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DEVELOPMENT OF LABOR SUPPLY MODEL USING ALTRUISM FACTOR

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Abstract

This study aims to conduct the modeling of labor supply model by using altruism factor, beside that this research also aims to do empirical test about existence of altruism phenomenon in Indonesia as well as empirical test of labor supply model with altruism and calculate the value of labor supply elasticity based on power supply model Work with altruism. Empirical testing was performed using IFLS (Indonesian Family Life Survey) 2014 data. Examination of altruism phenomenon was done by using inter-household transfer model, while labor model test with altruism was done by using Heckit (Heckman Tobin's Probit) method. Theoretically it can be shown that altruism affects the specification of labor supply functions through changes in utility function specifications. The labor supply function model capable of accommodating the idea is the labor supply function with altruism, characterized by the variable wages and assets of others in a group of independent variables affecting one's working hours. By using IFLS 2014, empirically through inter-household transfer model can be proven altruism or altruistic behavior in Indonesia, although altruism is weak. The elasticity of labor supply with altruism is smaller than the standard labor supply elasticity (without altruism) that is 1.4 compared to 2.1 for uncompensated and 1.1 compared to 2.0 for compensated elasticity. That means ignoring the altruism factor in the estimation of the labor supply model will have implications for the calculation of the elasticity of over-estimate labor supply.

Keywords: Labor Supply, Altruism, Elasticity, IFLS, Heckit Method

INTRODUCTION

Estimated labor supply function becomes a popular tool for seeing the dynamics of labor. First, through the application of the concept of a backward bending supply curve, researchers can see the impact of wage changes on the time people are allocated to work, which is the standard analysis of labor supply. Secondly, because of the simultaneous relationship between income (wages) and working hours, the estimated labor supply function is usually done simultaneously with the estimated earning function which, if done cross-section, is a function of labor demand at the regional level. As a result, the analysis becomes very rich, especially for static comparative purposes, as it simultaneously derives estimates of labor demand and supply functions.

Another development that should be noted, of course, is the dynamic labor supply estimation method. From the side of the case, the development occurs along with the more complete data needed to make estimates. Especially in Indonesia. Rochjadi and Leuthold (1994) used the National Socio-Economic Survey (Susenas) 1982 data to estimate the impact of tax on labor supply. The same model can also be applied to see the impact of government transfers on labor supply, since transfers from the government can be viewed as negative taxes.

What has not been widely seen is the impact of transfers between households on labor supply. This is understandable, since the phenomenon of transfers between individuals (including between households and also between generations) is particularly prominent in developing countries compared to developed countries, whereas innovative studies have been conducted by researchers in developed countries. In developing countries, to some extent, inter-household transfers are a "substitute" for the low transfer of government to households.

In the framework of economic theory, giving to others can be categorized as altruism, although there is also a gift that can not be categorized as altruism. An altruist will have a distinctive function of utility, because his utility is not only dependent on his own consumption, but also depends on the consumption of others. Formally, the altruism issue has been modeled by Backer (1985). Becker himself defines altruism as a willingness to reduce his own consumption to increase others consumption. Thus, it is interesting to see what if the labor supply model is "mated" with the altruism model. Based on the description above, then the problem of this research are:

1. Is there an altruism phenomenon in Indonesia.
2. How does the labor supply function work by using altruism factor in Indonesia
3. How does elastistas labor supply on labor supply model by using altruism factor

While the purpose of this research is to develop labor supply model using altruism factor, to know whether altruism phenomenon in Indonesia and to know how the labor supply elasticity on labor supply model using altruism factor.

