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Working Paper Series

#2016-033

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participation among men and women in Mongolia**

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UNU-MERIT Working Papers

ISSN 1871-9872

**Maastricht Economic and social Research Institute on Innovation and Technology
UNU-MERIT**

**Maastricht Graduate School of Governance
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Social welfare benefits and their impacts on labour market participation among men and women in Mongolia

Franziska Gassmann¹, Daphne François¹, Lorena Zardo Trindade²,

May 2016

Abstract

Aside from providing income support to individuals in dire situations, social welfare benefits may unintentionally influence labour decisions, such as whether or not to take up a job, how many hours to work and which type of work to opt for. This paper investigates the relationship between social welfare benefits and labour market outcomes, measured by labour market participation and work intensity for women and men in Mongolia. Mongolia has an extensive system of social welfare benefits, which are mainly allocated based on categorical criteria, and the country suffers from relatively low labour market participation. The empirical analysis uses data from the 2012 Mongolian Household Socio-economic Survey and applies standard regression analysis and quasi-experimental methods. The paper pays particular attention to women since – in spite of the fact that their level of education is similar to that of men – their labour market participation is considerably lower compared to men. The results of the analysis indicate that social welfare receipt does not affect the labour market participation of men, but it has a negative impact on women. In terms of hours worked, men in beneficiary households tend to work more hours, while women work fewer hours if they are social welfare recipients.

Keywords: social welfare benefits, labour market participation, Mongolia

JEL codes: I38, J22

Acknowledgements

This research benefited from financial support from the World Bank Rapid Social Response Multi-Donor Trust Fund. The views expressed in this paper are solely those of the authors.

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Introduction

Having sustainable employment reduces the risk of living in poverty and helps sustain households' livelihoods. It diminishes the need for households to resort to coping strategies that are detrimental in the medium and long term, such as selling assets, taking children out of school, or not accessing health care facilities. It also allows households to fully participate in society and reduces mental distress often associated with low and unstable income. From a societal perspective, active and productive labour market participation of the working age population contributes to and helps sustain the economic and human development of the country, ensuring long-term macro-economic development.

Hence, preventing unemployment and keeping periods of unemployment as short as possible is important, because unemployment leads to loss of income which in turn increases an individual's (and its dependents') risk of falling into poverty while deepening poverty of those who are already poor. Research shows that unemployment and underemployment belong to the most important causes of poverty (UNDP, 2007). In addition, unemployment and a more general withdrawal from the labour market may lead to social exclusion, disabling individuals from actively participating in society.

To avoid that individuals adopt adverse coping strategies in times of income loss and to ensure that they do not fall into poverty, social welfare systems provide income support to those in dire situations, for instance in the form of unemployment benefits and social assistance. Research finds, however, that such benefits at times unintentionally influence labour decisions, including decisions on whether or not to take up a job, on the number of hours worked and on the type of work opted for (Kits, Santos, Smith, & Isik-Dikmelik, 2013).

Within this branch of research, women constitute a group of particular interest. Their labour market participation on average is lower than that of men, independent of age group, level of income, educational background or geographic location on the globe. The main explanatory factor for this outcome is that women around the world disproportionately take on the burden of child and/or elderly care. This inevitably has implications for their (economic) independence and consequently their right to self-determination (ILO, 2010b; ILO, 2012; European Commission, n.d). A high female labour force participation is also desirable from a macro-economic perspective as female labour supply contributes to economic growth and development (Verick 2014; Tsani et al. 2012) and can mitigate the effects of ageing in societies (Elborgh-Woytek et al. 2013).

In many countries labour market participation of women is on the rise. Social care provisions taking over the burden of child and elderly care greatly contribute to this

development (ILO, 2010b). While there is considerable research establishing the relationship between social care provisions on female labour market participation (Thévenon 2013), the differential impact of other social welfare benefits on labour market participation among men and women is less well investigated. Hence, an important question remains, whether or not the incentive effects of social welfare benefits on labour market participation are different for men and women and if so, in what way and why.

This paper examines the relationship between social welfare benefits and labour market outcomes for women and men in Mongolia. Mongolia has an extensive social protection system offering more than 70 non-contributory social welfare programs to different groups of the population.³ All programs, except for the Food Stamp program, are categorically targeted. About 40 percent of the population lives in a household benefiting from social welfare transfers.⁴ Overall, the social welfare programs are progressive, but the pro-poorness differs considerably across programs (Onishi & Chuluun, 2015). Given that program eligibility depends on categorical criteria, income from work has no impact on social welfare entitlements. Hence, benefit receipt should not affect the labour market participation of recipients, especially in the case of low transfers. However, the availability of social welfare benefits, which constitute a guaranteed income in recipient households, may increase the reservation wage, which means that the salary that can be earned on the labour market needs to be above the social welfare income. Therefore, social welfare benefits may negatively affect labour market participation in recipient households (Thévenon 2013).

The Mongolian labour market faces a number of problems, partly due to its unique demographic and climatic characteristics. Compared to other countries, labour force participation in Mongolia is relatively low at 62 percent of working age adults (15 and older) compared to an average of 71 percent across the OECD countries⁵, and it is clearly lower than in other transition countries in Eastern Europe and Central Asia (Shatz et al. 2015). Female labour force participation is considerably lower at 56 percent, even though the educational attainment of women is similar to that of men. The main labour market issues in Mongolia are lack of employment opportunities in rural areas, skills shortages, gender inequality, and age discrimination (ADB 2014; Gassmann et al. 2015). Rural-to-urban migrants, young adults

³ For a detailed review of the social welfare programs and beneficiary profiles, see Onishi & Chuluun (2015).

⁴ This does not include contributory pensions and other social insurance benefits, nor does it include the Child Money Program, which provides a universal transfer to all children up to the age of 18.

⁵ National Statistical Office of Mongolia: www.1212.mn (retrieved September 2015) and OECD.Stats (retrieved on 29 March 2016).

and women are especially disadvantaged in the labour market (ILO, 2010b; ILO, 2012; ILO, 2013; Khan et al., 2013; Shatz et al. 2015).

This paper contributes to the existing literature by providing additional empirical evidence on the impact of categorical social welfare benefits on labour market outcomes separating between women and men. Using data from the 2012 Mongolian Household Socio-Economic Survey, we apply Propensity-Score-Matching (PSM) models for different sub-groups of the able-bodied working age population allowing to assess the differential impact of social welfare benefits on labour market participation and work intensity. The paper starts by discussing the theoretical background and existing research on the relationship between labour market participation and social welfare in general. It then describes the data and methodology used for the analysis of (a) factors that may explain individual labour market participation for men and women in Mongolia and (b) the extent to which the receipt of social welfare benefits affects labour market outcomes. Subsequently it discusses the findings of the analysis and concludes.

