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## **Are Employment Protection Laws for Disabled People Effective in a Developing Country Evidence from Cambodia**

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# Are Employment Protection Laws for Disabled People Effective in a Developing Country? Evidence from Cambodia

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## Abstract

This paper investigates the impact of a law protecting and promoting the employment rights of disabled people in a developing country setting. Using data from the Cambodian Socioeconomic Survey and a difference-in-difference design, we find that employment of the disabled fell by around 9 percentage points in the four years following the introduction of the disability law. The reduction in employment is greater for women than men and is concentrated amongst employees, with the self-employment rate unaffected by the policy change. Several mechanisms via which the introduction of the law reduced employment of the disabled are explored. We find that the most plausible mechanism is that employers reduce their demand for disabled labor in order to avoid the cost of workplace accommodations for disabled workers. We also find that families respond to the reduced employment of their disabled members by providing unpaid work and roles within the family home, and by providing income transfers to non-resident disabled family members.

Keywords: disability law; employment; difference-in-difference design; developing country

JEL-codes: I18, J21, K31, K38, C21

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# 1 Introduction

The United Nations Convention on the Rights of Persons with Disabilities (CRPD) has moved disability policy away from the medical and welfare models to a rights based approach in which disabled persons are ensured the same rights as non-disabled persons. Introduced in 2006 and entering into force in 2008, the CRPD has been ratified by 173 low, middle and high income countries.<sup>1</sup> Article 27 of the CRPD protects employment rights of persons with disabilities, mandating that States prohibit discrimination on the basis of disability with regard to all matters concerning employment<sup>2</sup>, promote the employment of persons with disabilities, and ensure that reasonable accommodation is provided to persons with disabilities in the workplace. While many countries had some form of laws protecting the rights of the disabled in place prior to ratifying the Convention, ratification requires signatory States to review existing laws and policy frameworks, modify or abolish discriminatory laws, and adopt new legislative measures to ensure future implementation of obligations under the CRPD. Little is known about the impact of legislative efforts to improve the employment outcomes of disabled persons in response to obligations under the CRPD in general, and in low to middle income countries in particular. In this paper we provide the first evidence on the effectiveness of laws protecting and promoting the rights of disabled persons on their employment outcomes in a low to middle income setting.

Under the CRPD, anti-discrimination and reasonable accommodation provisions are explicitly mandated. These provisions are therefore common across developed and developing countries. Disability laws in developing countries differ from those studied in developed countries, however, in that they typically include additional provisions. For example, less developed countries tend to combine quotas for the employment of disabled persons with anti-discrimination and reasonable accommodation laws. If employment quotas are enforced, then disability laws may lead to better employment outcomes for the disabled. Additionally, disability laws in developing countries often explicitly mandate that families take responsibility for the health and wellbeing of their disabled members. As family assistance may reduce the need for disabled persons to work, these provisions may reduce the employment of disabled persons. Given the differences between disability laws in developed and developing countries, there is a clear need for evidence on the impact of laws designed to protect and promote the employment rights of disabled persons in a developing country setting. We seek to provide evidence on this issue by evaluating the impact of a Cambodia's disability law.

Cambodia's disability law shares common features with disability laws of other low to middle

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<sup>1</sup>There are 193 member states on the United Nations. Ratifying countries are obliged to comply with, or work towards complying with, the Convention's articles.

<sup>2</sup>This includes conditions of recruitment, hiring and employment, continuance of employment, career advancement and safe and healthy working conditions.

income countries; in addition to anti-discrimination and reasonable accommodations components, Cambodia's law also has an affirmative action component. Specifically, firms are required to hire one disabled worker for every 100 employees and government employers are required to hire one disabled worker for every 50 workers. Similarly, China has an affirmative action mandate, imposing a quota of 1.5% of a firm's employees to be disabled persons while Indonesia requires that one out of every 100 employees should be a person with disability (Lo, 2012; Sudiby, 2002).<sup>3</sup> This comparability with other low to middle income countries in the policy approach to disability makes the evaluation of Cambodian's disability law of broad policy interest.

Previous research has evaluated the impact of laws protecting the employment rights of disabled persons in the US and UK. The Americans with Disabilities Act (ADA) and the UK's Disability Discrimination Act (DDA) prohibit discrimination in hiring, firing and pay on the basis of disability, and mandate employers to make reasonable accommodations for disabled workers.<sup>4</sup> Evaluations of these laws have found no evidence that they improve the rate of employment amongst the disabled, and provide some evidence that they reduce their employment (Acemoglu and Angrist, 2001; Bell and Heitmueller, 2009; Deleire, 2000; Hotchkiss, 2004; Jolls and Prescott, 2004). In particular, several studies have found that mandating employers to accommodate the workplace needs of disabled employees has reduced the demand for disabled workers (Acemoglu and Angrist, 2001; Deleire, 2000; Jolls and Prescott, 2004). This occurs because non-discrimination laws require disabled and non-disabled workers to be paid the same wage and as a consequence, the full cost of workplace accommodations must be borne solely by employers. In turn, this increases the cost of hiring a disabled worker, which reduces employers demand for their labor.<sup>5</sup>

Some have argued that the reduced employment rate amongst disabled persons following the introduction of the ADA is not attributable to the ADA, rather it is the result of compositional change in those classified as disabled in the post ADA period. (Hotchkiss, 2004; Houtenville and Burkhauser, 2004; Tolin and Patwell, 2003) For example, Hotchkiss (2004) provides evidence that the tightening of the welfare system in the US in the late 1980's created a flow of individuals who were not in the labour force into the ranks of the disabled in order for them to continue to access benefits. As a consequence, the number of people classified as disabled and out of the labour force increased, and this contributed to the lower employment rate amongst disabled persons in the period following the introduction of the ADA. Similarly, Kruse and Schur (2003) provides evidence

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<sup>3</sup>The prevalence of disability in Cambodia is also similar to the prevalence in other low to middle income countries. For example, the prevalence of disability in China and Indonesia is 6% and 1.5% respectively, whereas it is 2-3% in Cambodia.

<sup>4</sup>Reasonable accommodations refers to actions taken by employers in order for disabled persons to perform their job. Such actions include alterations to the physical work environment such as installing lifts or purchasing equipment, or alterations to the job such as modifying hours and type of work.

<sup>5</sup>While these accommodations may be productivity enhancing, their benefits must be outweighed by their costs, otherwise they would be provided by employers in the absence of disability laws compelling their provision.

that more people reported being disabled after the ADA, and amongst those reporting disability, there was an increase in the proportion reporting an inability to work.

While the anti-discrimination and reasonable accommodation laws studied in the US and UK context are common components of disability laws in developing countries, the impact of these policies may not be the same due to differences in the structure of labor markets and the availability of social income support. For example, anti-discrimination and reasonable accommodation laws seek to increase the rate of employee type employment by targeting the behaviour of firms; they are not intended to impact on self-employment. Since less developed countries tend to have much higher rates of self-employment and much lower rates of employee type employment compared to developed countries, the scope for these laws to impact on labour market outcomes of the disabled is limited in a developing country setting (Gindling and Newhouse, 2014). In addition, limited public income support systems in developing countries (for disabled and the non-disabled) suggest that compositional change (in terms of an increase in the reporting of disability, and an increase in the proportion of the disabled reporting that they are unable to work) is unlikely to be a relevant mechanism in a low to middle income setting.

This paper evaluates the Royal Government of Cambodia’s 2009 disability law, as implemented under the country’s 2010 sub-decree. After becoming a signatory to the CRPD, and in preparation for ratification, Cambodia began measuring disability in a national household survey in 2007, two years prior to introducing its disability law. This chain of events, set in motion by becoming a signatory to the CRPD, provides a unique opportunity to evaluate the impact of a disability law on the employment of disabled people in Cambodia, and in a developing country context more generally. In doing so, this paper seeks to make three contributions to the literature evaluating the impact of disability laws on employment. First, we extend the current literature by providing the first evaluation of a disability law in a low to middle income country. To do so, we evaluate the impact of Cambodia’s disability law protecting and promoting the rights of the disabled on their employment outcomes. Second, we determine the extent to which the impact of Cambodia’s disability law differed for men and women. This is important because, as recognized in Article 6 of the CRPD, gender and disability are likely to interact to produce deeper disadvantage, especially in less developed countries.<sup>6</sup> And finally, we explore potential mechanisms via which the law impacted on the employment outcomes of disabled men and women in Cambodia.