LITERATURE REVIEW

Basic Concepts of Labor Supply

The basic concept of labor supply is easy to find in standard microeconomic theory books, including Henderson and Quandt (1980), Variants (1992 and 1996), and Stiglitz (1993). The decline in the labor supply function is based on the assumption that the individual wants to maximize the utility:

U = U (C, L) .... (1)

Where U is satisfaction, C is a market commodity and L is the time for leisure (non-work activities). Efforts to maximize such satisfaction are subject to constraints:

PC = WH + V ....(2)

Where P is the price of the market commodity, W is the nominal wage, H is the working hour and V is the income property or is often also referred to as non-labor income. The income constraint in equation (2) shows that the individual finances the needs of its commodity market by using income derived from the labor market (WH) and income from outside the labor market. Equation (2) can also be written as:

$$C = \left(\frac{W}{P}\right) H + \frac{V}{P} \quad \text{.....} \quad (3)$$

Which shows budget constraints in real terms. It should be noted, however, that since leisure times are identified with non-work activities, the following apply:

H + L = T .... (4)

Where T is the total time. The substitution of equation (4) into equation (2) yields:

PC = W (TL) + V .... (5)

Which can be rearranged to:

PC + WL = WT + V ..... (6)

The right part of equation (6) shows the total income (income + non-labor income) if all time T is used for work, or briefly referred to as full income. Equation (6) shows that the individual ("spends" his or her full income on market commodity expenditure (PC) and leisure expenditure (WL).

With the mathematical approach, the maximization problem of satisfaction in equation (1) with respect to constraint equation (5) can be solved for L to produce L * = f (W.P) and for C (yield C *). Solving for L is a function of demand for leisure. Therefore H = T-L, then H * = T-L. Since L *

= f (W.P) then H * = g (W.P). Solving for H * = g (W.P) is the labor supply function. It is clear that the labor supply function is actually synonymous with the demand function for leisure.

The occurrence of backward bending at high wage rates is very easy to understand. In conditions of very high wage rates, with working hoursFew people are able to earn a high income. If the income is so high, people will get to the situation where he wants to enjoy his wealth, namely in the form of leisure activities. Therefore, if there is an increase in wages, with fewer working hours he can earn an equally high income. Backward bending symptoms can also occur at very low wage rates. At a very low wage rate, people are forced to work with very high working hours to earn sufficient income. This is referred to as overemployed symptoms. At very high working hours, the time for leisure becomes very small. Therefore, if there is an increase in wages, the reaction that arises is the reduction of working hours in order to increase leisure.

The Development of Labor Supply Function Estimation

Kilingsworth (1985) divides the estimated labor supply function, which is the first generation of labor supply and second-generation labor supply. This selection is not only based on time, but also on estimation techniques.

1) First Generation Labor Offer

The estimated first-generation labor supply function was conducted in the 1960-1970 time range. There are at least three ways of estimating. The first way to use the maximization approach of direct utility function by subjecting to budget constraint or formulated mathematically as follows:

Max $U = C^n L^B$ s.t $PC = W(1-L) + V$

Solving for L produces a split for H, since H + L = 1. The breakdown for H which is a labor supply function is written:

$$H^2 = 1 - h - b\left(\frac{V}{W}\right) \qquad \text{Dimana } b = \left(\frac{\beta}{(\alpha+\beta)}\right)$$

The second way, not using direct utiliy fuction, but using the function marginal rate of susbtitution or using Indirect utility fuction. If using indirect utility fuction, the labor supply function is obtained through split with Roy's Identity. Indirect utility fuction is formulated as:

$$U = \left(\frac{a}{b}\right)\left(\frac{V}{p}\right)^{b} + \left(\frac{c}{d}\right)\left(\frac{W}{P}\right)^{p}$$

In Roy's Identity, H solve is:

$$H^{*} = \left(\frac{\delta U}{\delta W}\right)\left(\frac{\delta U}{\delta V}\right)$$

$$H^{*} = \left(\frac{c}{a}\right)\left(\frac{V}{W}\right)\left(\frac{W}{P}\right)^{p} \cdot \left(\frac{V}{P}\right)^{-b}$$

$$H^{*} = \left(\frac{c}{a}\right)\left(\frac{W}{P}\right)^{a-1} \cdot \left(\frac{V}{P}\right)^{-b}$$

The third way, the most widely used, is the a-priori approach to get an approximation of the labor supply function. With this approach, it is not at issue from which a labor supply function is derived, as long as there are data H, W, V, and P, the estimation of labor supply functions is performed on the mathematical model H = f (W, V, P). One of the key issues in the estimation of the first-generation labor supply function relates to wage data (W). Wage data is only available for working samples. In fact, if the estimation is done by using the worker sample, there will be sample selection bias (Hockman, 1980).

