The survey was undertaken by a sample of 579 disabled adults. In addition, a reduced form version of the questionnaire was implemented using a sample of 250 non-disabled people chosen randomly on the streets of Kampala. In addition to these survey questions, interviews with key informants were also carried out using a semi-structured interview technique. In total 16 interviews were carried out with institutions representing the Government of Uganda/public

sector, NGOs and DPOs, donors and Members of Parliament. The information gathered through these interviews was used to gain a more thorough understanding of the institutional environment that characterises disability in Uganda.

The sampling frame for the randomised controlled trial was adults, aged 14 and over, who live in Kampala and four surrounding districts – Wakiso, Luwero, Mukono and Mpigi. In terms of disability, only the physically disabled were included and specifically, those who suffer from lower-limb mobility issues as a result of disease (e.g. poliomyelitis, stroke, osteomyelitis etc.) or injury (e.g. road traffic accidents, conflict-related). The nature of the orthotic equipment collected and shipped to Uganda determined in some respects this sampling frame, but also that the physically disabled and particularly those with only lower limb mobility issues, are a relatively homogenous group. The unit of investigation was at the level of the individual (the disabled person assessed, treated and surveyed) and of the organisation (key informant interviews).

## II. Variables and Descriptive Statistics

### *Control Variables*[9]

In terms of the personal characteristics of the respondent, it is expected that age (*age*) will have a positive relationship with the knowledge of institutions, as well as subsequent earnings. This is due to the fact that older individuals are more likely to have left education, be pursuing employment on a full-time basis and experience gathered in the labour market is likely to result in higher wage payoffs. In addition, one may assume that as people grow out of childhood they have more interest in their surrounding environment, as well as daily interactions as an adult increasing their exposure to the institutions that affect them. The variable female captures the gender of respondent (equal to 1 if the respondent is female and 0 otherwise), although it is not clear in what direction the relationship with knowledge will be. On the one hand, women tend to be less educated than men in Africa and thus one could expect them to have less knowledge of formal institutions; on the other hand, they do tend to be in charge of the more social aspects

[9] See Appendix 2 for a description of all the variables used in this empirical analysis.

of the household and disability concerns may be included within this. The level of education is also controlled for using schooling (number of years of schooling), *primary*, *secondary* and *tertiary* (dummy variables for highest level of education achieved)[10]. Given that there are very few people in the sample who report that they are unemployed (but seeking employment) the type of employment is controlled for as opposed to whether or the respondent is employed or not. Specifically, *wage* is a dummy variable equal to 1 if the respondent is wage employed (i.e. receiving a wage or salary) and equal to 0 otherwise. The respondent's individual monthly income is calculated[11] and due to an evident skew to the distribution of the data, natural logs are taken (*lnearn*). Finally, to control for the wealth of the household, household income (*hh_income*) is proxied using an asset index that has been created. This approach is common in the literature to account for a lack of detailed consumption and expenditure data (Filmer and Pritchett, 2001)[12]. Given that the disabled tend to a marginalised group in society, particularly in developing countries, a dummy variable is constructed that captures whether the respondent has experienced some form of self-defined discrimination or mal-treatment in a public setting in the last 12 months (*discrim*).

Attempts are also made to capture the respondent's engagement in the wider institutional environment: *paid_more* describes whether the respondent paid more for a health service than its listed/published price and is also taken as a proxy of the extent of corruption and general effectiveness of the public institution. In a similar fashion, *be_kept* indicates whether the respondent believes that having made a payment for a health service, they believe that it will be kept by person receiving the payment and not be remitted back to the institution (or eventually the government) - again providing a proxy for perceived corruption and institutional effectiveness. The respondent's rating on the 'quality of public service' is proxied by their

[10] Those respondents who reported not having any formal education i.e. 0 years of schooling, are considered the reference group.

[11] This is as a result of the authors' calculation which includes aggregating income from all reported sources including, wage employment, self-employment and other sources. The individual's income is then calculated on a monthly basis.

[12] The correlation between the constructed variables capturing individual and household income is measured and shown to be positive and statistically significant at the 1 per cent level.

assessment of the local health clinic they attend (*clinic_rate*), which is a descending, 7-point rating where higher values indicate a lower perceived quality of service.

From the social capital literature, an attempt is made to measure empowerment and political action by offering the respondent a choice between the following two statements:

*A - Each person is primarily responsible for his/her success or failure in life*

*B - One's success or failure in life is a matter of his/her destiny*

A dummy variable *empower* is created if the respondent chose statement A. Lastly, reflecting the social capital that the respondent may actually possess, in particular their participation in networks, the following two variables are created: *network_close* captures whether or not the respondent attends social, family gatherings; and *network_ext* captures external networks through attendance of local, non-family based groups and contact with people outside of their immediate community. Both of these are dummy variables and aim to capture the distinction between 'bonding' and 'bridging' social capital, respectively[13].

***Dependent Variables***

Seven variables are used to proxy for the knowledge of formal institutions of disability; they are dummy variables where 1 equates to knowledge and 0 no knowledge:

- Knowledge of the correct ministry responsible for disability issues (*corrmin*);
- Knowledge of the Persons with Disability Act (2006) (*pwdact*);
- Knowledge of the National Policy for Disability (*natpol*);
- Knowledge of the National Council for Disability (*ncd*);
- Awareness of provisions for the disabled in relevant health legislation (*leghealth*);
- Awareness of provisions for the disabled in relevant education legislation (*legedu*); and
- Awareness of provisions for the disabled in relevant labour legislation (*leglab*).

[13] In line with the literature on qualitative surveying and taking note of the fact that questions on knowledge may be perceived as threatening, to the extent that displaying a lack of knowledge is socially undesirable, questions are framed in the manner of 'awareness' of the institutions (see Appendix 2).