Social welfare and labour market participation

Classical economic theory assumes that individuals behave rationally; time consistent and entirely self-interested and that their labour supply decisions are the product of these traits. In the context of income transfers and labour supply, standard economic theory assumes that individuals and households maximise their utility by allocating time to work and leisure given budget constraints (Danziger et al. 1981; Moffitt 2002). A social welfare benefit adds to total household income and may lead to a reallocation of time allocated to work and non-work activities at individual and household level. Assuming that leisure is a normal good, an income transfer is expected to lead to a reduction of labour supply (Danziger et al. 1981). A priori it is not evident that the standard model also applies to lower and middle-income countries, where labour supply is relatively inelastic (Barrientos & Villa 2015) and leisure might be a luxury good. Many social welfare programmes - attempting to protect and improve living standards in an efficient and effective manner while aiming to facilitate labour market transitions - have been designed taking the standard economic assumptions for granted. More recent results from empirical research in the area of behavioural economics, however, show that individuals do not always act rationally. Individuals have difficulties dealing with complex situations, they may make systematic errors, procrastinate and may hold non-standard preferences and non-standard beliefs (Babcock, Congdon, Katz, & Mullainathan, 2012; DellaVigna, 2009).

The body of research analysing the impacts of social welfare benefits on labour market decisions is growing, particularly as a result of the increasing pressure of welfare states on public budgets due to population ageing on the one hand and constrained fiscal resources on the other hand. The question these studies typically try to answer is whether social welfare benefits – and in particular social assistance – induce behavioural changes and as such prolong periods of welfare dependency. Findings differ across and sometimes even within countries. In Sweden, evidence has shown that the length of time out of work receiving benefits indeed is positively correlated with individuals' propensity to live on welfare (Andrén & Andrén, 2013; Bäckman & Bergmark, 2011). Studies in Norway indicate the presence of an inverted U-shape whereby up to a certain point the probability of individuals' return into the labour market increases with time spent receiving social welfare benefits, after which it slowly declines (Dahl & Lorentzen, 2003; Hansen, 2003). Evidence from transition countries is mixed. While no labour market disincentives are found for the Family Benefit Programme in Armenia (Levin & Ersado, 2011), Kits et al. (2013) find evidence for negative work disincentives of social assistance in Georgia. Evidence from the Kyrgyz Republic point at mixed effects across regions within the country (Gassmann & Zardo Trindade 2015). Finally, the ILO (2010a) finds only limited negative labour supply effects in developing countries, instead demonstrating that re-allocation of labour associated with social assistance receipt leads to an increase of adult labour participation.

Research specifically focusing on the impact of social welfare benefit receipt on female labour market participation is somewhat scarcer. With regard to labour market participation in general, an OECD study finds that amongst others female educational attainment and increasing part time employment opportunities have had a positive impact on female labour market participation (Thévenon, 2013). However, as the main driver of female labour participation it identifies formal childcare services for working parents with young children. Benefits may play a role in the allocation of time between care and paid work between spouses. Social welfare benefits that allocate sizeable income transfers may negatively affect women's financial incentives to work and lower their labour supply. Thévenon (2013) finds no evidence of negative labour supply incentives of child benefits on women in a longitudinal analysis across OECD countries. A research project assessing the impact of local welfare systems on female labour participation in eleven European local welfare municipalities finds that "local welfare systems have a much more limited impact on women's employment decisions than researchers and policy makers normally appear to think" (European Commission, n.d., p. 1). In spite of considerable differences in the quality of

local welfare systems, there was no considerable variation in female employment rates across cities. Gender-specific evidence from countries in Eastern Europe and Central Asia provide a nuanced picture. The negative effects of the targeted social assistance programme in Georgia mainly are concentrated among women: “women who receive TSA are 9 to 11 percentage points less likely to be economically active than women who live in households that do not receive the transfer” (Kits, Santos, Smith, & Isik-Dikmelik, 2013, p. 1). Evidence of a welfare trap has also been found for the Czech Republic, where particularly women have a higher probability to remain unemployed (Guzi, 2013) and for the Kyrgyz Republic where social assistance transfers are associated with lower labour market participation and work intensity for women (Barrientos & Kudebayeva 2015). This is in contrast to findings from Tajikistan where social assistance transfers had a positive effect on adult employment rates in female-headed households (Arias et al, 2014).

Data and methodology

Data

The analysis in this paper uses data from the 2012 Mongolian Household Socio-Economic Survey (HSES). The HSES is a cross-sectional household survey conducted annually by the National Statics Office (NSO). Data is collected over a 12-month period (rolling sample) providing detailed information about the demographic composition of the household, incomes, expenditures, housing, assets and labour for almost 13,000 households. The survey is nationally representative and covers the whole country, stratified by Ulaanbaatar, *aimag centres*, *soum centres* and the countryside (NSO, 2014). All results are weighted using sampling weights unless indicated otherwise.

The analysis focuses on the group of people that can be expected to be economically active. Therefore, able-bodied working-age adults⁶, excluding full time students⁷, are used as reference group, unless indicated otherwise. This group represents 50.9 percent of the total population in Mongolia (Table 1). Active labour market participation refers to the economically active population and includes individuals that are currently or usually active. Currently active individuals were engaged in either paid or unpaid work or were actively looking for work during the week prior to the survey. Usually active persons indicated to have worked at some point during the 12 months prior to the survey. Individuals who did not work or had a job attachment during the year under survey and were not actively searching for a

⁶ Includes all persons from the age of 15 up to retirement age, which is 55 years for women and 60 years for men.

⁷ Individuals aged 24 years old or under who reported to be *attending school* were excluded from the analysis given the importance of education for human capital development.

job are identified as inactive labour market participants. In 2012, 82 percent of the reference population was active in the labour market. Participation rates for men are 11 percentage points higher than for women (Table 2).

Table 1. Share of the reference group in the total population (%), 2012

Population	Share of total population		
	Total	Men	Women
Adult (15-54/59)	63.6	64.9	62.7
Able-bodied adult	61.7	62.5	61.0
Able-bodied adult, not full time student	50.9	52.3	49.6

Source: Authors' calculations based on the HSES 2012

The focus of this paper is on the impact of non-contributory social welfare benefits on labour market outcomes. Given that the HSES questionnaire does not exactly follow the definition of social welfare benefits as used by the Government, it is not always possible to clearly distinguish between contributory (social insurance) and non-contributory (social assistance) benefits. Therefore, the recipients of social welfare benefits are identified as all individuals living in households in which at least one of the following sources is a component of the household income: unemployment benefit, maternity benefit, disability pension, survivor pension, illness payments, funeral payments, mother benefit, student benefit and other social benefit. These benefits are predominately non-contributory but may have a small social insurance type component.⁸ Overall, 41 percent of the reference population lives in a household receiving any type of social welfare benefit.

Methodology

First, in order to better understand the determinants of labour market outcomes, the study applies an econometric framework that allows identifying factors that may explain individual labour market participation and work intensity measured in hours worked per week. Secondly, the analysis will assess to what extent the receipt of social welfare benefits affects labour market outcomes. The methodology applied is based on the model proposed by Becker (1976) according to which the supply of labour is correlated to income from work,

⁸ Social welfare benefits are defined in the Social Welfare Law and can be classified into seven different groups: social welfare pensions, social welfare allowance, social welfare services, social welfare service allowance for elderly with state merit, allowance for the elderly, allowance for the disabled, allowance for mothers and children (Onishi & Chuluun, 2015:11).

non-work income and the household production function. Following the recommendation of Gronau (1986), in the absence of data on household production, the model can consider household characteristics, such as household income and other demographic features. Individual characteristics are also included as controls.