This selective bias problem is attempted to solve by including imped wage, which is a value with ipah based on wage function. The value with this wage is further incorporated as the wage value for the non-working sample. The problem is, the wage function used to calculate the value by wages comes only from the working sample, so the value with the wage remains biased. In other words, it can be concluded that the problem selection sample bias can not be solved by the estimated first-generation labor supply function.

2) Second Generation Labor Offer

One of the main contributions of the second-generation labor supply function is wages overcoming sample selection bias. Tobin's Probit (or Tobit) approach overcomes bias by including the λ variable as regressor, so the mathematical model becomes:

H = f (W, V, P, λ)

Where λ is the Mill's Ratio inters can be calculated by estimating the probit equation which calculates the probability of the person to work. By entering the λ variable, the parameter estimate has no sample selection bias, although the analyzed sample is only the working person.

The second contribution is given by Hickman by simultaneously estimating W and H. This is very easy to accept, because in addition to wage (W) affecting working hours (H) in the labor supply function, H also affects W in the earning function. Since Hockman also uses the λ

variable as regressor as the Tobin's Probit estimates do, the method of estimation as done by Hockman is often also referred to as the Hockit method (Kilingsworth, 1985).

The further development of labor supply estimation method is dynamic mode. This study was conducted among others by Suimartono (1995). In dynamic models, utility functions and revenue constraints are the lifetime utility and lifetime budget constraint.

Altruism

Becker was the first to show that altruism can be integrated elegantly and simply into Economic theory (Pridman, 1987). According to Becker (1985), in the presence of altruism, one's utility functions can be expressed as:

$U^h = U^h (C_h, C_i)$

Where, Ch is the individual consumption concerned with Ci is the consumption of others. It is clearly seen here that a person's utility is not only determined by his own consumption, but also by the consumption of others. Individual income constraints h can be expressed as:

$PC_h + h_i = I_h$

Where P is a commodity price fector consumed h, hi is money h transferred to I, and Ih is income h. In this case, the individual h is assumed to be an altruist who transfers money, whereas i is the transfer recipient, so the income constraint for I is:

$PC_i = I_i + h_i$

Substitution of both equations before

$PC_h + PC_i + I_h + I_i = S_h$ (10)

Where Sh represents Social Income. Optimal conditions can be found by problem solving:

Max $U^h = U^h (C_h + C_i)$ s.t $PC_h + PC_i = S_h$

Or it can be expressed in Lagrange function:

$Z = U^h (C_h + C_i) + \lambda (S - PC_h + PC_i)$

By taking firsy order condition will be obtained:

$$\left(\frac{MU_h}{MU_i}\right) = \frac{P}{P} = 1 \; atau \; MU_h = MU_i$$

The above equation shows that h will continue to transfer to i up to the marginal utility to the consumption of the other person given the transfer (i). The approach of the altruism phenomenon continues to this day, which essentially questioned whether the phenomenon existed. There is no argument that people do more money than simply maximize their own income. Van de Von (2000) states that gifting is based on two dasarm motivations namely (in) -adequacy and (non) -reciprocity. Based on these two points, he states that giving to others does

not always match the needs of the recipient, indicating that giving is not always based on pleasing others. Camerer and Thaler in Schmid and Robison (1995) argue that altruistic utility functions are unsatisfactory because it is not possible to state whether or not the average person involved is positive or negative.

Further studies of altruism attempt to see at least two things: (1) Does altruism produce an efficient allocation, and (2) does altruistic behavior have a positive impact on the welfare of society as a whole. Friedman's study (1987) study is one that looks at the efficiency aspect, and comes to the conclusion that altruism produces an efficiency allocation according to Pareto, but not according to the Marshall criterion which emphasizes net value. Meanwhile, Jeffe's study (2002) study focused on the impact of altruism on the welfare of society, and came to the conclusion that no situation was found that simply demonstratedThe existence of improving the welfare of the community because of altruistic behavior. The results are different from the theoretical framework presented, among others, by Upton (2004) who believe that a networking based on altruistic spirit will be able to improve the welfare of society.