In an attempt to capture a more broad-based indicator of knowledge, a composite indicator is created:

- *knowledge* is a dummy variable that takes the value 1 if three[14] or more of the seven institutional variables are known, 0 otherwise.

Appendix 3 provides the descriptive statistics of the control and institutional variables. In summary, the average age of the sample is 40 years old, approximately 42 per cent are female and 45 per cent are married. The average number of years of education is 8, which is roughly equivalent to completing two out of six years of secondary school, or grade S2. Approximately 29 per cent of the sample are employed and receive a wage, whilst nearly 38 per cent of respondents are self-employed. Average monthly household income is 313,000 Uganda shillings (approximately USD120)[15]. Only 4 per cent of the sample interviewed had a mother or father that was disabled. In the past 12 months, approximately 46 per cent of the sample had experienced some form of (self-defined) discrimination[16].

***Comparison to non-disabled sample***

Unfortunately, an econometric analysis of a sample of both disabled together with the non-disabled cannot be undertaken as data on individual and household income was not collected for the latter[17]. However, in order to better understand the sample of disabled people, basic demographic characteristics and institutional variables can be compared to the data collected from the non-disabled. A brief discussion follows below.

It may be rational to assume that the disabled are more inclined to know of the formal institutions that are directly responsible for ensuring their rights or providing them with services than the non-disabled. However, this does not always seem to be the case. Table 2 presents t-tests of the difference in means of the various institutional variables between the

[14] The value three having been chosen as it represents a cumulative average of approximately 50%.

[15] Uganda's GDP per capita in 2010 was $509.10 (US current prices) (UN Data, 2013).

[16] The question being: "Have you ever experienced any discrimination on the street or at a public space?" Yes/No.

[17] This was due to the fact that street interviews were used and it was believed that asking questions on income would be too intrusive given respondents were chosen randomly and may not understand fully the premise of the research.

disabled and non-disabled sample. There is no statistical difference between both samples in terms of knowledge of the PWD Act (*pwdact*), health and education legislation (*leghealth* and *legedu*, respectively). However, the non-disabled all exhibit higher knowledge of the other institutional variables, albeit at various levels of statistical significance.

**Table 2: Difference in Means between Non-Disabled and Disabled Sample**

| Variable | Mean *Non-Disabled* | Mean *Disabled* | Difference in Mean *t-statistic/(p-value)* |
|---|---|---|---|
| *corrmin* | 0.59 | 0.50 | 2.13 (0.017) |
| *natpol* | 0.60 | 0.49 | 2.98 (0.002) |
| *ncd* | 0.52 | 0.50 | 0.52 (0.300) |
| *pwdact* | 0.50 | 0.47 | 0.81 (0.208) |
| *leghealth* | 0.53 | 0.52 | 0.37 (0.357) |
| *legedu* | 0.63 | 0.48 | 3.92 (0.000) |
| *leglab* | 0.50 | 0.45 | 1.41 (0.079) |
| *knowledge* | 0.76 | 0.63 | 3.01 (0.001) |

*Note: $H_0$: mean(non-disabled) – mean(disabled)=0; $H_1$ = mean (non-disabled) – mean (disabled)<0*

Could the fact that the non-disabled have a higher awareness of disability institutions be reflective of the fact that the non-disabled may be more educated, have better access to information and do not experience the social exclusion that may be the case for the people with physical impairments? From the data, this does seem to be the case. The sample of non-disabled is younger (30 years old), have on average 12 years of education and approximately 60 per cent are in or have, completed tertiary education. In addition, 78 per cent are employed, whether in formal wage employment or self-employment.

However, given that the society within which the disabled live is shared with non-disabled people, the latter's awareness and familiarity with laws that recognise disability rights should

be considered a positive outcome. In addition, it could be considered evidence that these formal institutions are having some impact on society, although enforcement does remain an issue.

## 4 Empirical Methodology and Results

### *I. The Factors Associated with the Knowledge of Formal Institutions of Disability*

In order to estimate our first research question – the factors associated with the knowledge of formal institutions of disability - the following model is applied:

$$\text{knowledge}_i = \alpha_i + \beta_i X + \varepsilon_i \qquad (1)$$

Where X is a vector containing variables relating to the respondent's personal characteristics, as well as their engagement in the wider institutional environment and factors associated with their social capital (discussed in section 2). Given that the dependent variable knowledge is binary, equation 1 is estimated using a probit model[18]. Variables are added sequentially and the results are presented in Table 3[19].

The results show that *age* has a positive, statistically significant correlation with *knowledge* and that this effect is quadratic, implying diminishing returns and reflecting the fact that knowledge is likely to depreciate with age[20]. In addition, education is also important, with the coefficients of all variables, *primary*, *secondary* and *tertiary* displaying positive signs with statistical significance robust to specification[21]. In fact, the higher levels of education have greater statistical significance than primary education, which one could argue reflects the more arduous nature of type of knowledge being captured. The wealth of the household (*hh_income*)

[18] *Knowledge* is replaced with the seven individual institutional variables sequentially, as well as a count variable, knowledge_sum, of the number of institutions that the respondent is aware of (minimum of zero and maximum of seven). The model is re-estimated (using a probit and ordered probit model respectively) and overall the main results hold. Crucially, the measure of empowerment and bridging social capital are robust to estimation method and age also remains a strong correlate with knowledge.

[19] Both a LPM and logit model were also estimated with results reflective of those generated through the probit model – results not presented here, but available on request.

[20] Whilst the inclusion of the quadratic age term is common practice in human capital literature and this convention is followed, as a robustness test the model is re-estimates without this term. The results show that age is no longer significant – results available on request.