With the purpose of investigating the determinants of labour market participation, we first estimate a binary response model (*probit*) to determine correlates of labour market participation and test whether able-bodied adults living in households receiving social welfare benefits are more or less likely to actively participate in the labour market. For that we assume that the probability of being active in the labour market is given by

$$p_i \equiv \Pr[L_i = 1 | \mathbf{x}] = \beta_0 + \beta_1 V_i + \beta_2 M_{dj} + \beta_3 Z_{dj} + u_i ,$$

in which the probability p depends on a regressor vector \mathbf{x} and a $K \times 1$ parameter vector β ; L_i refers to the labour supply status for able-bodied adults aged 15 to 54/59 years old; V_i is the household status for receiving non-work income as social welfare transfers, pensions and aid from friends or relatives; M_{dj} is the vector of individual characteristics⁹ that are wage determinants, equivalent to income from work; Z_{dj} refers to the vector of household characteristics¹⁰, equivalent to the household production function; u_i is the error term. The model is estimated for the total reference population and for women and men separately. In addition, we distinguish between two different age groups (15-25 and 26-54 (59) for women (men)) given the characteristics of the Mongolian labour market.

Work intensity is measured by the total hours worked per week. Given that the dependent variable, total hours worked per week, is only observed for those that work, a *Heckman selection model* is required to treat the unobserved selection factors as a problem of specification error or a problem of omitted variables. The technique corrects for bias in the estimation of the outcome equation by explicitly using information gained from the sample selection model. The model specification is as follows

$$\ln(h_i) = \mathbf{x}'_i \beta_2 + \sigma \lambda(\mathbf{Z}'_i \widehat{\beta}_1) + u_i ,$$

In which h_i is the total hours worked per week and is considered to be a function of wage per hour, individual characteristics, other household income, and household size and composition (X_i); u is an error term, $\widehat{\beta}_1$ is obtained by first-step *probit* regression of the probability of being employed E_i on Z_i since $\Pr[E_i^* > 0] = \Phi(\mathbf{Z}'_i \beta_1)$, and $\lambda(\mathbf{Z}'_i \widehat{\beta}_1) = \phi(\mathbf{Z}'_i \widehat{\beta}_1) / \Phi(\mathbf{Z}'_i \beta_1)$ is the

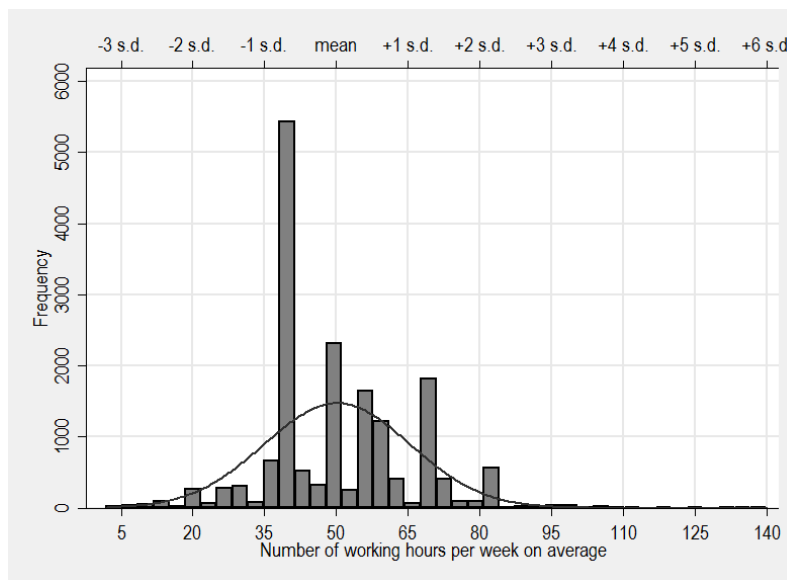
⁹ Schooling information, age, age squared, gender, position within the household and marital status.

¹⁰ Household living conditions (household has electricity, household has toilet, household belongs to the bottom 50% of per capital consumption), household composition (household size, household has at least one child below 6 years old and in infant school, household has at least one child below 6 years old not in infant school, household has at least one child in school age, household has at least one elder, household has at least one disabled member), and household location (other urban areas and rural areas).

estimated inverse Mills ratio. In this case, the existing bias is corrected using information from the determinants of the probability of being employed.

Additionally, since it has become increasingly popular in the recent literature to treat total hours of work as a discrete rather than a continuous specification, a *Heckman ordered probit* is estimated. A discrete choice approach considers that hours of work are heavily concentrated at particular hours, such as zero hours, half time or full time. Furthermore, the specification of categories of hours reduces measurement errors in the number of hours actually worked (Haan, 2006; Kang et. al., 2004; Blundel & MaCurdy, 1998).

Figure 1. Frequency distribution for the number of working hours per week



Source: Estimates based on HSES 2012.

The discrete specification is modelled by the following likelihood function

$$L = \Pr[E_i \leq 0] 1 - E_i f_{H_i} E_i > 0 \times \Pr[H_i > 0] E_i,$$

in which E_i refers to the selection equation that reflects the probability of being employed; and H_i assumes different values according to three categories ($j=1, 2$ or 3) of total hours worked per week, based on the actual frequency distribution observed in the data (Low (1): 2-39 hours per week; Middle (2): 40-54 hours per week; and High (3): 55 hours or more per week) (Figure 1).

Finally, in order to test whether social welfare benefits have negative labour market effects, a quasi-experimental design is applied to compare labour market outcomes of individuals with and without social welfare benefits. We apply Propensity Score Matching¹¹ to

¹¹ Stata command *teffects psmatch* is used for the estimation of the models.

create a control group of non-recipients as similar as possible compared to recipients of social welfare benefits. By comparing the labour market outcomes of these two groups, we will be able to analyse whether or not social welfare benefits create work disincentives using the model specification below.

$$LM_i = \beta_0 + \beta_1 T_i + \beta_2 X + u_i ,$$

for which LM_i refers to the labour market outcome for able-bodied adults aged 15 to 59 years old; T_i is the identifier for social welfare recipient (treatment group); X is the vector of variables used for the matching¹²; and u_i is the error term. It is the coefficient β_1 estimated for the variable indicating the social welfare recipient status that describes the effect on labour market outcomes. This coefficient is the average treatment effect on the treated. The ATT measures the heterogeneity of the impact via interaction with other variables.

The treatment group in this analysis comprises able-bodied working age adults (15-54 for women, and 15-59 for men), excluding fulltime students up to the age of 24, living in social welfare benefit recipient households. The matching model is applied to the HSES 2012 data. The Propensity Score Matching model is estimated for all able-bodied working age adults, excluding full time students. Separate models are also estimated for men and women, assuming that social welfare receipt might have different impacts according to one's gender. In addition, separate models are estimated for two different age groups (15-25 and 26-54 (59) for women (men)). The dependent variables used to estimate the impact of social welfare receipt on labour market outcomes are active labour market status and hours worked by employed individuals. It is assumed that work decisions are a function of individual and household characteristics. The individual and household characteristics used to estimate the models based on the HSES 2012 described above and their summary statistics are presented in Table 2.