With Becker's contribution, altruism can be seen not only in its empirical aspects, but also its implications for many theoretical aspects, including the supply of labor. The explanation of the altriusm phenomenon above is actually simplified into the following matrix form:

	Individu/Household	Company
Private Goods	(Scope in this study)	(Out of this study)
Public Goods	(Out of this study)	(Out of this study)

In this study, altriusm is restricted to include only altruistic behavior by individuals / households, excluding those undertaken by the company. More specifically, this study rests his altruism on the concept built by Becker. With such limitations, as well as in relation to labor supply, altriusm can be viewed on both sides.

RESEARCH METHODS

Research sites

This study covers the IFLS5 data counting area in Indonesia. Currently there are only 13 provinces in Indonesia from 34 provinces. Baseline IFLS data for 1993 is comprised of 321 cacah / community areas in 13 Provinces: North Sumatra, West Sumatera, South Sumatera (+ Bangka-Belitung), Lampung, DKI Jakarta, West Java (+ Banten), Central Java , IN Yogjakarta, East Java, Bali, West Nusa Tenggara, South Kalimantan and South Sulawesi (+ West Sulawesi).

Population and Sample

The population in this study is the entire population of Indonesia, but the sample used is as many as 15,000 households and 50,000 individuals. The number of samples corresponds to the samples used in IFLS5 2014.

Data Analysis

In testing the presence or absence of altruism phenomena, the test is done in two stages. In the first stage, testing the probability function receives a transfer. Specifically, this estimate is done to obtain inverse variable Mill's Ratio (λ). Furthermore, λ will be used as one of the independent variables in the estimated value transfer function to eliminate selective bias. The first model, ie the probability of receiving the transfer, will be estimated by using the total sample (full sample) of either receiving or not receiving transfers.

Estimation is done by using maximum likelihood assuming normal distribution (probit function). As described above, the main purpose of the estimated probability transfer function is to obtain inverse varablesMill's Ratio (λ). Next, an estimated value of transfer function will be calculated using the sample of beneficiary households through the model as follows:

$T_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 \lambda$

Where:

T_i: The value of transfers in the form of money received by households from other households

X_1: Household income, produced by household expenditure in the last month before the survey

X_2: Value of household assets. The assets referred to here are valuable goods owned by sample households, such as houses, gold, vehicles, savings, etc.

X_3: Age of household head

X_4: Education of household head, measured by the length of school (years of schooling)

X_5: Residence, X5 = 1 if the household is in urban area. X5 = 0 if the household is in the countryside

X_6: Sex of household head, X6 = 1 if household head is male, X6 = 0 if household head is woman

X_7: Ownership of residential house, X7 = 1 if the occupied house is self-owned X7 = 0 if other. Although a home is part of an asset whose value has been inserted into the X2 variable, home ownership is still considered important to display because this variable is empirically often used as a measure to see a person's wealth.

X_8: Economic disturbance, X8 = 1 if the household is experiencing economic disturbance in the past year, X8 = 0 if other, referred to as economic disturbance is an event that cause

disturbance to the household economy such as: natural disaster, crop failure, bankruptcy, Household, and so on.

λ: Invers Mill's Ratio obtained from estimated probability function receives transfer

A special observation will be made on the parameters 1β, 2β and 8β. Testing whether or not altruism is done with the following criteria:

1. Strong altruism: if the parameters 1β and 2β are negative and 8β is positive. That is, the value of the transfer is inversely proportional to the income of the recipient household, which is inversely proportional to the value of the beneficiary's household assets, and is directly proportional to the existence of economic disturbance to the beneficiary household. If that happens, then the transfer given to sample households is totally based on the desire to help the household, not just because of etiquette or custom.
2. Weak Altruism: if some strong altruism criteria (1β, $2\beta<0$ and $8\beta> 0$) can be met, but not for all criteria. It is so called, because it means the transfer to the beneficiary household is done with the possibility of being grounded by motivation to help.
3. No altruism: If all the strong altruism criteria (1β, $2\beta<0$ and $8\beta> 0$) are not met. Under such conditions, inter-household transfers are no more a habit or gesture not related to motivation to help recipient households.