[21] Reporting no formal education is the base comparison group.

is positive and statistically significant in the early specifications, but once wider 'institutional engagement' variables are included this significance is lost.

Whether or not the respondent has experienced discrimination in a public place is statistically insignificant, although the sign of the coefficient is negative. The proxy for empowerment (*empower*) appears to be an important, positive correlate to knowledge of formal institutions of disability, and the result is robustly significant across specifications. The variables capturing wider institutional engagement (*paid_more, crime_rep, be_kept, clinic_rate*) are statistically insignificant across specifications. However, given that the external network variable (*network_ext*) may be capturing factors similar to these, when they are dropped from the specification, *network_ext* remains positive and statistically significant with the coefficient increasing in magnitude (affirming these initial suspicions). The variable that attempts to proxy for 'bonding' social capital (*network_close*) is negatively signed, but statistically insignificant[22].

We investigate whether the knowledge of the formal institutions of disability is affected by the gender of the respondent. This may be a plausible assumption based on the fact that men and women in sub-Saharan African societies tend to have entrenched gender-based roles that may or may not constitute differences in their knowledge of the institutions of disability. In fact Table 4 show that there is evidence of a gender-bias, with women's knowledge driven by possessing a secondary or tertiary level of education, a belief of their empowerment and membership of external networks or possession of 'bridging' social capital matters statistically (see Table 4). For men, age, household income and empowerment are the significant factors, as well as secondary, but not tertiary, education.

[22] The Wald test supports the joint significance of the explanatory variables used in these estimations. In comparing the model specifications, a likelihood ratio (LR) test supports that shown in column 6 (the unrestricted model) over the more restricted model in column 1.

**Table 3: The Factors Associated with the Knowledge of Formal Institutions**

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| *Personal Charac.* | | | | | | |
| age | 0.068 | 0.065 | 0.073 | 0.072 | 0.068 | 0.068 |
| | (3.00)*** | (2.85)** | (3.14)** | (2.67)** | (2.52)* | (2.90)** |
| $age^2$ | -0.001 | -0.001 | -0.001 | -0.001 | -0.001 | -0.001 |
| | (2.82)*** | (2.67)** | (2.98)** | (2.51)* | (2.37)* | (2.77)** |
| female | 0.069 | 0.065 | 0.064 | 0.145 | 0.173 | 0.092 |
| | (0.55) | (0.52) | (0.51) | (1.05) | (1.23) | (0.71) |
| primary | 0.610 | 0.621 | 0.720 | 0.808 | 0.864 | 0.712 |
| | (1.99)** | (2.02)* | (2.29)* | (2.34)* | (2.47)* | (2.25)* |
| secondary | 0.793 | 0.815 | 0.887 | 1.055 | 1.127 | 0.894 |
| | (2.55)** | (2.60)** | (2.78)** | (3.00)** | (3.16)** | (2.78)** |
| tertiary | 0.904 | 0.933 | 1.004 | 1.169 | 1.182 | 0.992 |
| | (2.74)*** | (2.81)** | (2.96)** | (3.15)** | (3.16)** | (2.91)** |
| wage | 0.152 | 0.162 | 0.103 | 0.144 | 0.154 | 0.120 |
| | (1.05) | (1.12) | (0.70) | (0.90) | (0.96) | (0.81) |
| hh_income | 0.210 | 0.199 | 0.168 | 0.119 | 0.102 | 0.140 |
| | (2.33)** | (2.19)* | (1.84) | (1.23) | (1.04) | (1.52) |
| discrim | | -0.124 | -0.176 | -0.190 | -0.155 | -0.140 |
| | | (0.99) | (1.37) | (1.36) | (1.10) | (1.09) |
| *Inst. Engagement* | | | | | | |
| empower | | | 0.538 | 0.388 | 0.393 | 0.533 |
| | | | (4.01)** | (2.60)** | (2.61)** | (3.93)** |
| paid_more | | | | 0.228 | 0.220 | |
| | | | | (1.42) | (1.36) | |
| crime_rep | | | | 0.233 | 0.207 | |
| | | | | (1.26) | (1.11) | |
| be_kept | | | | -0.267 | -0.284 | |
| | | | | (1.71) | (1.81) | |
| clinic_rate | | | | -0.056 | -0.054 | |
| | | | | (1.46) | (1.37) | |
| *Social Capital* | | | | | | |
| network_close | | | | | -0.254 | |
| | | | | | (1.18) | |
| network_ext | | | | | 0.329 | 0.366 |
| | | | | | (2.36)* | (2.85)** |
| _cons | -1.729 | -1.623 | -2.164 | -2.370 | -2.256 | -2.220 |
| | (3.20)*** | (2.94)** | (3.74)** | (3.44)** | (3.20)** | (3.80)** |
| *N* | 506 | 506 | 505 | 432 | 432 | 505 |
| $Chi^2$ | 34.78 | 35.77 | 51.77 | 53.85 | 60.77 | 59.99 |
| *P* | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| $R^2\_p$ | 0.06 | 0.06 | 0.09 | 0.10 | 0.11 | 0.10 |

Notes: Dependent variable is *knowledge*; estimated using probit; * denotes statistical significance: * p<0.1; ** p<0.05; *** p<0.01. Test of joint significance of variables ($chi^2$), associated p-value (P); $R^2$_p is the pseudo $R^2$.