To ensure that the matching estimators identify and consistently estimate the treatment effects of the treated, two assumptions are verified: the conditional independence assumption, and the common support condition. The first assumption is an important step in assessing the quality of matching, performing tests that verify that treatment is independent of unit characteristics after controlling for a set of observed covariates. This test verifies

¹² The variables used to match non-recipients to recipients of social welfare benefits were based on: individual characteristics (gender, age, marital status, household head status, education level (higher secondary school or more), interview during quarters 2 & 3); other income sources (HH is recipient of aid from relatives and/or friends, HH has at least one pensioner), HH living conditions (HH has electricity, HH has toilet, HH belongs to the bottom 50% of per capital consumption), HH composition (HH size, HH has at least one child below 6 years old and in infant school, HH has at least one child below 6 years old not in infant school, HH has at least one child in school age, HH has at least one elder, HH has at least one disabled member), and HH location (other urban areas and rural areas).

whether the propensity score adequately balances characteristics between the treatment and comparison group units¹³ on the sample used when estimating the effect of receiving social welfare benefits on labour market participation and work effort, measured by hours worked. The test results indicate that most of the standardised differences and variance ratios for the covariates are close to the expected values of zero and one (Table 11 and Table 12 in the annex).¹⁴ Diagnostic kernel density plots using the matched distributions appear to be balanced, with exception of the covariate for household size.¹⁵ Yet, household size was kept in the model due to its relevance for determining social welfare programs participation.

Verifying the common support or overlap condition is another essential step in ensuring the validity of the propensity score matching estimated. Lack of overlap is a more serious problem compared to balance, because it corresponds to a lack of data that limits the causal conclusions that can be made without uncheckable modelling assumptions. This assumption is automatically tested when estimating the ATT using *teffects psmatch*, and the estimator is not identified when the overlap assumption is violated. Visual examination of the propensity score distribution in Figure 2 also suggests that its densities curves are more similar after matching. Even though there are large masses around 0 and 1, the plot for the propensity score before matching (raw) also reveals a clear overlapping of the distributions. The unmatched and matched distributions of the propensity scores for all able-bodied working age employed adults are omitted since they are similar to the one below.

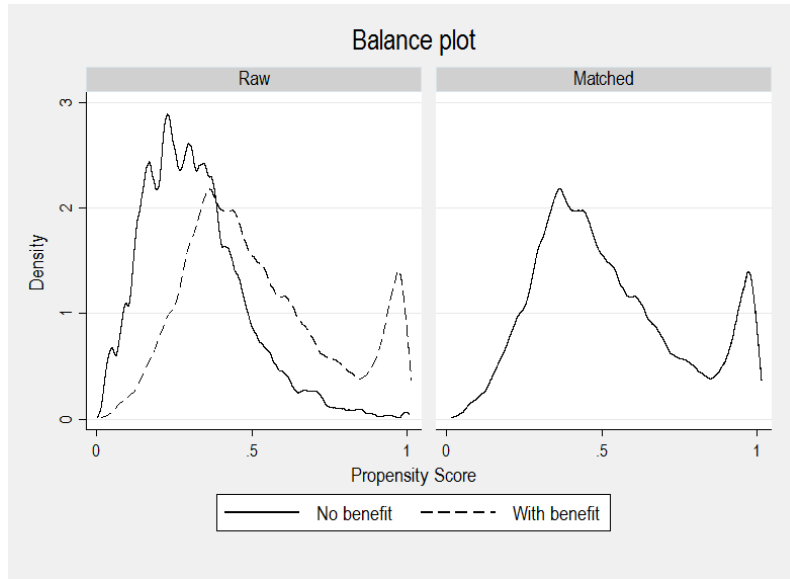
A common strategy used to improve the quality of the matching is to specify a caliper for the matching, which stipulates the maximum distance at which two observations are a potential match. This technique was tested for the sample including all abled-bodied adults. When using caliper=0.001, the ATT could not be identified because the overlap assumption was violated by some observations. Dropping these observations would allow the estimation of the ATT, however, it would also change the parameter in order to fit the data. For caliper=0.01, the ATT could be identified, but its value and standard error were equal to the ATT calculated without caliper restriction.

¹³ For that, Stata14 provides the command *tebalance* summary, used after *teffects psmatch*, which calculates for each covariate the standardised difference, that is, the size of the difference in means of a conditioning variable (between the treatment and comparison units), scaled by (or as a percentage of) the square root of the average of their sample variances, and the variance ratio. In this paper, after estimating the ATT, using *teffects psmatch*, *tebalance* summary was used.

¹⁴ Considering the range [0.96; 1.04], from the 2.5th and 97.5th percentiles of the F-distribution, for the variance ratio, the following variables fall outside the range: For all able-bodied working age adults (excluding fulltime students): age, age squared, household size, the presence of at least one elder, the presence of at least one disabled member, location (other urban and rural areas) and receipt of aid from relatives or friends. For employed adults: gender, education level, time of the interview, household the presence of at least one child in school age, household has toilet, and location (other urban and rural areas).

¹⁵ Available upon request from the authors.

Figure 2. Propensity score distribution



Source: Estimates based on HSES 2012.

Table 2. Summary statistics for the variables used in the econometric models based on HSES 2012

Variable	All					Men					Women				
	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max
Active	23097	0.82	0.38	0	1	11491	0.88	0.33	0	1	11606	0.77	0.42	0	1
Employed	23097	0.75	0.43	0	1	11491	0.79	0.41	0	1	11606	0.71	0.45	0	1
Wage per hour worked	17851	1088	1671	0	73269	9474	1077	1726	0	46154	8377	1101	1607	0	73269
Hours worked	17851	50.36	15.45	2	140	9474	52.86	15.47	2	140	8377	47.54	14.94	3	126
Male	24247	0.50	0.50	0	1	12137	1.00	0.00	1	1	12110	0.00	0.00	0	0
Age	24247	35.68	10.58	15	59	12137	35.80	11.14	15	59	12110	35.57	9.98	15	54
Married	24247	0.69	0.46	0	1	12137	0.69	0.46	0	1	12110	0.69	0.46	0	1
Household head	24247	0.41	0.49	0	1	12137	0.71	0.45	0	1	12110	0.12	0.32	0	1
Education level: higher secondary school or more	24247	0.67	0.47	0	1	12137	0.60	0.49	0	1	12110	0.73	0.44	0	1
Interview during quarters 2 & 3	24247	0.52	0.50	0	1	12137	0.52	0.50	0	1	12110	0.52	0.50	0	1
HH is recipient of SW	24247	0.41	0.49	0	1	12137	0.41	0.49	0	1	12110	0.42	0.49	0	1
HH is recipient of aid from relatives and/or friends	24247	0.12	0.33	0	1	12137	0.12	0.32	0	1	12110	0.13	0.34	0	1
HH has at least one pensioner	24247	0.18	0.38	0	1	12137	0.18	0.39	0	1	12110	0.17	0.38	0	1
HH has electricity supply	24247	0.87	0.33	0	1	12137	0.86	0.34	0	1	12110	0.88	0.32	0	1
HH size (ln)	24247	1.35	0.42	0	2.71	12137	1.34	0.43	0	2.71	12110	1.36	0.40	0	2.71
HH has at least one child below 6 years old in infant school	24247	0.27	0.44	0	1	12137	0.25	0.43	0	1	12110	0.28	0.45	0	1
HH has at least one child below 6 years old NOT in infant school	24247	0.28	0.45	0	1	12137	0.26	0.44	0	1	12110	0.30	0.46	0	1
HH has at least one child in school age	24247	0.46	0.50	0	1	12137	0.45	0.50	0	1	12110	0.48	0.50	0	1
HH has at least one elder	24247	0.14	0.34	0	1	12137	0.15	0.35	0	1	12110	0.13	0.33	0	1
HH has at least one disabled member	24247	0.06	0.24	0	1	12137	0.06	0.23	0	1	12110	0.06	0.24	0	1
Other urban areas	24247	0.27	0.44	0	1	12137	0.26	0.44	0	1	12110	0.27	0.44	0	1
Rural areas	24247	0.45	0.50	0	1	12137	0.46	0.50	0	1	12110	0.43	0.50	0	1