Model Development

By adopting the altruism model and integrating it into the labor supply model, the individual utility function h can be expressed as:

$$U_h = U_h (C_h, C_i, L_h)$$

Where C_h is the individual consumption h, L_h is the individual leisure time h, and C_i is the individual consumption i. It appears that utility h is not only determined by its own consumption and leisure time, but also by the consumption of others (i) meanwhile, the income constraint is stated as follows:

$$PC_h = W_h (1 - L_h) + V_h$$

Due to the influence of individual consumption i into h, then the income constraint also changed, that is social income (S) stated as follows:

$PC_k + PC_i = S_h$ or $PC_h = S_h - PC_i$

Substitution of the two equations above produces:

$S_h = W_h (1 – L_h) + V_h + PC_i$

Analog with PC_h, PC_i, can also be expressed as follows:
$PC_i = W_i (1 – L_i) + V_i$

So the equation can be expressed as follows:

$S_h = W_h (1 – L_h) + V_h + W_h (1-L_i) + V_i$

Or
$S_h = W_h (1 – L_h) + W_h (1-L_i) + V$
$S_h = W_h - W_hL_h + W_i - W_iL_i + V$
Where $V = V_h + V_i$
Which is the condition of optimal conditions in the model of labor supply with altruism, are:
$L^*_h = L^*_h (H_i, W_h, W_i, V_h, V_i)$
So that will be obtained labor supply function with altruism as follows:
$H^*_h = 1 – L^*_h (H_i, W_h, W_i, V_h, V_i)$

Here it is seen that by using utility functions with altruism, where utility is also influenced by the consumption of others but not leisure others, then the specification of the supply function also changed.

Estimated Elasticity of Labor Supply with Altruism

The elasticity of labor supply is defined as the response made by the individual in allocating his working time as the impact of a wage change or expressed as follows:

$$\delta = \left(\frac{\partial H}{\partial W}\right)\left(\frac{W}{H}\right)$$

Where H represents the hours worked and W represents the wages received in the labor market. Assuming that the estimated labor supply function can be a priori based on the equation above, the elasticity of altruism labor supply can be estimated based on the following simultaneous model:

$H_h = \beta_o + \beta_1 W_h + \beta_2 W_h + \beta_3 X_h + \beta_4 W_i + \beta_5 V_i$

$W_h = \alpha_o + \alpha_1 H_h + \alpha_2 X_h$

Where Hh, Wh and Xh are the working hours, wages and vectors of individual characteristics, whereas Wi is the wages of others associated with the individual h. It should be remembered that the above equations reflect labor supply, while the second equation is an income function.

RESEARCH RESULT

Table 1: Estimation Result of Transfer Rate Function for Alturism Test

Independent Variable (Ti)	Coefisien	t-hit	P-Value
X_{1i}	-0.4333** (0.0881)	-4.92	0,000
X_2	-0.0047** (0.0015)	-3.18	0,001
X_3	4035.297 (11221.66)	0.36	0,719
X_4	203391.2** (441655.2)	4.88	0,000
X_5	-127094.6 (281793.6)	-0.45	0,652
X_6	-5382621** (447005.9)	-12.04	0,000
X_7	-211780.8 (367851.8)	-0.58	0,565
X_8	617377.8* (196263.9)	3.14	0,000
X_9	0.6572111 (0.0775314)	3.70	0,000
C	5235755 (817080.4)	6.41	0,000

The results of this study indicate that the value of transfers received by recipient households is inversely proportional to the income of recipient households proxied by expenditure, and from the probability side receiving the transfer the effect of this variable is significant. In other words, these results indicate that the higher the household's income, the smaller the transfer value it receives from other households. The results of the analysis also show that the value of transfers

received by beneficiary households is inversely proportional to the asset value held by the household, and from the probability side receiving the transfer the influence of this variable is significant. In other words, these results indicate that the higher the ownership of a person's household asset, the smaller the transfer value it receives from another household and vice versa. The "economic disturbance" variable is also significant with a positive value coefficient, indicating that households experiencing economic disruption receive greater transfers than households without economic disturbance.