**Table 4: Factors Associated with the Knowledge of Formal Institutions - by Gender**

| | 1<br>Female | 2<br>Female | 3<br>Male | 4<br>Male |
|---|---|---|---|---|
| age | 0.041 | 0.035 | 0.088 | 0.092 |
| | (1.21) | (0.94) | (2.76)** | (2.82)** |
| $age^2$ | -0.000 | -0.000 | -0.001 | -0.001 |
| | (0.93) | (0.70) | (2.75)** | (2.85)** |
| primary | 0.572 | 0.794 | 0.925 | 0.975 |
| | (1.42) | (1.82) | (1.75) | (1.82) |
| secondary | 0.660 | 0.998 | 1.167 | 1.184 |
| | (1.62) | (2.24)* | (2.19)* | (2.20)* |
| tertiary | 1.128 | 1.440 | 1.003 | 1.007 |
| | (2.53)* | (2.92)** | (1.82) | (1.80) |
| wage | 0.336 | 0.295 | -0.014 | -0.043 |
| | (1.47) | (1.24) | (0.07) | (0.22) |
| hh_income | 0.119 | -0.062 | 0.323 | 0.296 |
| | (0.93) | (0.45) | (2.43)* | (2.21)* |
| empower | | 0.785 | | 0.394 |
| | | (3.51)** | | (2.22)* |
| discrim | | -0.231 | | -0.100 |
| | | (1.07) | | (0.59) |
| network_ext | | 0.652 | | 0.205 |
| | | (3.02)** | | (1.22) |
| _cons | -1.199 | -1.900 | -2.327 | -2.707 |
| | (1.60) | (2.24)* | (2.79)** | (3.07)** |
| *N* | 215 | 215 | 291 | 290 |
| $Chi^2$ | 16.65 | 39.82 | 26.21 | 33.65 |
| *P* | 0.02 | 0.00 | 0.00 | 0.00 |
| $R^2\_p$ | 0.07 | 0.16 | 0.08 | 0.10 |

Notes: Dependent variable is *knowledge*; estimated using a probit model; sample split by gender as indicated; * denotes statistical significance: * p<0.1; ** p<0.05; *** p<0.01. Test of joint significance of variables ($chi^2$), associated p-value (P); $R^2$_p is the pseudo $R^2$.

### *II. Does this Knowledge have an Effect on Income?*

With some insight into what factors are associated with knowledge of formal institutions, attention is now turned to whether this knowledge makes a difference to the respondent's economic well-being i.e. is this reflected by their income?

The empirical specification takes the form of a modified Mincerian earnings equation (Mincer, 1957; 1958):

$$\ln(earnings) = \beta_0 + \beta_1 schooling + \beta_2 schooling^2 + \beta_3 experience + \beta_4 experience^2 + \beta_5 wage + \beta_6 \boldsymbol{knowledge} + \varepsilon \quad (2)$$

The dependent variable is the log of earnings, which is taken to be a proxy for economic well-being. The education variable is the number of years of formal education (*schooling*) and a

quadratic term is also included. In addition, the model aims to control for non-school related education and thus years of work experience (*experience*) and not age is included[23,24]. This also allows us to account for the fact that a large proportion of our sample is self-employed and these individuals have a tendency to leave school earlier than those intending to attain wage employment. Whether or not the individual is employed in formal wage employment (*wage*) is also controlled for. This reflects the fact that the dataset used in this analysis is not solely a labour force survey and thus observations are not limited to those solely in formal employment, and as such, within the sample there are both employed (whether in wage or self-employment) and unemployed respondents[25]. The variable of interest is *knowledge* – the dependent variable in the previous analysis (i.e. a dummy variable equal to 1 if the respondent is aware of 3 or more of the 7 formal institutions; 0 otherwise)[26]. Equation 2 is estimated after the sample is split by gender. This is driven by the fact that there is empirical evidence of a gender wage gap in Uganda comparable across the public and private sectors (Appleton *et al.*, 1999), in addition to the fact that there is no prevailing economic rationale justifying the assumption that men and women face the same earnings function[27].

The results presented in Table 5 do provide justification for estimating the model by gender. For women, *experience* is statistically significant and quadratic implying that the returns to experience diminish as more experience is gained (an expected result). Women also benefit from knowledge of the formal institutions of disability.

[23] As a robustness check age was also included in the model and results are similar – results not presented here, but available on request.

[24] Experience is calculated as the difference between the age of the respondent and the date they reported for their first job (irrespective of type of employment).

[25] Thus, sample selection bias from this respect may be reduced by some extent.

[26] Second, the model is then re-estimated replacing the variable knowledge by the seven individual institutional variables. In general, these variables are statistically insignificant.

[27] However, the model was estimated using the full sample, results show that the coefficient on experience is positive and statistically significant, the effect is also quadratic. When wage and knowledge are included in the specification, only the former is statistically significant with a positive sign.

**Table 5: Does this Knowledge Have an Effect on Income?**

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| | Female | Female | Male | Male |
| experience | 0.086 | 0.077 | 0.008 | 0.013 |
| | (2.66)*** | (2.61)** | (0.31) | (0.51) |
| $experience^2$ | -0.002 | -0.002 | -0.000 | -0.000 |
| | (3.11)*** | (2.84)*** | (0.49) | (0.64) |
| schooling | -0.082 | -0.057 | -0.080 | -0.060 |
| | (0.83) | (0.55) | (0.60) | (0.48) |
| $schooling^2$ | 0.013 | 0.010 | 0.010 | 0.007 |
| | (2.32)** | (1.65) | (1.39) | (1.13) |
| wage | | 0.158 | | 0.690 |
| | | (0.69) | | (3.54)*** |
| knowledge | | 0.721 | | -0.013 |
| | | (2.32)** | | (0.05) |
| _cons | 10.627 | 10.175 | 11.648 | 11.356 |
| | (21.87)*** | (18.89)*** | (18.12)*** | (16.30)*** |
| *F* | 11.58 | 8.62 | 4.81 | 5.96 |
| *P* | 0.000 | 0.000 | 0.000 | 0.000 |
| $R^2$ | 0.20 | 0.26 | 0.08 | 0.13 |
| *N* | 106 | 106 | 177 | 177 |

Notes: Dependent variable is *lnearn*; estimated using OLS and robust s.e.; sample split by gender as indicated; * denotes statistical significance: * p<0.1; ** p<0.05; *** p<0.01. Test of joint significance of variables (F), associated p-value (P); $R^2$ is the coefficient of determination.