The evaluation of Cambodia’s disability law is conducted using data from the Cambodian Social and Economic Survey (CSES). The CSES provides a unique opportunity to examine the employment impact of Cambodia’s disability law, providing a measure of disability that is broadly

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<sup>6</sup>Article 6 of the CRPD requires “States Parties to recognize that women and girls with disabilities are subject to multiple discrimination, and in this regard take measures to ensure the full and equal enjoyment by them of all human rights and fundamental freedoms.”

consistent with international standards in the classification of disability (WHO, 2001), and importantly, a measure that accords with the definition of disability used in specifying employment quotas in the law and sub-decree that we seek to evaluate. A further advantage of the disability measure we use is that it is based on functioning difficulties and is not defined in relation to one's ability to work, as is the case in previous studies evaluating the Americans with Disabilities Act and the UK's Disability Discrimination Act.<sup>7</sup> This provides us with some confidence that our findings are not subject to the potential biases that have arisen in previous studies (Burkhauser et al., 2002; Kruse and Schur, 2003).

Adopting a difference-in-difference approach, we find that Cambodia's disability law has led to a reduction in the rate of employment amongst the disabled. We show that this finding is robust to potential changes in reporting behaviour around the time that the law was introduced and publicized through the media. We find that the adverse impact on the overall rate of employment is greater for women than men, with women's employment rate falling by 14 percentage points compared to 6 percentage points for men. However, the overall employment effect masks differential impacts across the formal and informal employment sectors. For example, the disability law is found to reduce the rate of employee type employment of disabled males by 11 percentage points. This effect is partially offset by a 5 percentage point rise in their rate of self-employment. In contrast, the disability law reduced disabled female employee type employment by 6 percentage points, and this effect was exacerbated by an 8 percentage point reduction in their rate of self-employment.

We conduct a detailed examination of potential mechanisms via which the employment rate of the disabled is reduced by the law. The evidence rules out mechanisms based on a supply side response in which disabled persons withdraw from the labour market due to greater family support. And we find no evidence to support a mechanism based on an increase in the reporting of disability amongst non-working individuals. We conclude that the most plausible mechanism underlying the reduced employment of the disabled is employers desire to mitigate expected costs of accommodating disabled workers, in an environment where the quotas for employing disabled persons are not enforced.

The set-up of our paper is as follows. In the next section we provide background by way of an overview of Cambodia's disability law. In section 3 we discuss the set-up of our empirical analysis and section 4 provides information about the Cambodian data and presents some stylized facts about disability and employment in Cambodia. Section 5 presents results from our baseline and extended analysis. Section 6 concludes with a discussion of our findings.

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<sup>7</sup>Kruse and Schur (2003) provides a good discussion of the weaknesses of a work based disability measure for studying the impact of a disability law on employment.

## 2 Cambodia's law protecting employment rights of the disabled

In July 2009, the Royal Government of Cambodia introduced its inaugural national disability law, the Law on Protection and the Promotion of the Rights of Persons with Disabilities (disability law hereafter). The disability law aims to prevent discrimination and safeguard rights of the disabled across areas including employment, livelihoods, health care, education, access to public places, and political process (Royal Government of Cambodia, 2009). Article 33 of the law outlines the right of (qualified) disabled persons to employment without discrimination and article 38 of the law requires employers to accommodate persons with disabilities who apply for employment, except when such accommodation constitutes an excessive burden. Importantly, article 32 of the 2009 law provides for the Minister of Information to disseminate information through state run media to raise public awareness about the rights and protection afforded persons with disabilities under the new disability law. This provision ensured that the disability law was well advertised, and as a consequence, that the Cambodian population are well informed about the employment rights of the disabled under the law.

While the 2009 disability law outlined the employment rights of disabled persons, it did not, itself, provide a framework for implementing and enforcing these rights. Rather, it foreshadowed a subsequent sub-decree in which quotas for the employment of the disabled, reporting requirements for employers, and penalties for failing to comply with the law's employment requirements would be stipulated. This sub-decree, which effectively operationalized the 2009 disability law, was introduced by the Royal Government of Cambodia in August 2010. The 2010 sub-decree mandates quotas for employing moderate and severely disabled person of 1% of employees for firms who employ more than 100 workers, and 2% of employees for government entities with more than 50 workers.<sup>8</sup> Under articles 9 and 10 of the sub-decree, state and other (non-government) entities, respectively, are required to report in January of each year the number of full time workers with moderate and severe disabilities (disaggregated by physical and mental disability), and the total number of full time workers they employ. Heads of ministries and state employers, and heads of non-government organisations who fail to fulfill their respective quotas are required to pay fines to the disabled person foundation. The fines are not trivial. For government employers, the fine is 50% of the basic monthly salary of a civil servant per disabled person below the quota level and for non-government employers the fine is 40% of the minimum monthly wage for each disabled worker below the quota.<sup>9</sup>

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<sup>8</sup>According to the 2009 Cambodian Establishment Listing, establishments employing 100 or more workers account for 25% of employees in the non-farm sector (Tanaka and Hatsukano, 2011).

<sup>9</sup>The sub-decree also made provision for employers needing time to comply with the requirements of the law. Government and non-government entities who, at the date of the sub-decree, did not to satisfy their quotas were required to put forward a plan to achieve full compliance within 3 years.

Both the 2009 disability law and the 2010 sub-decree define disability as any persons who lack, lose, or damage any physical or mental functions, which result in a disturbance to their daily life or activities, such as physical, visual, hearing, intellectual impairments, mental disorders and any other types of disabilities toward the insurmountable end of the scale. In our evaluation of the protection of disabled persons rights under the law and as stipulated by the 2010 sub-decree, we are able to construct a measure that identifies those targeted by the employment quotas: persons with moderate or severe disabilities.

### 3 Set-up of the empirical analysis

This paper seeks to determine the impact of Cambodia’s law protecting the employment rights of the disabled on their employment outcomes. The fundamental challenge in evaluating the impact of Cambodia’s disability law is that we do not observe what the employment outcomes of the disabled would be in the post law period in the absence of the law. Following studies for the US and UK case (Acemoglu and Angrist, 2001; Bell and Heitmueller, 2009; Deleire, 2000), we take a difference-in-difference approach to identifying the average effect of the disability law on the employment of the disabled. Identification of the treatment effect using this approach rests on the common trends assumption. The idea is that, if the change over time in outcomes for the disabled (treated group) and the non-disabled (control group) is the same, then the change over time for the non-disabled can serve to identify the (counterfactual) potential outcome of the disabled had the disability law not come into effect. This in turn allows us to obtain a reliable estimate of the impact of the disability law on the employment of the disabled, or the average treatment effect on the treated (ATT).

To make matters more concrete, we estimate the following reduced form linear probability model of employment amongst working aged (15-64) individuals:

$$Emp_{it} = \alpha + \delta Disabled_{it} + \gamma Post_t + \lambda * Post_t * Disabled_{it} + X'_{it}\beta + \epsilon_{it}$$

where  $Emp_{it}$  is an indicator equal to one if individual  $i$  is employed at year  $t$  and zero otherwise;  $Disabled$  is a indicator equal to one if person  $i$  reports being disabled (defined as having moderate or severe functioning difficulties) in period  $t$  and zero otherwise;  $Post_t$  is an indicator equal to one in the post intervention period (after 2010);  $X_{it}$  is a vector of individual and household head characteristics, month of survey fixed effects, province fixed effects, and province level time trends.<sup>10</sup>

<sup>10</sup>The individual and household head characteristics that we control for are: age category (21-25 years old, 26-30 years old, 31-35 years old, 36-40 years old, 41-45 years old, 46-50 years old, 51-55 years old, 56-64 years old and 61-64



The error term  $\epsilon_{it}$  is assumed to be uncorrelated with the law or other control variables, but may be correlated across individuals residing in the same village. The parameter of interest,  $\lambda$  is the difference-in-difference estimator of the impact of the disability law on the employment of people with disabilities. In more detailed analysis, we decompose the employment indicator into its component categories, employees and the self-employed, in order to obtain the impact of the law on the disabled probability of being an employee separately from its impact on the probability of being self-employed. This more detailed analysis is motivated by the disability law itself, which, through the use of anti-discrimination measures and employment quotas for the proportion of employees who are disabled, targets (government and non-government) employers. For this reason, we expect the law to have its greatest impact on the likelihood that a disabled person is an employee.

While the Cambodian disability law was passed in July 2009, it was the August 2010 sub-decree, which stipulated quotas, reporting requirements and punishments for failing to comply, that created the framework for operationalizing the law. We therefore assign 2010 as the year that the intervention was effectively introduced, and 2011-2014 as the post-intervention period. We examine the assumption of pre-intervention trend using an alternative specification in which we replace the indicator for the post-intervention period,  $Post_t$ , with a set of year of survey indicators (2010 is the base category), and replace the  $Post_t * Disabled_{it}$  interaction term with a set of interaction terms between year of survey and the indicator for disabled. We conduct additional sensitivity analyses using the 2007 and 2008 data to provide further evidence on the assumption of common pre-intervention trends.