Source: Authors' calculations based on the HSES 2012.

Data limitations and methodological issues

Since the included social welfare benefits may have some contributory component, the results of the analysis of social welfare dependence have to be interpreted with caution. A priori it is not possible to say whether and to what extent the inclusion of contributory elements biases the outcomes. The receipt of social welfare benefits, both contributory and non-contributory may affect the (re-)allocation of labour in the household. Receipt of social insurance type benefits, which replace income in case of old age, sickness or disability, is expected to result in withdrawal of the beneficiary from the labour market. Non-contributory social welfare benefits represent additional household income and may also result in negative labour supply effects. Since the empirical analysis focuses on able-bodied adults of working age, excluding full-time students, old-age pensioners and disabled individuals, we expect that the findings are robust with respect to the sign, but the magnitude of the effect may be over- or underestimated.

The greatest strength of PSM is estimating mean program effects for a population or sub-group, the average treatment on the treated. However, its use as an evaluation tool faces significant limitations. According to Bryson, Dorsett and Purdon (2002), there are three questions that PSM is not able to address, but which may be fundamental to policy makers. First, PSM does not allow reliable assumptions about the distribution of impacts (Heckman, Smith and Clements, 1997). Second, it does not estimate the impact of the program beyond the eligible group. These effects may occur when program participants are benefiting at the expense of other deprived groups not targeted by the program. Thirdly, PSM cannot estimate the mean impact of the program on those whose participation status changes due to a change in policy.

Findings and discussion

Labour market participation

Overall, 56.1 percent of adults and 57.9 percent of able-bodied adults in working age are economically active. This is slightly below the average in OECD countries within the same age group, where the share of economically active adults reaches 60.1 percent (OECD, 2016), and is lower compared to other small transition countries (Shatz et al., 2015). Excluding fulltime students below the age of 25 from the working age population reduces the inactivity rate to 19 percent. In other words, of those that can be expected to work, 81 percent are economically active (Table 3). The remainder of the analysis exclusively considers able-bodied working age adults and excludes students below the age of 25.

As can be expected, inactivity rates are higher for women (25 percent) than for men (13 percent) (Table 4). This finding is consistent with evidence around the world, indicating that, irrespective of location, women are on average less likely to participate in the labour market than men (ILO, 2010b; ILO, 2012). The size of the gap between men and women is similar to the gap in Mongolia's neighbouring countries and other transition countries (ILO, 2015; OECD, 2016; European Commission, n.d.). Inactivity rates are particularly high among young women, of which one out of three is not participating in the labour market. Part of the explanation for this finding could be related to the fact that Mongolian women are on average higher educated than men, inevitably requiring them to remain in education (and hence out of the labour market) comparably longer (Pastore, 2009). However, findings from a recent study assessing labour market opportunities for Mongolian youth suggest that there is a considerable group of youth that is not in employment, education or training (NEET). In the age group 15-29, one-fifth of youth was found to be NEET (Shatz et al., 2015).

Table 3. Labour market status for different definitions of the work-able population (%), 2012

	All working age adults	Able-bodied adults	Able-bodied adults, excluding students below age 25
Currently active	56.1	57.9	70.2
Usually active	9.0	9.2	10.9
Inactive	35.0	32.9	18.9
Total	100.0	100.0	100.0

Source: Authors' calculations based on the HSES 2012.

Table 4. Labour market status by gender and age group (%), 2012

	Labour market participation status by gender					
	Total		Women		Men	
	Economically active	Inactive	Economically active	Inactive	Economically active	Inactive
Total	81.1	18.9	75.0	25.0	87.3	12.7
Age						
15 to 25	73.7	26.3	65.1	34.9	81.7	18.3
26 to 54/59	82.9	17.1	77.3	22.7	88.7	11.3

Source: Authors' calculations based on the HSES 2012.

The highest labour market participation is observed for men in the ages of 26 years and older. With respect to the position in the household, household heads are the most active (89 percent), while among spouses and other relatives only three out of four are economically active. Inactivity rates are highest in Ulaanbaatar (23 percent), and lowest in rural areas (13 percent). This finding is line with existing evidence, which additionally stresses that although

labour market participation in rural areas is higher, jobs are on average less productive and lower remunerated (Batchuluun & Dalkhjav, 2014; ILO, 2013).

Housekeeping and childcare are the most frequently stated reasons for inactivity (46 percent) (Table 5). Expectedly, this share is higher for women: 63 percent of women state housekeeping and childcare as a reason for inactivity, as opposed to 10 percent of men. About one third of the population claims ‘other’ reasons, for which the data do not provide more specific information. Among inactive men, this share is even higher, amounting to 62 percent. Helping family members and relatives, for example with herding or agriculture, could be an explanation for their inactivity. Strictly speaking, this activity should be considered work, which is likely to be non-remunerated and hence does not contribute to household income.

Able-bodied adults aged 45 and above seem to be particularly discouraged given that 37 percent indicate that they are ‘too old’ for work. The widespread presence of age discrimination in the Mongolian labour market further supports this assumption (ADB 2014; Gassmann, François & Zardo Trindade, 2015). A World Bank study suggests that age discrimination against women may be related to the potential misuse of their early retirement provisions (Khan et al., 2013). Although the inactivity rate for women with higher education at 19 percent is slightly below the average for women, nevertheless 74 percent stay out of the labour market due to care related duties.