Interestingly, for both men and women, *schooling* has no statistical effect on earnings. For men specifically, *experience*, *schooling* and *knowledge* show no statistical relationship with earnings. The only statistically significant factor being whether or not the respondent is in wage employment – a positive relationship as would be expected. The same pattern emerges for both men and women when *experience* is replaced with *age*.

Given that *knowledge* is statistically significant in the estimation of equation 2 using a female sub-sample the possibility of an endogenous relationship between this variable and earnings is acknowledged. In order to account for the potential reverse causality an attempt is made to instrument for knowledge and two potential instruments are identified. These include: *network_ext* – capturing whether or not the respondent attends local, non-family based groups that have contact with people outside of their immediate community; and *empower* – capturing whether or not the respondent believes that they are primarily responsible for his/her success or failure in life, as opposed to it being determined by fate.

**Table 6: Does this Knowledge Have an Effect on Income? - Conditional IV Regression**

| | 1<br>First Stage | 2<br>IV | 3<br>cIV |
|---|---|---|---|
| ***knowledge*** | | 1.822<br>(2.48)* | 1.822<br>(2.40)* |
| experience | 0.005<br>(0.45) | 0.064<br>(1.90) | 0.064<br>(1.84) |
| $experience^2$ | -0.000<br>(-0.75) | -0.001<br>(1.65) | -0.001<br>(1.59) |
| schooling | 0.013<br>(0.40) | -0.045<br>(0.46) | -0.045<br>(0.44) |
| $schooling^2$ | 0.001<br>(0.32) | 0.007<br>(1.11) | 0.007<br>(1.07) |
| wage | 0.069<br>(0.75) | 0.099<br>(0.35) | 0.099<br>(0.34) |
| empower | 0.191<br>(2.10)** | | |
| network_ext | 0.261<br>(3.13)*** | | |
| _cons | 0.245<br>(1.41) | 9.628<br>(15.81)** | 9.628<br>(15.28)** |
| *F/Chi2* | 4.36 | 30.87 | 4.81 |
| *P* | 0.000 | 0.000 | 0.000 |
| *N* | 106 | 106 | 106 |

Notes: Dependent variable is *knowledge*; estimated using a 2SLS model; Conditional IV regression (cIV); female sub-sample; * denotes statistical significance: * p<0.1; ** p<0.05; *** p<0.01. Test of joint significance of variables (F/$chi^2$), associated p-value (P).

Simple statistical analysis shows that these two variables are not correlated with the dependent variable (*lnearn*), but are positively correlated with knowledge with a significance level of at least 5 per cent. Estimating the model using two stage least squares we observe no change to our main finding that knowledge of institutions is positively associated with higher earnings for women (see Table 6). The joint significance of the instruments is 8.41 below the commonly applied threshold of 10 for weak instruments, but the tests for endogeneity and over-identification are passed[28]. Given the 'weak' instruments, the regressions are re-estimated using conditional instrumental variable regression (Moreira and Poi, 2003)[29] and again, the main result holds.

[28] Durbin $chi^2$ test statistic 3.08 (p-value 0.00); Sargan chi2 test statistic 0.046 (p-value 0.83)

[29] As a result of the poor performance of the normal approximation of the t-statistic, the conventional test of significance on the parameter of the instrumented variable has incorrect size, and the Wald-type confidence interval has low coverage probability (Moreira and Poi, 2003).

## 5 Extensions

Given that the initial analysis presented above highlights the importance of gender and age to both the both questions being investigated, we explore further the impact that these factors may have on our results.

### I. Cohort Analysis[30]

Whilst older disabled people are likely to have been at the vanguard of the disability movement, younger generations are more likely to have actually benefited from the more amenable disability environment shaped by these institutions, both formal and informal. As such, the knowledge of formal institutions may differ between younger and older generations. Whether the sample is split by age (14-40), year completed formal education (pre-1995)[31] or year of first entry into labour market (pre-1995), the following results hold: for women in the younger generation, their belief of their empowerment and participation in external networks are the only statistically significant factor determining their knowledge. For men it's their household income and whether or not they are wage employed. Within the older generation, women and men both benefit from education – for women both secondary and tertiary levels are important, whilst for men only the former. In addition women's level of social capital or engagement in external networks is also a positive determinant of their knowledge.

In terms of whether cohort matters for knowledge's impact on income, again there is evidence of a generational effect. When the sample is split by age for women of the younger generation none of the variables are statistically significant. Whilst for men wage employment is positive and statistically significant. For those aged greater than 40 years old, the knowledge variable is statistically significant, and again for men the only significant factor is whether or not they are in wage employment. The sample is then split by when the respondent finished formal education i.e. before or after 1995. For the former group, and in particular for women, their experience and knowledge of formal institutions is positive and statistically significant. The

[30] Results not presented here, but available on request.

[31] The year, 1995, that the new Constitution of the Republic of Uganda was being discussed, and which would eventually come to directly recognise the rights of the disabled, is taken as a point of reference.

coefficient on years of schooling is negative, but not statistically significant. For men, wage employment is the sole significant factor determining their income. With the cohort that finished school more recently (post-1995), the number of years of schooling is now positive and statistically significant for women (contrary to what was observed in the older cohort); whilst for men there are no statistically significant variables. Lastly, the sample is split by when the respondent secured their first job. This specification yields similar results to those above.