## 4 Data

### 4.1 The Cambodian Socio-Economic Survey

This study uses data from the Cambodian Socio-Economic Survey (CSES). The CSES is a cross-sectional household survey that provides nationally representative information on employment, income, health, education and demographic characteristics of all individuals residing within the households surveyed.<sup>11</sup> The CSES was fielded for the first time in 1993, and has been conducted annually since 2007.<sup>12</sup>

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years old, with aged 15-20 as the reference category), an indicator for the respondent being married, an indicator for the respondent being male, the respondent's highest level of education (indicators for highest level of education being less than primary, primary, lower secondary, upper secondary, and more than upper secondary, with no formal schooling as the reference category), household size, and indicator for the household is located in an urban area, an indicator for the presence of one or more children in the household, the sex, age and education of the household head.

<sup>11</sup>Information on household members is typically provided by the household head or the spouse of the household head.

<sup>12</sup>See National Institute of Statistics & Ministry of Planning (2015) for a description of the survey design.

Information on disability has been collected in the CSES since 2007. It is not until 2009, however, that disability severity information is included in the survey. This information is critical for constructing a disability measure that corresponds to the definition of disability used in the disability law and the sub-decree that we seek to evaluate, and that conforms to international standards on disability measurement. For this reason, our baseline analysis focuses on the years 2009-2014. We do, however, draw on the 2007 and 2008 waves in order to provide evidence on reporting of functional difficulties over time, the common trends assumption critical to our identification strategy, and to examine the sensitivity of findings to the choice of cut-off for the pre-post periods.

Each wave of the CSES used in our analyses typically contributes observations on around 11,000 individuals, which increases to 36,000 individuals every five years (in the years 2009 and 2014). We restrict the sample to those who are of working age (15-64 years) yielding a total sample size of 116,839 (138,750) individuals over the period 2009–2014 (2007–2014) for whom we observe information on employment status and disability (National Institute of Statistics, 2012).

## 4.2 Outcomes of interest

### 4.2.1 Disability

From 2007, the CSES measures disability according to whether respondents experience any difficulty (yes or no) across nine basic functioning domains (seeing, hearing, speaking, moving, feeling or sensing, behavioral, learning, fits and others).<sup>13</sup> The functioning domains include a combination of bodily functions and activities consistent with the WHO international classification of disability (WHO, 2001). They resemble those contained in the internationally standardised measure, the Washington Group short-set questionnaire (Madans et al., 2010). From 2009, respondents were additionally asked to classify the degree of severity of their first three reported functioning difficulties as mild, moderate or severe. In order to define our measure of disability so as to best reflect those targeted by the law as articulated in the sub-decree, we construct an indicator for disability that is equal to one for those respondents who report a moderate or severe a functioning difficulty, and is zero for those who report that their highest degree of functioning difficulty is mild, or who report having no functioning difficulty. Defining disability by the severity of functioning difficulty restricts our sample to observations from waves 2009-2014.

As we use a measure of disability based on self-reported information on functioning difficulties and their severity, it is important to determine whether respondents' willingness to report on these difficulties was affected by the information campaign on the rights of the disabled that accompanied the passing of the 2009 disability law. To investigate this issue, we construct a measure of "any

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<sup>13</sup>The distribution of reported (moderate or severe) difficulties are as follows: seeing 38%; moving 33%; hearing 10%; psychological 7%; feeling 6% ; speaking 4%; seizures 1%; learning and other 1%.

functioning difficulty”, which is equal to one for individuals who report any functioning difficulty, and zero otherwise. This is measured consistently across waves from 2007–2014. We then compare the time path of prevalence of any functioning difficulty with our measure of disability, which captures moderate to severe functioning difficulty and is measured in the 2009-2014 waves only. This information is presented in Figure 1. Note that the difference between the prevalence of disability and any functioning difficulty at each point in time is equal to the prevalence of mild functioning difficulty.

As can be seen in Figure 1, the prevalence of any reported functioning difficulty before the disability law is announced is around 3%. In 2009, the year that the law is introduced and widely advertised, the reported prevalence of any functioning difficulty rose to 6.4%. In the following year, when the sub-decree that specified employment quotas for moderate and severely disabled persons was passed, the prevalence of any functional difficulty fell to 4.8% and eventually returned to the pre-law level in 2014. In contrast, the reported prevalence of disability (moderate or severe functioning disability) is 3.6% in 2009, slightly above the reported prevalence of any functioning difficulty before the law was introduced, and fell to 3.2% in 2010, when the sub-decree operationalized the law was passed. Given that the difference between any functioning difficulty and the disability measure reflects the prevalence of individuals reporting mild functioning difficulties, this descriptive analysis points to an announcement effect of the law on the reporting of mild functional difficulties. Further investigation revealed that the increase in reported mild functioning difficulty is largely attributed to an increase in reported mild vision impairment, the type of functional difficulty typically corrected by glasses.

While our decision to identify as disabled those with moderate or severe functional difficulties is driven by the sub-decree specifically identifying these individuals for employment protection, this decision also mitigates the impact of possible differential reporting of functioning difficulty before and after the disability law.

#### **4.2.2 Employment**

The outcome of interest in our analysis is whether the respondent is employed. The CSES is the primary source of information on the labour market in Cambodia, and collects detailed information on current work activity during the past 7 days. We follow Cambodia’s National Institute of Statistics and define as employed those who undertake either paid or unpaid production-related work in the past 7 days, including farm and off-farm work. Those who report working in the past seven days are asked further questions about their employment, including whether they are an employee, an employer, an own-account worker, or an unpaid family worker. This question allows us to examine whether the law targeting employers impacts employee type employment amongst

the disabled relative to the non-disabled, as it is intended to do. In this more detailed analysis, we follow current ILO guidelines and group employers, own-account workers, and unpaid family workers into a single employment type category of self-employed. Subsequent analysis additionally considers specific categories of self-employment (own account workers and unpaid family workers) as well as reasons for not working in order to investigate potential channels through which the disability law impacts on employment.<sup>14</sup>

### 4.2.3 Descriptive Statistics

Table 1 provides descriptive statistics on employment and employment type, in addition to demographic and socio-economic characteristics for the pooled 2009-2014 (working aged) sample and by disability status. It shows that around 83% of Cambodian's aged 15-64 report working in the week prior to survey. Thirty percent report that they are employees and 53% are self-employed. The table also shows a stark contrast in employment outcomes for disabled working age persons compared to the non-disabled. It shows that 64% of persons with disabilities engaged in paid or unpaid production related work in the past 7 days compared to 84% of persons without disabilities, representing an employment gap of 20 percentage points. An alternative way of viewing this is that persons with disabilities are more than twice as likely to not work (36% versus 16%). The disabled are also less likely to be an employee with just 16% of disabled working age persons surveyed reporting that they are an employee compared to 31% amongst the non-disabled working age. Amongst the working age disabled and non-disabled, a similar proportion report being self-employed (50% amongst the disabled and 53% amongst the non-disabled).

In terms of demographic and socio-economic characteristics, persons with disabilities are, on average, older and in greater proportion female relative to persons without disabilities, and they possess a lower level of schooling. For example, disabled persons are more than twice as likely to have no formal education (36% for disabled compared to 15% for non-disabled). The disabled are also more likely to reside in a household that is located in a rural area and which is headed by a person that is older, female, and less educated.

### 4.2.4 Trends in Employment

As discussed in section 3, of critical importance to our identification strategy is the assumption that disabled and non-disabled share a common trend in the rate of employment prior to the sub-decree operationalizing the disability law, so that in the absence of the law the change over time in the rate of employment for the disabled and non-disabled would be the same. Given that the

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<sup>14</sup>Over all waves, just 85 individuals report being an employer.

sub-decree occurred in 2010, assessing whether the data support this assumption using the baseline estimation sample, which is restricted to 2009-2014, is difficult. In order to better establish the appropriateness of the common trend assumption, we make use of the 2007 and 2008 waves of the CSES. To do so, and following on from the discussion of reporting of functional limitations above, respondents to the 2007 and 2008 surveys who self-report any functional limitation are considered disabled.