Table 5. Reasons for inactivity by gender and age group (%), 2012

	Able-bodied working age adults, excluding students					
	Student	Too old	Homework ¹ , caring for a baby	Caring for sick person	Other	
Total	6.7	11.1	45.6	2.8	34.0	100.0
Gender						
Female	5.7	8.8	63.3	2.4	19.9	100.0
Male	8.6	15.7	9.9	3.5	62.3	100.0
Age						
15 to 25	14.1	1.6	42.6	2.0	39.7	100.0
26 to 59	4.0	14.5	46.6	3.0	31.9	100.0

Source: Authors' calculations based on the HSES 2012.

Activity rates are also lower for adults living in poor households, particularly among those that receive social welfare benefits (Table 6). Forty percent of women living in poor and welfare recipient households do not actively participate in the labour market compared to only 19.2 percent of men.

Table 6. Inactivity rates by poverty status, social welfare receipt and gender (%), 2012

Poor under the NSO poverty line	Able-bodied working age adults, excluding students					
	SW benefit recipient status: Total		SW benefit recipient status: Women		SW benefit recipient status: Men	
	No benefits	SW benefit recipient	No benefits	SW benefit recipient	No benefits	SW benefit recipient
Total	15.9	23.5	20.6	31.5	11.1	15.1
Not poor	13.8	21.0	17.7	28.2	10.0	13.5
Poor	22.4	29.7	29.8	39.5	14.9	19.2

Source: Authors' calculations based on the HSES 2012.

Determinants of labour market outcomes

The analysis above relies on the comparison of group averages and hence does not provide any information on causality. In order to better understand the determinants of labour market participation, this section uses econometric analysis to distil factors that may explain the labour market status of individuals. Moreover, the analysis will also assess to what extent the receipt of social welfare benefits affects various labour market outcomes, focusing on labour market participation and labour supply in number of hours worked.

Labour market participation is amongst others determined by individual characteristics, such as the age of an individual, the level of education, the position in the household and gender. Household characteristics, such as the composition of a household and its location may also influence an individual's likelihood of engaging in the labour market. The presence of children or disabled family members in the household may explain in particular the labour market participation of women, since women are more likely to take care of dependents than men. Finally, the receipt of formal or informal financial support may reduce the necessity to work. The determinants of active labour market participation are estimated using a binary response (probit) model. First, the model is estimated for all working-age able-bodied adults (excluding full-time students below the age of 25). Secondly, the model is estimated separately for men and women assuming that different factors explain their participation in the labour market.

Table 7. Determinants of active labour market participation, marginal effects

Dependent variable: Active	All	Men	Women
Male	.078*** (0.008)		
Age	.043*** (0.002)	.026*** (0.002)	.058*** (0.004)
Age squared	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Married	.02*** (0.007)	.069*** (0.012)	-.042*** (0.013)
Household head	.094*** (0.009)	.084*** (0.016)	0.028 (0.017)
Education level: higher secondary school or more	.051*** (0.007)	.031*** (0.009)	.069*** (0.011)
Interview during quarters 2 & 3	0.000* (0.006)	.017** (0.008)	0.005 (0.008)
HH size (ln)	.034*** (0.009)	(0.002) (0.012)	.027* (0.014)
HH has at least one child below 6 years old in infant school	-.039*** (0.007)	-0.01 (0.010)	-.058*** (0.010)
HH has at least one child below 6 years old NOT in infant school	-.107*** (0.007)	-0.012 (0.010)	-.176*** (0.010)
HH has at least one child in school age	-.024*** (0.007)	-0.014 (0.009)	-.03*** (0.010)
HH has at least one elder	.05*** (0.012)	.032** (0.016)	.079*** (0.020)
HH has at least one disabled member	-.04*** (0.011)	-.054*** (0.015)	-.033* (0.018)
HH has electricity supply	-.161*** (0.012)	-.141*** (0.018)	-.194*** (0.018)
Other urban areas (base: capital)	.011* (0.007)	-0.0097 (0.009)	.03*** (0.010)
Rural areas	.071*** (0.007)	.027*** (0.010)	.117*** (0.011)
HH is recipient of SW	-.021*** (0.006)	0.011 (0.009)	-.049*** (0.009)
HH is recipient of aid from relatives and/or friends	-.056*** (0.008)	-.063*** (0.011)	-.057*** (0.012)
HH has at least one pensioner	-.078*** (0.011)	-.06*** (0.014)	-.102*** (0.018)
N. of observations	23,097	11,491	11,606
F	89.42	40.45	58.40
Prob > F	0.000	0.000	0.000

Note: Standard errors in parentheses; * p<0.10, **p<0.05, *** p<0.01

Source: Authors' calculations based on HSES 2012.

As expected, men are more likely to be active in the labour market than women. To be precise, the probability that a man is economically active is 8 percentage points (p.p.) higher compared to a woman, all else being equal. Labour market participation increases with

age, but the function is concave, meaning that after having reached a certain “peak age” an individual’s likelihood of being active decreases. The overall increase in labour market participation with every additional year of age is larger for women than for men. This finding appears to be inconsistent with the fact that women on average retire earlier than men as a result of their lower legal retirement age (Khan et al., 2013). However, the earlier-mentioned fact that women on average are higher educated than men and hence become active at a later age may at least in part outweigh the effect of early retirement for women. With respect to the position in the household, being the head of the household is a strong predictor of labour market participation for men, but not for women. In other words, most men participating in the labour market are head of the household, while the role of active women within the household is less clear-cut.

Not surprisingly, adults with higher education have a higher probability of being active, whereby the effect is stronger for women than for men. Research by the International Labour Organization, however, finds that among youth an increase in educational attainment is associated with a higher risk of unemployment. Hence, while young individuals may actively participate in the labour market looking for a job, they run the risk of becoming discouraged due to the hurdles they face in encountering employment (ILO, 2013). Besides being a burden on youth themselves, Mongolia risks becoming subject to brain drain if labour market opportunities for youth do not improve, whereby highly educated youth leave the country in search of better employment prospects elsewhere. Brain drain would have long-term negative impacts on the country’s economic development (Docquier & Schiff, 2009).

As expected, the demographic composition of the household is particularly of influence on the labour market position of women. While the presence of children does not seem to affect male labour market participation, it is strongly negatively correlated with that of women, in particular if the children are below the age of six and not attending a nursery or kindergarten. Additional analysis confirms that women spend almost twice the amount of time on household and care duties compared to men. Even when they are engaged in paid productive work, the time allocated to household and care duties does not decline (ADB, 2014; Khan et al., 2013). Earlier research in transition countries in Eastern Europe and Central Asia already identifies this phenomenon, stressing its negative implications for women’s health and well-being. The study marks the erosion of the state-supported infrastructure, among which the childcare was most seriously affected, as a potential determinant of women’s double burden of work and care (World Bank, 2000).

Women with small children at home are 18 percentage points less likely to work compared to women without children. If the children are in day care, however, the effect is reduced by two thirds and diminishes even further once the children reach school age. This finding indeed supports the idea that the provision of child care facilities may increase the labour participation of women. The presence of an elderly (above-working-age) person in the household, on the other hand, has a positive effect on the labour market participation of both men and women. These adults are five percentage points more likely to be active compared to the situation where no elderly are present. This could imply that informal care provided by elderly household members taking over various home- and child care duties allows the parents to work. Finally, having a disabled person in the household has a negative impact on labour market participation, which is largest and most significant for men.