### II. Type of Employment

Reflecting the fact that knowledge may have more than just an effect on monetary earnings and might also affect the allocation of individuals across income-generating activities (Coulombe and Mackay, 1996; Appleton, 2000) we analyse whether knowledge has an effect on the type of employment i.e. wage or self-employment (see Table 7). By changing the specification or equation 2, a new pattern of results does emerge. Specifically, knowledge has no statistically significant effect on the type of employment that the respondent enters into. For women though, the number of years of schooling is negative and statistically significant for wage employment, but positive for self-employment. Whilst it is not clear that women are discriminated on the basis on their disability, it is the case that they are less rewarded financially, given their education, on the basis of their gender. The negative relationship between education and wage employment also appears to dominate when the full sample is used i.e. not split by gender.

**Table 7: Does this Knowledge Make Me Better Off? - Type of Employment**

| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|---|---|
| | Female | Female | Male | Male | Female | Female | Male | Male |
| *Dep. Vbl.* | Wage | Wage | Wage | Wage | Self | Self | Self | Self |
| experience | 0.023 | 0.018 | -0.009 | -0.012 | 0.003 | 0.004 | 0.011 | 0.007 |
| | (0.85) | (0.67) | (0.38) | (0.47) | (0.11) | (0.15) | (0.47) | (0.30) |
| $experience^2$ | -0.001 | -0.001 | 0.000 | 0.000 | 0.000 | 0.000 | -0.000 | -0.000 |
| | (1.37) | (1.08) | (0.07) | (0.16) | (0.28) | (0.22) | (0.21) | (0.05) |
| schooling | -0.220 | -0.210 | -0.063 | -0.063 | 0.281 | 0.278 | 0.045 | 0.046 |
| | (2.53)** | (2.34)** | (0.78) | (0.78) | (3.01)*** | (2.96)*** | (0.56) | (0.57) |
| $schooling^2$ | 0.018 | 0.016 | 0.007 | 0.007 | -0.021 | -0.021 | -0.006 | -0.006 |
| | (3.22)*** | (2.94)*** | (1.49) | (1.44) | (3.62)*** | (3.53)*** | (1.22) | (1.28) |
| *knowledge* | | 0.390 | | 0.141 | | -0.091 | | 0.222 |
| | | (1.54) | | (0.71) | | (0.38) | | (1.15) |
| _cons | -0.094 | -0.347 | -0.303 | -0.370 | -0.645 | -0.584 | 0.101 | -0.001 |
| | (0.24) | (0.78) | (0.78) | (0.92) | (1.59) | (1.34) | (0.26) | (0.00) |
| $Chi^2$ | 15.99 | 17.86 | 11.52 | 12.08 | 16.56 | 16.66 | 9.52 | 10.53 |
| *P* | 0.00 | 0.00 | 0.02 | 0.03 | 0.00 | 0.01 | 0.05 | 0.06 |
| $R^2\_p$ | 0.10 | 0.11 | 0.04 | 0.04 | 0.10 | 0.11 | 0.03 | 0.03 |
| *N* | 152 | 152 | 241 | 241 | 152 | 152 | 241 | 241 |

Notes: Dependent variable is *wage* or *self* as indicated; estimated using a probit model; sample split by gender as indicated; * denotes statistical significance: * p<0.1; ** p<0.05; *** p<0.01. Test of joint significance of variables ($Chi^2$), associated p-value (P); $R^2$_p is the pseudo $R^2$.

## 6 Conclusion

In terms of securing higher economic well-being, both at an individual and much broader, societal level, the quality of institutions is broadly considered a necessary condition. Given the relatively progressive legislative environment characterising Uganda, which suggests a higher quality of institutions at least on paper, this analysis has sought to investigate using a unique dataset, whether this has had any real impact on the lives of the disabled. There is evidence of such, in addition to the importance of non-formal mechanisms being highlighted.

Institutions shape the environment implicitly and as such the disabled may benefit tacitly, however on the basis that these institutions may be less than 100 per cent effective, the disabled may also have to take more explicit action to learn of their rights and ensure they are respected. On this basis, the first research question seeks to identify the factors that are correlated with knowledge of the formal institutions of disability. The age of the respondent, their education and belief in their empowerment are positively related to knowledge (using a range of measures), as well as household income, although the statistical significance of the latter is lost once the wider institutional variables are included. Reinforcing the underlying conceptual framework, the external networks variable - a proxy for bridging social capita - is a positive and statistically significant correlate.

Further, there is evidence of a gender divide in relation to these factors, with women relying more heavily on the highest level of education, the belief in their empowerment and membership of external networks. For men, their age and household income are the relevant factors. These results suggest that women have to invest in more concerted actions in order to be aware of their rights, which may also reflect the broader patriarchal society of Uganda.

There does however appear to be evidence that these formal institutions have had some effect on changing societal norms as the factors that are relevant to younger and older generations are different. For the older generation of women, higher levels of education as well as membership of external networks are still important factors driving knowledge. Whilst for men, age and household income remain the significant factors regardless of generation. For the

younger generation, knowledge of these institutions is not driven by education, even for younger women, but rather their belief in their empowerment.

In terms of whether or not this knowledge makes the disabled person better-off, proxied by their individual income, again there is an evident gender divide. For women knowledge does have an effect on their subsequent earnings and this is robust to potential endogeneity. In addition, women's work experience also positively determines their earnings – the magnitude of which is similar to that of the effect of knowledge. For men, the sole explanatory factor determining their income is whether or not they are in wage employment. Knowledge does not seem to have any impact on the type of employment that the respondent undertakes either.