Figure 2 graphs the proportion of the working age population (individuals aged 15–64) who are employed for the disabled and non-disabled separately over the period 2007-2014. The introduction of the 2010 sub-decree is indicated by the solid line, and the 2009 law by the dashed line. The figure also shows the proportion of the working age population who are employees and self-employed by disability status. The figure makes clear several salient points. First, there appears to be a common trend in the proportion employed amongst the disabled and non-disabled prior to the sub-decree on employment rights in 2010, with both the disabled and non-disabled showing a flat employment rate between 2007 and 2008, and an increase in employment rate in 2009. Second, the rate of employment amongst the disabled is about 15 percentage points lower than the non-disabled in the pre-intervention period. The figure also shows that, subsequent to the employment sub-decree, the rate of employment amongst the disabled falls while it remains constant for the non-disabled. This suggests that the law may have led to a decline in proportion of disabled employed in Cambodia.

Figure 2 offers further insights into the law's impact by decomposing workers into those who are self-employed (defined as employers, own-account, or unpaid family workers) and those who are employees.<sup>15</sup> Given that the 2010 sub-decree encourages employers to hire disabled employees through the use of anti-discrimination clauses and employment quota's, we expect that the law should have its greatest impact on the likelihood that a disabled person is an employee. As can be seen from Figure 2, in the period before the 2010 sub-decree, over 50% of the working age population in Cambodia are self-employed, and there is a similar proportion of self-employment amongst the non-disabled and disabled. For example, in 2010 52% of the disabled and 55% of the non-disabled report being self-employed. In contrast, in the pre-intervention period the non-disabled are twice as likely as the disabled to be an employee. For example in 2010, 29% of the non-disabled and 17% of the disabled report being an employee.

Also noteworthy in Figure 2 are the similar trends in the pre-intervention rate of self-employment for the disabled and non-disabled, and in the pre-intervention rate of employee type of employment for non-disabled and disabled. In the post sub-decree period, the rate of self-employment amongst the disabled and non-disabled each followed a downward trend. In contrast, Figure 2 shows clear evidence of different post-period trends in the rate of being an employee, with the disabled main-

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<sup>15</sup>Only 85 respondents report being an employer.

taining a constant proportion of employee type employment, while the proportion of non-disabled who are employees rising dramatically. This provides a key insight into the overall reduction in employment amongst the disabled in the post intervention period. While self-employment fell for both disabled and non-disabled workers in the post-intervention period, its effect was largely offset for the non-disabled by a rise in the proportion who are employees. No such offsetting effect occurred amongst the disabled, despite the disability law specifically targeting employee type employment by way of anti-discrimination laws and employment quotas for government and non-government employers.<sup>16</sup> In the following section we provide a more formal analysis, based on difference-in-difference estimation.

## 5 Parameter estimates

### 5.1 Baseline estimates

Table 2 presents key coefficient estimates from OLS estimation of the baseline linear probability model for the impact of the disability law on employment in Cambodia. We present specifications based on the pre-post difference-in-difference estimator, in columns 1 through 3. Columns 4 through 6 report on specifications in which the impact of the law on employment of the disabled is measured relative to 2010 (the year the law became effective). In each case, we first present results based on a specifications with no controls (columns 1 and 4), with controls (columns 2 and 5), and that additionally include province level time trends (in columns 3 and 6).<sup>17</sup> Standard errors are clustered at the village level to account for the correlation in unobserved factors amongst individuals living in the same village, and are reported in parentheses in the table.

There are three main points arising from columns 1–3 of Table 2. First, in the pre-intervention period, the disabled are 17-18 percentage points less likely to have worked in the 7 days prior to survey compared to a non-disabled person after controlling for individual and household characteristics as well as province level trends. Second, after controlling for individual and household characteristics and province level trends, employment amongst the non-disabled increased on aver-

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<sup>16</sup>Note that the proportion of disabled and non-disabled who lived in urban areas share a common trend throughout the observation period, so that differential trends in urban migration cannot explain the employee outcomes of the disabled relative to the non-disabled.

<sup>17</sup>The full set of controls are as follows: age category (21-25 years old, 26-30 years old, 31-35 years old, 36-40 years old, 41-45 years old, 46-50 years old, 51-55 years old, 56-60 years old and 61-64 years old, with aged 15-20 as the reference category), indicators for the respondent being married, male, a set of indicators for the respondent’s highest level of education being less than primary, primary, lower secondary, upper secondary, and more than upper secondary, with no formal schooling as the reference category, household size, and indicator for the household is located in an urban area, an indicator for the presence of one or more children in the household, the sex, age and education of the household head, month of survey and province fixed effects. Specifications in columns 2 and 4 also include a common linear time trend, whereas specifications in columns 3 and 6 include province level time trends.

age by around 2 percentage points in the period after the disability law came into effect. Finally, the results reported in Table 3 show that after accounting for individual and household characteristics as well as province level trends, employment outcomes for the disabled fell by around 9 percentage points on average as a result of the implementation of the law protecting the employment rights of the disabled. In short, the disability law as operationalized by the 2010 sub-decree had the perverse effect of reducing the employment of disabled people.

Columns 4–6 of Table 2 reports on the specification based on disability by year interactions terms with 2010 as the base period. The coefficients on these interaction terms are interpreted as the change in the employment of the disabled relative to their employment in 2010. The interaction terms for years prior to 2010 provide evidence on the pre-intervention common trends assumption. The results in columns 4–6 of Table 3 provide no evidence of different pre-intervention trends in employment amongst disabled and non-disabled persons, with the coefficients on the interaction terms for 2009 positive and statistically insignificant. In contrast, the coefficients on interaction terms between disabled and years subsequent to the 2010 sub-decree are negative and statistically significant for all years except 2011. In addition, all interaction terms for the post intervention period are statistically indistinguishable from each other (the null hypothesis of equal coefficients on the interaction terms for 2011, 2012, 2013 and 2014 cannot be rejected at conventional levels of significance, with a *p-value* for the joint hypothesis of 0.3696).<sup>18</sup>

Overall Table 2 provides evidence that the 2010 sub-decree that operationalized the disability law reduced the rate of employment amongst the disabled by an average of around 9 percentage points in the four year period after the implementation of the law. We next investigate the robustness of these results. To do so, we make use of the 2007 and 2008 data. This analysis also provides additional evidence on the common trends assumption.

## 5.2 Robustness

A potential threat to the interpretation of the results in Table 2 as causal is that the announcement of the law in 2009, and the associated publicity around the rights of the disabled, may have differentially increased the reporting of employment amongst those with moderate or severe functioning difficulties. To the extent that this announcement effect occurred (and that it diminished in subsequent years) the employment rate of the disabled would be inflated in 2009 relative to subsequent years, providing an alternative explanation for why employment appeared to decline amongst the disabled after the law was activated. In order to investigate this issue, we use the 2007 and 2008 data to augment our sample. We report the results from estimation on this expanded sample in

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<sup>18</sup>In contrast, the null hypothesis that all year by disability interactions (including the interaction for 2009 and disability) are equal is rejected with a *p-value* of 0.000.

Table 3. All models use the same set of controls, including province level time trends, included in the specifications reported in Table 2, columns 3 and 6. Standard errors clustered at the village level are reported in parentheses.

Table 3 contains results based on the pre-post difference-in-difference specification (column 1–3), and on the specification based on interactions between year and disability status (columns 4–6). For ease of reference, columns 1 and 4 in Table 3 repeat the results for the baseline models with the full set of controls and province specific time trends estimated over the period 2009–2014 that are contained in Table 2, columns 3 and 6. Columns 2 and 5 of Table 3 report the same specifications, but expand the data to include the years 2007 and 2008. These results show that the coefficient estimates are unaffected by the inclusion of the additional pre-law waves. This suggests that the reporting of employment amongst the disabled was not inflated in response to the announcement of the new law, and the associated media attention on the rights of the disabled, in 2009. Column 5 additionally provides further evidence that common pre-intervention trends is not rejected by the data, with the point estimates on the interaction terms for the pre-intervention years of 2007, 2008 and 2009 individually and jointly insignificant.

As a further robustness test, we use the expanded sample but remove observations from the 2009 and 2010 waves of the survey. This allows us to directly examine the sensitivity of the findings to the potential for differential reporting around the time of the announcement of the law. Column 3 of Table 3 reports the pre-post specification using 2007 and 2008 as the pre-period and 2011–2014 as the post period, while Column 6 uses 2008 as the base year with which the impact of disability law is compared in subsequent years (2010 is the base year for the specifications reported in column 4 and 5). As can be seen by the estimates in columns 3 and 6, the impact of the activated disability law remains statistically significantly negative when we remove the 2009 and 2010 observations from the augmented sample. Moreover, although the point estimates of the impact of the law are quantitatively smaller, they are not significantly smaller than those reported in columns 2 and 5, respectively.