Having access to electricity, which could indicate a higher living standard, is negatively correlated with labour market participation. Although this effect may appear counterintuitive, this variable might catch other effects related to the housing situation and location of a household. With respect to location, the models indicate that living outside Ulaanbaatar is positively correlated with active labour market participation, which is particularly relevant for women. Although they are less likely to have access to electricity, women in rural areas or other urban areas are more likely to be active than those living in the capital.

Finally, the receipt of formal and informal financial support is reflected by three variables indicating whether an individual is living in a household receiving social welfare benefits, pensions or informal support from family and relatives. The receipt of pensions or informal aid is negatively correlated with labour market participation both for men and women, with pension receipt within the household showing the most sizeable effect. The receipt of social welfare benefits, however, solely affects the labour market behaviour of women, while being insignificant for men. Women in recipient households are about five percentage points less likely to be active labour market participants. This finding may possibly be explained by women's relatively stronger inclination to engage in caregiving activities.

The above models were also estimated separately for men and women of different age groups, differentiating between adults between 15 and 25 years old and adults 26 years up to retirement age.¹⁶ Noticeable differences emerge with respect to certain explanatory variables. For instance, having completed higher secondary education or more, which is a strong predictor of labour market participation when taking into account the entire

¹⁶ Results are available upon request from the authors.

population, becomes insignificant when only considering young women. This may possibly be explained by the fact that lack of experience in combination with a gender bias outweighs the value employers attach to educational attainment for women. Moreover, research by the ILO suggests that better-educated youth face a higher risk of unemployment (ILO, 2013). The effect of having young children in nursery school or attending kindergarten and the presence of an elderly person in the household also becomes insignificant when only considering young women. However, having young children at home remains negatively correlated with their active labour market participation. The receipt of informal aid loses its significance for young women, but it remains a significantly negative predictor of labour market participation for young men.

Employed adults differ in terms of work intensity, which is measured by the total hours worked per week. Overall, Mongolians are working long hours. 29 percent of the employed adults work 57 hours or more per week and 60 percent work between 40 and 56 hours per week. Using two-stage selection models, we estimate the determinants of work intensity. Being a man, having higher education or being the household head increases the likelihood of working more hours. The wage per hour is also strongly positively associated with a higher workload. However, the relationship is concave, indicating that adults with a considerably higher wage work fewer hours per week. Household composition has no influence on the hours worked, except for the presence of an elderly household member. Adults living in social welfare recipient households do not seem to be different in terms of hours worked, while the receipt of informal aid indicates a positive effect on the hours worked, although only in the first model.

Table 8. Determinants of labour supply in hours worked, only working adults

Dependent variables	Heckman selection model coefficients (ln hours)	Heckman Oprobit marginal effects		
		Low (2-39 hours per week)	Middle (40-54 hours per week)	High (55 hours or more per week)
Wage per hour worked (ln)	.16525*** (0.006)	-.05321*** (0.003)	-.10839*** (0.004)	.1616*** (0.005)
Wage per hour worked (ln) sq	-.0218*** (0.001)	.0066*** (0.000)	.01345*** (0.001)	-.02005*** (0.001)
Male	.09895*** (0.008)	-.03252*** (0.003)	-.06624*** (0.006)	.09876*** (0.009)
Age	.01311*** (0.003)	-.00536*** (0.001)	-.01093*** (0.002)	.01629*** (0.003)
Age squared	-.00018*** (0.000)	7.3e-05*** (0.000)	.00015*** (0.000)	-.00022*** (0.000)
Married	.01635** (0.008)	-.00573** (0.003)	-.01166** (0.006)	.01739** (0.008)
Household head	.03944*** (0.008)	-.01335*** (0.003)	-.02718*** (0.006)	.04053*** (0.009)
Education level: higher secondary school or more	.04386*** (0.008)	-.01917*** (0.003)	-.03905*** (0.006)	.05821*** (0.008)
Interview during quarters 2 & 3	.01393*** (0.005)	-.00688*** (0.002)	-.01402*** (0.004)	.0209*** (0.006)
HH size (ln)	0.012 (0.009)	-0.004 (0.003)	-0.008 (0.007)	0.013 (0.010)
HH has at least one child below 6 years old in infant school	-0.008 (0.006)	0.002 (0.002)	0.003 (0.005)	-0.005 (0.007)
HH has at least one child below 6 years old NOT in infant school	-.0134* (0.007)	0.004 (0.003)	0.008 (0.005)	-0.013 (0.008)
HH has at least one child in school age	-.01246* (0.006)	0.004 (0.002)	0.008 (0.005)	-0.012 (0.007)
HH has at least one elder	.03317** (0.014)	-.00947* (0.005)	-.0193* (0.011)	.02877* (0.016)
HH has at least one disabled member	-0.008 (0.014)	0.003 (0.005)	0.006 (0.010)	-0.008 (0.015)
HH is recipient of SW	-0.006 (0.006)	0.001 (0.002)	0.003 (0.005)	-0.004 (0.007)
HH is recipient of aid from relatives and/or friends	.01904** (0.009)	-0.004 (0.003)	-0.008 (0.006)	0.012 (0.009)
HH has at least one pensioner	-0.017 (0.013)	0.004 (0.005)	0.009 (0.010)	-0.013 (0.014)
N. of observations	23,097	23,097	23,097	23,097
Prob > F	0.000	0.000	0.000	0.000

Note: Standard errors in parentheses; * p<0.10, **p<0.05, *** p<0.01

Source: Estimates based on HSES 2012.

Effect of social welfare receipt on labour market outcomes

The descriptive analysis and binary response models above indicate that social welfare receipt and active labour market participation are negatively correlated. In order to test whether social welfare benefits indeed create negative labour market effects, a quasi-experimental design is applied to compare labour market outcomes of individuals with and

without social welfare benefits. The subsequent analysis uses propensity-score-matching (PSM) to establish a control group. Each able-bodied working age adult living in a social welfare recipient household is matched with a non-recipient based on observable characteristics, such as individual characteristics, household composition, receipt of other transfers, household living standard, and location. The two groups are then compared with respect to labour market participation and work effort.

The results in Table 9 partly confirm the findings from the descriptive analysis and binary models. Receiving a social welfare benefit has overall a small negative impact on active labour market participation. Individuals in social welfare recipient households are two percentage points less likely to be active. However, the impact differs for men and women. Social welfare receipt does not affect the participation of men, but it has a negative impact of three percentage points for women, in particular women between 15 and 25 years old. Although the analysis above points at a negative impact of social welfare benefits on active labour market participation, the question arises whether benefits also have an impact on the hours worked of those that are actually working. In order to assess the impact of social welfare benefits on the hours worked, the matching procedure is applied to employed individuals only. The results indicate that the impact is rather different for employed men and women. Men in beneficiary households tend to work more hours than their counterparts. Women, on the other hand, work fewer hours if they are social welfare recipients (Table 10).