There is evidence however, of a negative return to education for women in formal wage environments, which implies underlying gender discrimination in the formal labour market. Given that we are not able to compare these results to a non-disabled sample, it is not clear whether this discrimination is solely related to their gender or encompasses their disability too. The negative return to education though does appear to be driven by the older cohort and actually when the sample is split by age, the younger women do benefit positively from their schooling. However, the external validity of these results is hampered by the relatively small sample size.

The results presented above provide an important foundation for future disability policy in Uganda, both for the government and for potential donors. First, the importance of social capital, through the membership of external networks appears to be an important mechanism through which the disabled cope. This analysis does not allow us to determine whether these more informal institutional structures are complementary or substitutive to the formal institutions, but are important nevertheless. In addition, the magnitude of the effect that they have on knowledge is in the same region as that from tertiary education, so highlights a potential cost-effective mechanism through which social policy can be communicated. Second, the analysis does provide evidence that the formal institutional structures have contributed to a change in societal norms and the general environment in which the disabled live. This is driven

by the fact that education is no longer a significant factor in relation to the knowledge of institutions and subsequently, this knowledge has no effect on earnings for the younger generation. Clearly the further development of these formal institutions will have benefit over the medium-run and also allow for the non-governmental led mechanisms to flourish. Lastly, the gender divide apparent in the results of both of the research questions highlights a broader challenge to ensuring inclusive development in Uganda. Women, who despite have having high levels of education, are being discriminated against in formal labour markets and gender-driven labour policy should address this.

Ultimately, the results are a mix of outcomes with both positive and negative implications. One should take some reassurance though from the fact that in general, this sample have demonstrated a higher than expected level of education, a self-belief in their empowerment and control over their destiny, and crucially, evidence of a cohesive community that through various networks enables them to cope and provide support for others.

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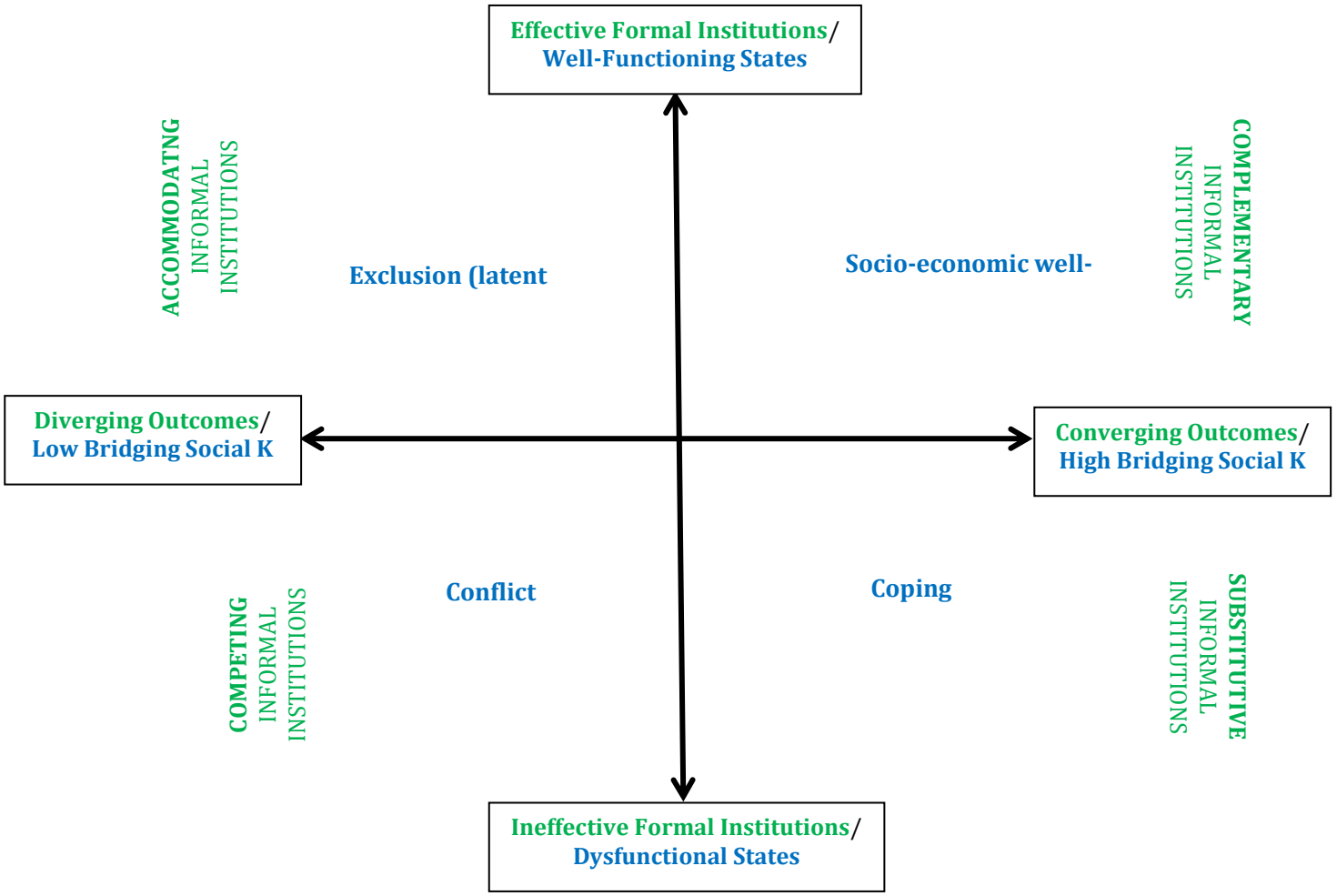
**APPENDICES**

## Appendix 1: Conceptual Framework

*Interaction between Formal and Informal Institutions, Social Capital and Socio-economic Outcomes*