Table 3 presents further robustness checks in columns 7, 8 and 9. In column 7 we allow for heterogeneous effects on the probability of working for the full set of the control variables for disabled and non-disabled persons. We do this by including a set of interaction terms between disability status and each of the control variables. Column 8 further explores the common trends assumption by accounting for trends in control variables. To do this, all control variables are interacted with linear time trends. As can be seen from columns 7 and 8, the point estimate of the impact of the disability law on the likelihood that a disabled person is employed falls from 9% to 8% and remains statistically significant when we account for heterogeneities in the impact of control variables between disabled and non-disabled persons. Further examination of the common



trends assumption through accounting for trends in the controls variables has no effect on the point estimate of the impact of the disability law.

The final robustness check explores whether the fall in employment amongst the disabled in the post 2010 period is due to a differential impact of economic cycles on the disabled and non-disabled. Previous research has shown that the disabled are more likely to be laid off in economic downturns and are slower to find employment in economic upturns. We investigate whether this phenomena is driving our results by replacing province level time trends with the province level unemployment rate and an interaction term between the unemployment rate and the indicator for disability. The key results re reported in column 9 of Table 3. They show no evidence that the reduction in the employment rate of the disabled in the post disability law period can be attributed to the differential impact of economic cycles.

Overall, the results reported in Table 3 provide some confidence that the estimated negative impact of the disability law is not a result of differential reporting of employment by the disabled around the time of announcement of the disability law, nor is it the result of heterogeneous effects of individual or household characteristics on the likelihood of working. These results also provide further evidence that common trends in the pre-intervention period is not rejected in these data and that this important identifying assumption is robust to accounting for trends in individual and household level characteristics. Finally, they show that our results cannot be explained by a differential impact of economic cycles on the disabled.

### 5.3 Heterogenous Effects

As discussed above, the activated disability law is expected to impact on employee type employment through mandating the right of (suitably qualified) disabled persons to employment and through the imposition on employers of quota's for employing disabled persons. Figure 2 provides descriptive evidence that it is indeed amongst employees, and not the self-employed (which includes employers, own-account workers and unpaid family workers), that the law had its (unintended) effect. Table 4 examines this issue more formally by using the difference-in-difference framework used above to estimate the impact of the operationalized law on the probability that a disabled person is an employee (reported in column 2) or self-employed (reported in column 3).<sup>19</sup> Column 1 repeats the difference-in-difference estimate of the impact of the law on overall employment for ease of comparison. We report specifications based on the pre-post difference-in difference-estimator in columns 1–3. We investigate whether the law had different impacts for disabled men and women

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<sup>19</sup>Specifically, column 2 of Table 4 reports estimates from a difference-in-difference model in which the outcome is equal to one if the respondent reports being an employee and zero if they are self-employed or not working; in column 3 reports estimates from a specification in which the outcome is equal to one if the respondent reports being self-employed (including unpaid family workers) and zero if the respondent reports being an employee or not working.

on the probability of being employed, being an employee, and being self-employed in columns 4–6, respectively.<sup>20</sup>

As can be seen by looking across columns 1–3 of Table 4, the 9 percentage point reduction in employment amongst the disabled following the activation of the disability law is comprised of an 8 percentage point reduction in the probability being an employee and a (statistically insignificant) 1 percentage point reduction in self-employment. However, these average effects estimated over pooling men and women obscures significant differential effects by gender. For example, column 4 reveals that disabled women are 14 percentage points less likely to report being employed in the period after the disability law is activated, whereas disabled men are six percentage points less likely to be employed. The 14 percentage point reduction in employment amongst disabled women is comprised of a 6 percentage point reduction in being an employee (column 5) and an 8 percentage point reduction in self-employment (column 6). For males, the six percentage point reduction in employment is the result of an 11 percentage point reduction in the probability of being an employee (column 5) and a 5 percentage point increase in the probability of being self-employed (column 6).

Overall, we have found clear evidence that the Cambodian disability law, which amongst other things is intended to increase the rate of employee type employment of the disabled via employment quotas, reduced the overall rate of employment among the disabled, and more so amongst disabled women than disabled men. However, the total employment effect experienced by men and women mask different compositional effects in terms of employee and self-employment rates. Specifically, employee type employment amongst men fell by 11 percentage points. This was partially offset by a 5 percentage point increase in their rate of self-employment. In contrast, females experience a fall in both types of employment, with their rate of employee employment falling by 6 percentage points and their rate of self-employment falling by 8 percentage points. This raises the question of why this happened. We attempt to shed light on this question in the following section.

## 5.4 Mechanisms

In order to better understand why employment of disabled persons fell in response to the disability law, we investigate several mechanisms that could potentially be in play. An important mechanism relevant to our study but not previously explored is a reduction in the labour supply of disabled persons due to family support lowering their (financial) need to work. Mechanisms uncovered in the existing literature include demand and supply side channels. On the supply side, previous studies have found evidence of a compositional change in terms of reduced ability to work and increased rate of welfare receipt amongst the disabled; in terms of the demand side, there is evidence that

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<sup>20</sup>Note that the 85 respondents who report being an employer are omitted from the sample used to model the probability of being an employee and the probability of being self-employed.

employers reduce their demand for disabled workers in anticipation of high costs of accommodation relative to the cost of not complying with the law.

#### 5.4.1 Reduced supply of labour by disabled persons

A potential mechanism through which employment of the disabled may be reduced is through a fall in their supply of labour. In general, disability laws aim to increase the supply of labour of disabled people.<sup>21</sup> However, there are features of the Cambodian disability law that may lead to disabled people withdrawing from the labour market. Specifically, the 2009 Cambodian disability law mandates that family, or others with a duty of care, be held responsible for the welfare of their disabled family members, including food and care. Abandonment of these responsibilities is punishable by imprisonment and fines if the health and security of the disability is compromised. This creates the potential for a reduction in the labour supply of disabled persons in response to assistance from their immediate or extended family. The CSES provides measures of several such forms of assistance. We investigate whether, after the introduction of the law disabled persons are more likely to report (a) working as an unpaid family worker; (b) not working and not looking for work because they have a role as housekeeper (unpaid) in the family home; (c) living with extended family; or (d) extended family members living outside the household are providing them with income transfers.<sup>22</sup>

Table 5 provides evidence on whether disabled persons receive increased assistance from their families after the introduction of the disability law. Difference-in-difference estimators of the the impact of the disability law on whether disabled persons work as unpaid family workers (column 3); become an unpaid housekeeper in the family home (column 4); live with extended family (column 5); or receive income transfers from extended family members living outside the household (column 6) are reported in Table 5. They show clear gendered effects. Specifically, column 3 shows that disabled men are 6 percentage points more likely to report being an unpaid family worker after the law, while disabled women are no more likely to work as an unpaid family worker after the law is operationalized. Column 4 shows that following the introduction of the law, disabled women are 14 percentage points more likely to report being an unpaid housekeeper compared to before the law was activated, while disabled men are 7 percentage points more likely to report being a

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<sup>21</sup>They seek to do so by reducing the cost of working faced by disabled persons by requiring employers to provide workplace accommodations, for example.

<sup>22</sup>A threat to the validity of our approach may arise if non-disabled family members respond to the legal requirement to take responsibility for caring for disabled members by withdrawing from the labour force in order to provide care. Under this scenario the control is impacted by the policy change and therefore can no longer serve to provide the counterfactual for the treated group in the absence of treatment. We investigate whether this is an issue by removing from our sample all non-disabled individuals living in a household with a disabled member. Our findings are robust to excluding these individuals, indicating that the potential threat to our identification strategy is not an issue in practice.

housekeeper after the law (this effect is statistically different from zero, with a *p-value* of 0.000). In short, disabled women are more likely to undertake unpaid work in the family home, and disabled men are more likely to report working as an unpaid family worker and working (unpaid) in the family home after the disability law came into effect. Table 5 column 5 provides no evidence that disabled persons are more likely than the non-disabled to move in with their extended family following the operationalization of the disability law. However, disabled person's are more likely to receive income transfers from extended family following the introduction of the law.<sup>23</sup>

Overall, the evidence in Table 5 suggests that after the introduction of the disability law, families did provide increased assistance to their disabled members. What remains unclear is whether the actions of families are a cause or consequences of reduced employment of disabled persons following the introduction of the disability law. To shed light on this issue, we examine whether the reduction in employment is greater for disabled persons who receive transfers from family members that do not reside within their household. The idea is that an increase in income from extended family to the disabled person (in response to their obligations under the law) can substitute for labour market income earned by the disabled person, thereby allowing disabled persons to reduce their labour supply. A direct test of this is to examine whether employment reductions after the introduction of the disability law are greater amongst the disabled who receive family transfer payments.