Table 9. Impact of living in a SW recipient household on active labour market participation, ATT

	Active		
	15-59 y	15-25 y	26-59 y
All	-0.0170*** (0.002)	-0.0190*** (0.005)	-0.0133*** (0.002)
Men	-0.00419 (0.003)	-0.0065 (0.005)	0.00185 (0.003)
Women	-0.0316*** (0.003)	-0.0345*** (0.007)	-0.0213*** (0.003)

Note: Robust standard errors for independently and identically distributed data in parentheses. * p<0.10, **p<0.05, *** p<0.01

Source: Authors' calculations based on HSES 2012.

Table 10. Impact of living in a SW recipient households on hours worked, employed only, ATT

	Employed: Hours worked		
	15-59 y	15-25 y	26-59 y
All	0.0103***	0.0103***	0.0103***

	(0.002)	(0.002)	(0.002)
Men	0.0298***	0.0298***	0.0298***
	(0.002)	(0.002)	(0.002)
Women	-0.0303***	-0.0303***	-0.0303***
	(0.003)	(0.003)	(0.003)

Note: Robust standard errors for independently and identically distributed data in parentheses. * p<0.10, **p<0.05, *** p<0.01

Source: Authors' calculations based on HSES 2012.

The presented results have to be interpreted cautiously, given that the HSES data does not allow a clear distinction between contributory and non-contributory benefits. However, a similar analysis using a different set of data confirms our findings (Gassmann et al., 2015). Social Welfare Allowances and Allowances for Mothers and Children are among the largest non-contributory categorical welfare programmes providing benefits to adults that most likely have work capacities. The results all point at negative labour market effects and confirm the findings of our analysis. The Social Welfare Allowance has slightly larger effects on women than on men. The impact of the Allowance for Mothers and Children is also negative on labour market participation, but the effect is much smaller compared to the Social Welfare Allowance. Women receiving the Mother and Child Allowance are between three and six percentage points less likely to be active on the labour market (Gassmann et al., 2015).

Conclusion

This paper contributes to a body of literature analysing the relationship between social welfare benefits and labour market participation, particularly assessing the case of Mongolia. The analysis was carried out using an econometric framework that allowed identifying factors that may explain individual labour market participation and work effort measured in hours worked per week. The paper pays particular attention to women since – in spite of the fact that on average their level of education is similar to that of men – their labour market participation is considerably lower. Difficulties in accessing child care and the cultural “double burden” of work and household duties faced by women impact women’s participation rates and might cause implications for career progression, pensions and poverty, particularly in female headed households.

Findings resemble the results of some of the existing analyses asking whether and to what extent social welfare benefits lead to benefit dependency, possibly due to behavioural changes induced by benefit receipt. In line with studies carried out for instance in Georgia and Sweden, the results of the analysis reveal a negative relationship between social welfare benefit receipt and labour market participation (Andrén & Andrén, 2013; Bäckman &

Bergmark, 2011; Kits et al., 2013). It finds that able-bodied, working-age adults in social welfare recipient households are on average two percentage points less likely to be active and that the impact differs for men and women. While social welfare receipt does not affect the labour market participation of men, it has a negative impact of three percentage points for women, in particular women between 15 and 25 years old. In terms of hours worked, men in beneficiary households tend to work more hours, while women work fewer hours if they are social welfare recipients. While the presented results have to be interpreted cautiously given that the identification of social welfare benefits in the HSES is a little bit messy, a similar analysis using a different set of data confirms our findings (Gassmann et al., 2015).

Although the analysis sheds light on the nature of relationship between social welfare benefits and labour market participation in Mongolia, it does not explain which causal factors contribute to the negative impact of social welfare benefits on labour market participation and why there is a significant difference between men and women. Carrying out additional analysis that would assess the causal factors explaining the nature of the relationship – ideally for each benefit separately – could provide valuable inputs for programme design adjustments to offset some of the adverse labour market effects.

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Annex

Table 11. Covariate balance summary: able-bodied working age adults

Covariates	Standardised differences		Variance ratio	
	Raw	Matched	Raw	Matched
Active				
Male	-0.021	0.004	0.999	1.000
Age	-0.006	-0.004	1.283	0.926
Age squared	0.029	-0.016	1.266	0.896
Married	-0.177	-0.004	1.173	1.003
HH head	-0.181	0.002	0.942	1.001
Education level: higher secondary school or more	0.002	0.017	0.998	0.982
Survey interview in the summer	0.007	-0.071	1.000	1.010
HH belongs to the bottom 50% of per capita consumption distribution	0.115	-0.030	1.006	1.003
HH size (ln)	0.597	0.005	0.893	1.044
HH has at least one child below 6 years old in infant school	-0.113	0.073	0.888	1.100
HH has at least one child below 6 years old NOT in infant school	0.305	-0.114	1.278	0.961
HH has at least one child in school age	-0.006	0.023	0.999	1.004
HH has at least one elder	0.270	-0.048	1.724	0.933
HH has at least one disabled member	0.535	0.088	25.887	1.225
HH has electricity supply	0.116	0.025	0.741	0.932
HH has toilet	0.063	0.020	0.846	0.946
Other urban areas	0.073	-0.111	1.109	0.880
Rural areas	-0.082	-0.076	0.944	0.948
HH is recipient of aid from relatives and/or friends	0.139	0.021	1.367	1.043
HH has at least one pensioner	0.303	-0.035	1.631	0.962
N	1,341,354	1,065,028		
Treated obs	532,514	532,514		
Control obs	808,840	532,514		

Source: Estimates based on HSES 2012.

Table 12. Covariate balance summary: able-bodied working age employed adults

Covariates	Standardised differences		Variance ratio	
	Raw	Matched	Raw	Matched
Hours worked (ln) by employed individuals				
Male	0.034	-0.033	0.996	1.006
Age	0.023	-0.070	1.273	0.937
Age sq	0.055	-0.078	1.253	0.904
Married	-0.183	-0.049	1.215	1.045
HH head	-0.137	-0.062	0.983	0.988
Education level: higher secondary school or more	0.006	0.040	0.994	0.960
Survey interview in the summer	0.022	-0.044	0.998	1.008
HH belongs to the bottom 50% of per capita consumption distribution	0.088	0.012	1.019	1.002
HH size (ln)	0.604	0.042	0.862	1.136
HH has at least one child below 6 years old in infant school	-0.116	0.062	0.884	1.084
HH has at least one child below 6 years old NOT in infant school	0.295	-0.043	1.299	0.978
HH has at least one child in school age	-0.024	0.080	0.997	1.018
HH has at least one elder	0.280	0.032	1.839	1.055
HH has at least one disabled member	0.497	0.031	31.713	1.079
HH has electricity supply	0.102	0.057	0.799	0.878
HH has toilet	0.042	0.054	0.911	0.890
Other urban areas	0.067	-0.150	1.106	0.838
Rural areas	-0.082	-0.120	0.955	0.940
HH is recipient of aid from relatives and/or friends	0.138	0.106	1.400	1.282
HH has at least one pensioner	0.311	-0.004	1.772	0.995
N	994,690	733,948		
Treated obs	366,974	366,974		
Control obs	627,716	366,974		

Source: Estimates based on HSES 2012.

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