**Key:**

**Relationship between Bridging Social Capital and Governance (Woolcock and Narayan, 2000)**

**A Typology of Informal Institutions (Helmke & Levitsky, 2004)**

## Appendix 2: Description of Variables

| Variable | Description/Relevant Question |
|---|---|
| *age* | Age in years. |
| *female* | Gender; dummy variable equal to 1 if female, 0 otherwise. |
| *schooling* | Number of years of schooling. |
| *secondary* | Secondary education; dummy variable equal to 1 if the respondent's highest level of education was secondary (< 13 years of education, > y), 0 otherwise. |
| *tertiary* | Tertiary education; dummy variable equal to 1 if the respondent's highest level of education was tertiary ( > 13 years of education), 0 otherwise. |
| *wage* | Dummy variable equal to 1 if in wage employment, 0 otherwise. |
| *self* | Dummy variable equal to 1 if in self-employment, 0 otherwise. |
| *hh_income* | Value of asset index (calculated by author – see Appendix 4) |
| *disc* | Dummy variable equal to 1 if answered yes, 0 otherwise.<br>*"Have you ever experienced any discrimination on the street or at a public space?"* |
| *empower* | Dummy variable equal to 1 if chose option A over B, 0 otherwise.<br>*A - Each person is primarily responsible for his/her success or failure in life*<br>*B - One's success or failure in life is a matter of his/her destiny* |
| *paid_more* | Dummy variable equal to 1 if answered yes to, 0 otherwise.<br>*"Have you paid more for a good/service than the published/listed price?"* |
| *crime_rep* | Dummy variable equal to 1 if answered yes to, 0 otherwise.<br>*"If you were a victim of a crime would you report it to the police?"* |
| *be_kept* | Dummy variable equal to 1 if answered yes to, 0 otherwise.<br>"*If you paid for a health service provided by the government would you expect most (>50%) of that money to be kept by the person that you paid?"* |
| *clinic_rate* | Continuous variable on a descending 1-7 scale ('1' means 'no problem', '7' means 'major problems':<br>*"How would you rate from 1 to 7 the service at your nearest health clinic?"* |
| *network_close* | Dummy variable equal to 1 if respondent answers yes to attending social and family gatherings, 0 otherwise. |
| *network_ext* | Dummy variable equal to 1 if respondent answers yes to attending local, non-family based groups that have contact with people outside of their immediate community, 0 otherwise. |
| *corrmin* | Dummy variable equal to 1 if aware of the correct ministry; 0 otherwise. |
| *natpol* | Dummy variable equal to 1 if aware of the National Policy for Disability; 0 otherwise. |
| *ncd* | Dummy variable equal to 1 if aware of the National Council for Disability; 0 otherwise. |
| *pwdact* | Dummy variable equal to 1 if aware of the Persons with Disability Act; 0 otherwise. |
| *leghealth* | Dummy variable equal to 1 if aware of the legal provisions for the disabled |

| | |
|---|---|
| | covered in the health legislation; 0 otherwise. |
| *legedu* | Dummy variable equal to 1 if aware of the legal provisions for the disabled covered in the education legislation; 0 otherwise. |
| *leglab* | Dummy variable equal to 1 if aware of the legal provisions for the disabled covered in the labour legislation; 0 otherwise. |
| *knowledge* | Dummy variable equal to 1 if the respondent is aware of 3 or more of the 7 disability institutions, namely *corrmin, natpol, ncd, pwdact, leghealth, legedu, leglab*; 0 otherwise. |

## Appendix 3: Descriptive Statistics

| Control Variables | | | | | |
|---|---|---|---|---|---|
| **Variable** | **No. of observations** | **Mean** | **Std. Dev.** | **Min** | **Max** |
| *age* | 572 | 40.67 | 14.27 | 14 | 82 |
| *female* | 578 | 0.42 | 0.49 | 0 | 1 |
| *schooling* | 525 | 8.70 | 4.28 | 0 | 16 |
| *primary* | 579 | 0.34 | 0.47 | 0 | 1 |
| *secondary* | 579 | 0.42 | 0.49 | 0 | 1 |
| *tertiary* | 579 | 0.20 | 0.40 | 0 | 1 |
| *wage* | 579 | 0.29 | 0.45 | 0 | 1 |
| *self* | 579 | 0.38 | 0.49 | 0 | 1 |
| *asset_index* | 513 | 0.64 | 0.77 | -0.55 | 3.34 |
| *discrim* | 578 | 0.46 | 0.50 | 0 | 1 |
| *empower* | 577 | 0.72 | 0.45 | 0 | 1 |
| *paidmore* | 551 | 0.75 | 0.43 | 0 | 1 |
| *crimerep* | 532 | 0.85 | 0.36 | 0 | 1 |
| *bekept* | 557 | 0.23 | 0.42 | 0 | 1 |
| *clinicrate* | 528 | 3.69 | 1.82 | 1 | 7 |
| *network_close* | 579 | 0.88 | 0.33 | 0 | 1 |
| *network_ext* | 579 | 0.48 | 0.50 | 0 | 1 |
| *corrmin* | 467 | 0.50 | 0.50 | 0 | 1 |
| *natpol* | 554 | 0.49 | 0.50 | 0 | 1 |
| *ncd* | 554 | 0.50 | 0.50 | 0 | 1 |
| *pwdact* | 550 | 0.47 | 0.50 | 0 | 1 |
| *leghealth* | 554 | 0.52 | 0.50 | 0 | 1 |
| *legedu* | 548 | 0.48 | 0.50 | 0 | 1 |
| *leglab* | 549 | 0.45 | 0.50 | 0 | 1 |
| *knowledge* | 579 | 0.72 | 0.45 | 0 | 1 |