Table 6 provides difference-in-difference estimates of the impact of the disability law on the likelihood that a disabled person works (column 1), and is an employee (in column 2) that allows the law to differentially affect those who receive income transfers from non-resident family members and those who do not. As can be seen from the table, we find no evidence that the reduction in the likelihood that a disabled person works or is an employee following the introduction of the law is greater amongst those receiving a family transfer from family members outside the household. This suggests that the reduction in employment of the disabled is not due to them withdrawing from the formal labor market, but rather from employers reducing their demand for disabled workers in response to the disability law. We further test this idea by considering whether the impact of the disability law on whether a person is an own-account worker is greater for those receiving income transfers from family members. We find, once again, that family income transfers does not drive the impact of the law. This supports our conclusion that disabled individuals are not withdrawing from employment in response to families providing financial assistance after the introduction of the law.

#### 5.4.2 Compositional change amongst the disabled

Hotchkiss (2004) and Kruse and Schur (2003) suggest that the decrease in the proportion of disabled

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<sup>23</sup>Income transfers to disabled women were larger than to disabled men following the introduction of the law.

who are employed in response to the ADA is, at least in part, attributed to a compositional change amongst the disabled. Specifically, they show that in the post ADA period there is a greater percentage of disabled persons receiving income support and reporting that they are unable to work.<sup>24</sup> It is unlikely that this mechanism is important in the Cambodian context for two main reasons. First, there is very little in the way of social income support in Cambodia. And second, although the 2009 disability law does require the Royal Cambodian Government to assist persons with disabilities who have severe disabilities, are very poor and have no support as well as the disabled who are elderly, are very poor and have no support (article 13), the law defers the development of a specific policy on income support to a sub-decree, which was subsequently enacted in June 2011.<sup>25</sup> However, in September 2012, the lack of progress in introducing a pension for people with disabilities living in poverty was discussed in an article in the Phnom Penh Post.<sup>26</sup> According to the article, more than a year after the had government passed legislation enacting a sub-decree to establish the pension to support disabled persons living below the poverty line, it had yet to form a committee to identify those entitled to the pension and to issue ID cards. The fact that a reduction in the employment rate amongst the disabled is clearly evident by 2012 (see Table 2), prior to a pension system being introduced would seem to rule out a mechanism based on an increase in those unable to work self-reporting as disabled in order to access income support targeting the disabled.

Nonetheless in order to investigate this issue, we examine whether disabled survey respondents are more likely to report their disability or illness as the reason for them not working and not seeking work after the disability law came into effect (in 2010) relative to the non-disabled. Given the gendered effects found in the previous section, we also allow for differential responses from men and women. Column 1 of Table 5 shows the results from estimation of the difference-in-difference model where the outcome is reporting not working due to being sick or disabled. We find no evidence of an increase in not working due to disability or illness amongst the disabled (relative to the non-disabled) after the disability law came into effect. This is inconsistent with a compositional change involving an increase in those reporting not being able to work amongst the disabled in the post law period. In contrast, column 2 provides some evidence that the the disability law led to an increase in disabled no longer seeking work because they are too old (or too young). However, the magnitude of the effect is small, at just 2%, it accounts for at most one fifth of the reduction in employment amongst the disabled after the disability law came into effect.

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<sup>24</sup>Hotchkiss (2004) finds an increase in welfare recipients relabelling themselves as disabled in order to qualify for disability insurance following a tightening of income support in the US in the 1980s. This increases the number of people classified as disabled without changing the number employed within the class of disabled, thereby reducing the proportion employed.

<sup>25</sup>The monthly stipend was set between 10,000 and 20,000 riel, or between US\$2.50 and \$5.

<sup>26</sup>Accessed at <http://www.phnompenhpost.com/national/pay-delay-frustrates-disabled-community>

### 5.4.3 Reduced employer demand for disabled persons

Previous research on the impact of laws protecting the employment rights of the disabled in the US and UK suggest that employers optimally choose to hire fewer disabled workers after the introduction of the disability law because the law requires employers to accommodate the workplace needs of people with disabilities, and the cost of doing so exceeds the benefit of avoiding penalties for not complying with the law. In the US, compliance is enforced through the courts and tribunals, with the onus on unsuccessful disabled job applicants and unfairly dismissed disabled employees to litigate employers who have not hired them or unfairly dismissed them.<sup>27</sup> In Cambodia, however, employers (both government and non-government) are required to meet employment quotas for disabled persons, and the enforcement of these quotas is through compulsory reporting with penalties of fines and imprisonment for non-compliance. *Prima facie*, non-compliance costs should be sufficiently high in Cambodia that they outweigh the benefits of avoiding accommodation costs associated with employing disabled workers. Despite the legal requirement for public and private sector employers to fulfil their quotas, in April 2016, the Southeast Asia Globe reported that there was no accurate data on how many people with disabilities are employed in general in Cambodia, and that not a single fine had been paid for failing to meet employment quotas.<sup>28</sup> This points to a lack of enforcement of the disability law in Cambodia. Overall, in the face of no enforcement of the disability law along side the potential costs associated with accommodating the workplace needs of the disabled, it seems likely that, as in the US and UK, the best response by Cambodia's employers to the disability law is to not hire disabled workers.

All in all, our results suggest that the reduction in the employment rate of the disabled following the operationalisation of the disability law reflects a reduction in employers demand for disabled workers. It appears that families respond to the reduced ability of disabled members to find employment by providing them unpaid work in family enterprises, or by providing them a role as a housekeeper in the family home, taking care of the house, children, and the elderly, and by providing financial assistance.<sup>29</sup> The reduction of the demand for disabled workers is a plausible explanation for the reduced employment of disabled workers as the quotas set out under the law appear to have not been enforced, so there is no penalty for failing to comply. In contrast, the requirement to accommodate a disabled employee may appear to be binding to employers. As the

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<sup>27</sup>Acemoglu and Angrist (2001) find that the bulk of claims relate to unfair dismissal rather than discrimination in hiring.

<sup>28</sup>Accessed at <http://sea-globe.com/lack-enforcement-cambodia-disabled-law/>

<sup>29</sup>This conclusion is consistent with Gartrell's 2010 ethnographic description of the disabled's lack of access to work within Cambodia's social hierarchy of work. In particular, housekeeping, or home work has the lowest social standing, followed by 'small work' which refers to a range of jobs in the informal sector, such as selling small goods like cakes, sweets or fish, repairing fishing nets and growing small amounts of fruit and vegetables for sale. Small work is characterised by minimal capital requirements low returns.

accommodation costs are generally thought to outweigh the productivity gains (and that is why the accommodations are not offered in the absence of a law compelling them), and the penalty for failing to meet quotas is not being enforced, it is likely that the reduction in employment reflects firms seeking to avoid the costs of accommodating disabled workers by not hiring them.

## 6 Discussion

This paper investigates the impact of a law designed to promote and protect employment amongst disabled persons in Cambodia. Similar to other low to middle income countries, and in addition to anti-discrimination and reasonable accommodation provisions that comprise disability laws in the US and UK, Cambodia's disability law includes affirmative action provisions by way of employment quotas, and a requirement for family to take responsibility for their disabled members. While quotas, if enforced, are expected to improve the rate of employment of disabled persons, provisions for family responsibility may reduce the need for disabled persons to work. Using a difference-in-difference estimation strategy, we find that the disability law was not successful at improving the level of employment amongst disabled persons in Cambodia. We estimate that employment amongst disabled persons was reduced by around 9 percentage points in the four years after the law was introduced. The adverse impact of the law on employment was greater for women than men (14 percentage points versus 6 percentage points). However, these overall effects mask significant differences in the distribution of impacts across the formal and informal sectors. Disabled males, for example, experienced an 11 percentage point reduction in the employee type employment that was somewhat offset by a 5 percentage point increase in their rate of self-employment. In contrast, women experienced a 6 percentage point reduction in employee type employment that was exacerbated by a 8 percentage point decline in their rate of self-employment.

We conduct a detailed analysis into potential mechanisms via which the disability law inadvertently reduced the employment of disabled persons. In the context of Cambodia's law an important potential mechanism is a reduction in their labour supply. As is typical in a developing country settings, Cambodia's disability law includes provisions that make families legally responsible for the welfare of their disabled members. This provision may reduce the need for disabled individuals to work. Indeed, we show that after the law has been introduced, families do provide disabled members greater assistance. For example, families are more likely to provide disabled male members unpaid work, and provide male and female disabled members unpaid roles within the household, such as cleaning and taking care of young or old family members, after the law is introduced. However, given the financial disadvantage of households with disabled members in Cambodia, it is unlikely to be feasible for disabled persons to voluntarily withdraw from work in the absence of outside

assistance. Therefore, we investigate whether reduced employment is more likely amongst disabled persons living in households that receive income transfers from non-resident family members during the post law period. We find no evidence that financial assistance from extended family in the post law period impacts on employment or employee type employment of disabled persons. Similarly, we find no evidence that disabled individuals receiving income transfers from extended family members in the post law period are more likely to report being an unpaid family worker. On the basis of this evidence we conclude that the greater likelihood of disabled persons working in an unpaid role for their family, or taking up unpaid roles within the household, reflects a compensatory response by the family to reduced employment of its disabled members.

We also investigate whether a compositional change in disabled persons in the post law period may explain the reduced rate of their employment. We find no evidence of an increase in the proportion of the disabled reporting that they are not looking for work due to illness or disability in the post-law period. We do find some evidence that the proportion of the disabled reporting themselves as too old (or young) to work increased after the introduction of the disability law. However, the magnitude of the increase is 2%, at best explaining around one fifth of the total reduction in employment in the post-law period. An extensive investigation into why the disability law had this unintended consequence suggests that reduced employer demand for disabled workers is the most likely mechanism. Echoing studies based on the US and UK experience, employers in Cambodia are financially responsible for accommodating the workplace needs of disabled workers under country's disability law. They can avoid these costs by not employing disabled workers. As the employment quotas appear to have not been enforced, there is no cost to employers for failing to comply with the quotas and there are benefits from avoiding the potential costs of workplace accommodations.

All in all, our analysis suggests that Cambodia's disability law has had the unintended consequence of reducing the employment of its disabled persons. Our findings highlight the fact that laws that seek to protect the employment rights of disabled person that are not enforced can leave the disabled worse off than they were prior to the law that sought to promote and protect their employment being legislated.



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Figure 1: Reporting of Disability and Any Functioning Difficulty

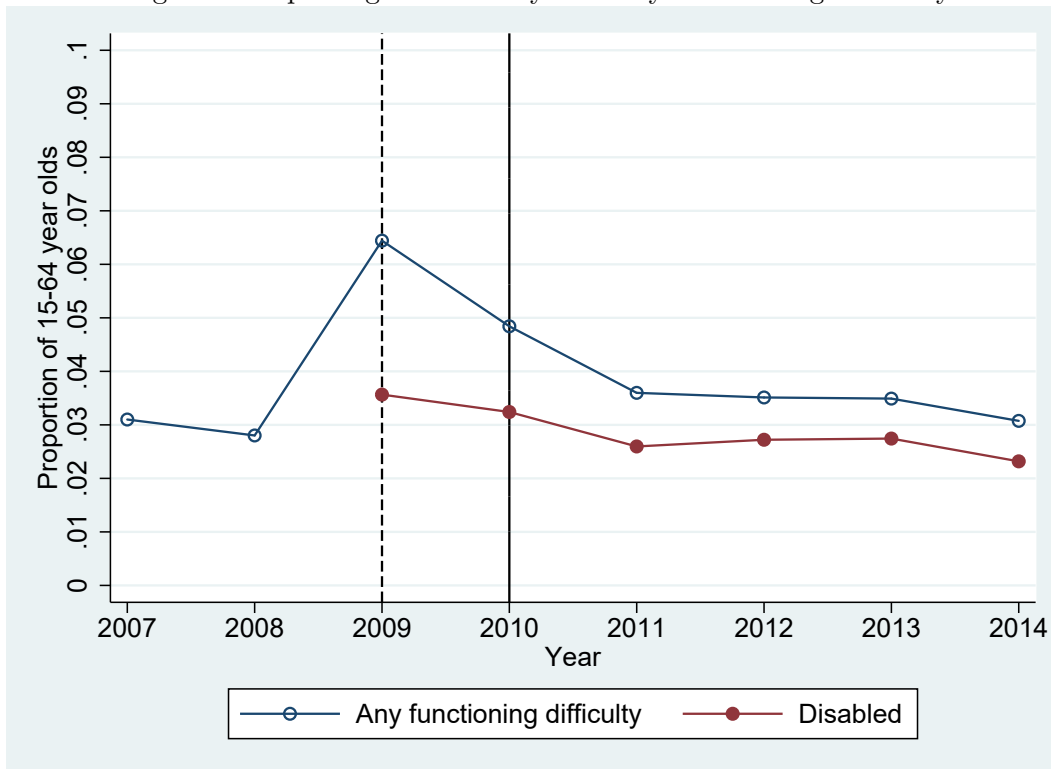


Figure 2: Employment and disability status

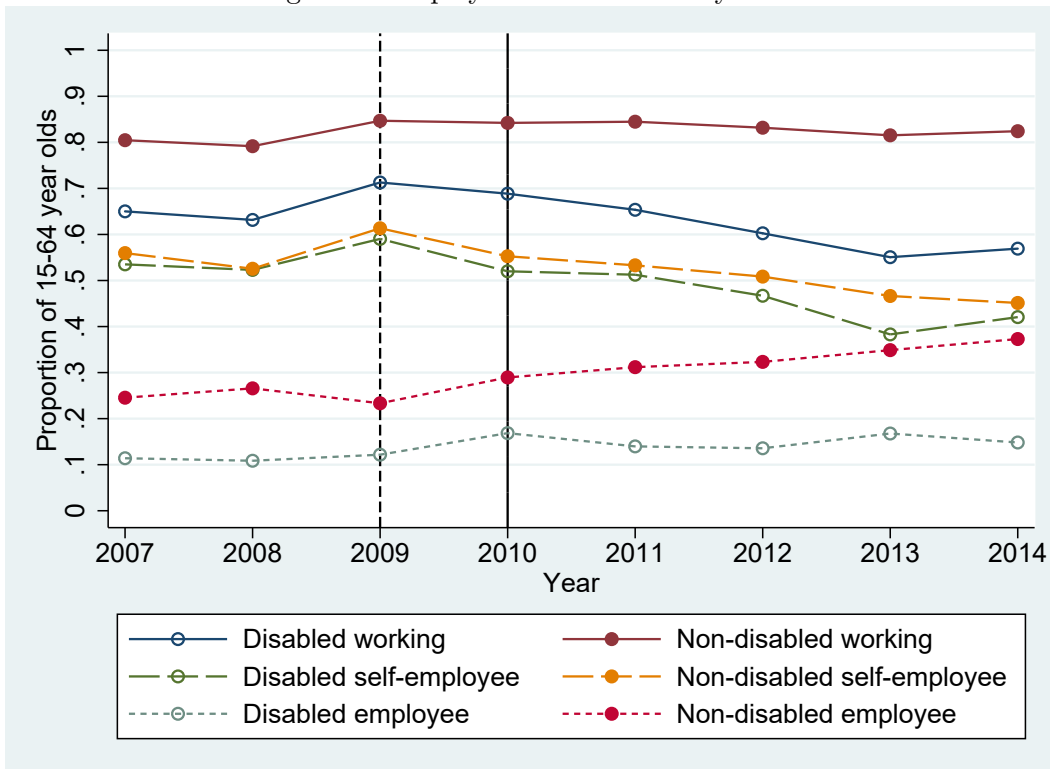


Table 1: Descriptive statistics

	All		Disabled		Non-Disabled	
	Mean	s.e.	Mean	s.e.	Mean	s.e.
Employed	0.829	(0.001)	0.644	(0.008)	0.835	(0.001)
Employee	0.304	(0.001)	0.140	(0.006)	0.309	(0.001)
Self-employed	0.525	(0.001)	0.504	(0.009)	0.525	(0.001)
Self-employed (paid)	0.416	(0.001)	0.437	(0.009)	0.416	(0.001)
Self-employed (unpaid)	0.108	(0.001)	0.067	(0.004)	0.109	(0.001)
Age	33.719	(0.040)	44.380	(0.247)	33.401	(0.040)
Male	0.473	(0.001)	0.528	(0.009)	0.471	(0.001)
Married	0.584	(0.001)	0.599	(0.008)	0.584	(0.001)
Highest education level completed						
None	0.156	(0.001)	0.362	(0.008)	0.150	(0.001)
Less than primary school	0.308	(0.001)	0.360	(0.008)	0.306	(0.001)
Primary school	0.258	(0.001)	0.168	(0.006)	0.260	(0.001)
Lower secondary school	0.158	(0.001)	0.078	(0.005)	0.160	(0.001)
Upper secondary school	0.071	(0.001)	0.023	(0.003)	0.073	(0.001)
Above secondary school	0.049	(0.001)	0.009	(0.002)	0.050	(0.001)
Household size	5.279	(0.006)	5.122	(0.036)	5.284	(0.006)
Child in household (j 10 years)	0.232	(0.001)	0.204	(0.007)	0.233	(0.001)
Age of household head	47.885	(0.036)	52.315	(0.197)	47.753	(0.036)
Male household head	0.809	(0.001)	0.762	(0.007)	0.810	(0.001)
Highest education level completed of household head						
None	0.192	(0.001)	0.274	(0.008)	0.189	(0.001)
Less than primary school	0.365	(0.001)	0.402	(0.008)	0.364	(0.001)
Primary school	0.239	(0.001)	0.202	(0.007)	0.240	(0.001)
Lower secondary school	0.120	(0.001)	0.085	(0.005)	0.121	(0.001)
Upper secondary school	0.055	(0.001)	0.027	(0.003)	0.056	(0.001)
Above secondary school	0.030	(0.000)	0.010	(0.002)	0.030	(0.001)
Urban residence	0.328	(0.001)	0.219	(0.007)	0.332	(0.001)
Observations	116,740		3,383		113,357	

Table 2: The Impact of the Disability Law on Employment

	(1)	(2)	(3)	(4)	(5)	(6)
Disabled	-0.14*** (0.013)	-0.17*** (0.012)	-0.17*** (0.012)	-0.15*** (0.029)	-0.18*** (0.028)	-0.18*** (0.028)
Post-2010	-0.02*** (0.004)	0.02*** (0.006)	0.02*** (0.006)			
Disabled x Post-2010	-0.10*** (0.017)	-0.10*** (0.017)	-0.09*** (0.017)			
Disabled x 2009				0.02 (0.033)	0.01 (0.031)	0.01 (0.031)
Disabled x 2010						
Disabled x 2011				-0.04 (0.044)	-0.04 (0.040)	-0.04 (0.040)
Disabled x 2012				-0.08* (0.039)	-0.08** (0.038)	-0.08** (0.038)
Disabled x 2013				-0.11*** (0.042)	-0.12*** (0.040)	-0.12*** (0.041)
Disabled x 2014				-0.10*** (0.034)	-0.10*** (0.033)	-0.09*** (0.033)
Controls	N	Y	Y	N	Y	Y
Year dummies	N	N	N	Y	Y	Y
Province x Year dummies	N	N	Y	N	N	Y
Observations	116,833	116,740	116,740	116,833	116,740	116,740

Standard errors clustered at the village level in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 3: Robustness Analysis of the Effect of the Disability Law on Employment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Disabled	-0.17*** (0.012)	-0.18*** (0.011)	-0.19*** (0.022)	-0.18*** (0.028)	-0.18*** (0.028)	-0.19*** (0.032)	-0.33 (0.220)	-0.17*** (0.012)	-0.11*** (0.025)
Post period	0.02*** (0.006)	0.01 (0.007)	0.08*** (0.011)				0.02*** (0.006)	0.02*** (0.007)	0.01 (0.006)
Disabled x Post period	-0.09*** (0.017)	-0.09*** (0.016)	-0.07*** (0.025)				-0.08*** (0.017)	-0.09*** (0.017)	-0.08*** (0.018)
Disabled x 2007					-0.01 (0.040)	0.00 (0.041)			
Disabled x 2008					-0.02 (0.042)				
Disabled x 2009				0.01 (0.031)					
Disabled x 2010									
Disabled x 2011				-0.04 (0.040)	-0.04 (0.040)	-0.03 (0.044)			
Disabled x 2012				-0.08** (0.038)	-0.08** (0.038)	-0.06 (0.041)			
Disabled x 2013				-0.12*** (0.041)	-0.12*** (0.040)	-0.10** (0.042)			
Disabled x 2014				-0.09*** (0.033)	-0.09*** (0.033)	-0.08** (0.036)			
Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year dummies	N	N	N	Y	Y	Y	N	N	N
Province x Year dummies	Y	Y	Y	Y	Y	Y	Y	Y	N
Include 2007 & 2008	N	Y	Y	N	Y	Y	N	N	N
Exclude 2009 & 2010	N	N	Y	N	N	Y	N	N	N
Full set of disability interactions	N	N	N	N	N	N	Y	N	N
Full set of trend interactions	N	N	N	N	N	N	N	Y	N
Prov. UR & disabled interact	N	N	N	N	N	N	N	N	Y
Observations	116,740	138,449	91,456	116,740	138,449	91,456	116,740	116,740	116,740

Standard errors clustered at the village level in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 4: Heterogenous Effects

Outcome	Employed	Employee	Self Employed	Employed	Employee	Self Employed
Disabled	-0.17*** (0.012)	-0.05*** (0.010)	-0.13*** (0.014)	-0.16*** (0.018)	-0.05*** (0.011)	-0.10*** (0.019)
Post-2010	0.02*** (0.006)	0.00 (0.010)	0.02* (0.011)	0.01* (0.007)	-0.02 (0.010)	0.03** (0.011)
Disabled x Post-2010	-0.09*** (0.017)	-0.08*** (0.013)	-0.01 (0.018)	-0.14*** (0.025)	-0.06*** (0.016)	-0.08*** (0.025)
Male	0.11*** (0.003)	0.12*** (0.004)	-0.01*** (0.004)	0.09*** (0.004)	0.09*** (0.005)	-0.00 (0.006)
Disabled x Male				-0.03 (0.022)	0.02 (0.018)	-0.04* (0.024)
Post-2010 x Male				0.02*** (0.005)	0.04*** (0.006)	-0.02*** (0.006)
Disabled x Post-2010 x Male				0.08** (0.032)	-0.05* (0.025)	0.13*** (0.033)
Controls	Y	Y	Y	Y	Y	Y
Province x Year dummies	Y	Y	Y	Y	Y	Y
Observations	116,740	116,655	116,655	116,740	116,655	116,655

Standard errors clustered at the village level in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 5: Mechanisms

Outcome	Sick or Disabled	Too old	Unpaid Family Worker	Housekeeper	Live w/ Family	Family Transfer
Disabled	0.13*** (0.013)	0.01* (0.006)	-0.03** (0.012)	0.02 (0.012)	0.04*** (0.011)	-0.02 (0.015)
Post-2010	-0.00** (0.001)	-0.01*** (0.001)	-0.04*** (0.007)	0.00 (0.005)	-0.01** (0.005)	0.04** (0.019)
Disabled x Post-2010	-0.01 (0.018)	0.02* (0.010)	0.02 (0.014)	0.14*** (0.021)	0.02 (0.016)	0.11*** (0.023)
Male	-0.00 (0.001)	-0.00** (0.001)	0.00 (0.004)	-0.09*** (0.004)	0.04*** (0.003)	-0.00 (0.002)
Disabled x Male	0.00 (0.017)	-0.01 (0.006)	-0.05*** (0.014)	0.01 (0.014)	-0.06*** (0.014)	0.04** (0.017)
Post-2010 x Male	0.00 (0.001)	0.00** (0.001)	-0.00 (0.004)	-0.02*** (0.004)	0.01*** (0.004)	-0.01* (0.003)
Disabled x Post-2010 x Male	0.01 (0.025)	-0.01 (0.011)	0.06*** (0.017)	-0.07*** (0.026)	-0.02 (0.020)	-0.05* (0.028)
Controls	Y	Y	Y	Y	Y	Y
Province x Year dummies	Y	Y	Y	Y	Y	Y
Observations	116,434	116,434	116,655	116,434	116,746	138,471

Standard errors clustered at the village level in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.



Table 6: Differential Employment Effects by Receipt of Family Transfer Payment

Outcome	Employed	Employee	Unpaid Family Worker
Disabled	-0.16*** (0.014)	-0.03*** (0.011)	-0.07*** (0.015)
Post-2010	0.02*** (0.007)	0.00 (0.010)	0.05*** (0.010)
Disabled x Post-2010	-0.10*** (0.021)	-0.07*** (0.018)	-0.06*** (0.022)
Domestic transfer	-0.01 (0.006)	0.02** (0.008)	-0.02*** (0.007)
Domestic transfer x Disabled	-0.04 (0.028)	-0.06*** (0.021)	0.02 (0.026)
Domestic transfer x Post-2010	0.00 (0.007)	0.00 (0.010)	0.02*** (0.009)
Domestic transfer x Disabled x Post-2010	0.03 (0.037)	0.00 (0.029)	-0.01 (0.035)
Controls	Y	Y	Y
Province x Year dummies	Y	Y	Y
Observations	116,740	116,655	116,655

Standard errors clustered at the village level in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.