The above phenomenon is a guide that supports the hypothesis of altruistic behavior in Indonesia. However, the hypothetical asset value variable is negative coefficient as altruism guidance. In this study, the relationship is significant with the transfer value. This means that the value of the transfer received has to do with the wealth possessed by a household. Overall, all three altruism criteria are empirically verifiable in this study. Given that fact, there is sufficient reason to say that the altruism phenomenon exists in Indonesia, the existing phenomenon is a powerful altruism, it refers to the criteria set out in the previous chapter,

After the altruism phenomenon has been proven to exist, the next step is to estimate the labor supply function with altruims. The power supply function with altruism is characterized by the presence of wage and asset variables of others as independent variables, outside the independent variable in the standard model (without altruism). As explained earlier that the estimated labor supply function is performed simultaneously with the estimated earning function. It should be recalled, that the meaning of "others". Estimated results can be seen in Table 2

Table 2: Estimation Result of Income Function and Labor Supply Funtion

Variabel Bebas	Model Standard		With Altruism	
	Earning	Labor Supply	Earning	Labor Supply
Jam Kerja	-44.169***	n.a	-170.7876***	n.a
	(7.190771)		(58.98602)	
Jam Kerja Kuadrat	0.4475983***	n.a	1.592517***	n.a
	(0.0701788)		(0.5484477)	
Laki-Laki	180.3218***	122.6807***	571.047***	81.51303***
	(27.46615)	(17.15393)	(220.2893)	(27.80594)
Urban Area	81.21525**	20.24974***	269.5502***	17.90242***
	(11.81958)	(3.400763)	(96.73161)	(5.563238)
Menikah	134.0549***	66.07542***	424.8471***	44.38315***

From Table 2 shows that in the labor supply model with atruism other people's wage variables and the value of other people's assets negatively affect the respondent's working hours. This means that the greater wages of other people and / or the greater the value of other people's assets the more time that is done or offered by someone in the labor market. This is an altruism

phenomenon that can be observed in the labor market. In allocating time in the labor market (to work), people not only take into account what is inside of them, but also take into account what is in others. The results of this study show that people are willing to work harder (longer) to help others who are more "hard" in their lives (indicated by wages and asset values).

One interesting variable to look at the role change after the labor supply model is changed from the standard model to the altruism model is the wages of the respondents. Table 2 shows that wage variable coefficients fall from 0.60 to 0.42 (and remain significant at one percent). These results indicate that the role of own wage (the wage term itself used to differentiate with other people's wages) falls after it includes the wage and other households' asset variables, and keep in mind that the wages and assets of others are negatively affecting one's work hours.

This suggests that when one also has to think of others in his decision on the labor market, his own wage variable becomes less important than if the person is thinking only of himself. In everyday life, the case may be illustrated with the condition that people still want to work with low wages, because they have to think of others who become dependents of his life. In this case, if only thinking about himself, the person is not willing to work with that low wage.

Given the influence of wages and assets of others on working hours or in other words, the altruism of the labor supply function specification differs from the standard labor supply model (without altruism) as shown in Table 2. In turn, the value of labor supply elasticity (Though using the same formula) also becomes different.

CONCLUSION

1. Theoretically can be shown, that altruism affects the specification of labor supply functions through the change of utility function specification. With altruism, utility functions built to generate labor supply functions are not only influenced by the individual's consumption and leisure times, but are also influenced by the consumption of others.
2. Using IFLS5 2014 data, empirically through an inter-household transfer model, it can be proven that altruism or altruistic behavior in Indonesia. This is indicated by the negative relationship between the amount of transfers received and the recipient household income, and supported by the fact that there is a positive relationship between the value of transfers and the economic disturbance experienced by recipient households.
3. The results of this study provide a clearer picture of the phenomenon of transfers between households in Indonesia. First, the phenomenon of transfers between households is broader than just parental relationships between parents and children (and siblings), but also involves others outside the relationship. Secondly, the fact that the influence of the value of

beneficiary household assets is insignificant to the value of the transfer received (whereas the beneficiary household income variable is negatively related to the transfer value) indicates that when giving to others, Indonesians tend to ignore the value of the transfer beneficiary assets and see only income And economic disturbances as an important consideration. This situation has the potential to cultivate a strategic behavior, in which people hide information about their wealth to gain compassion from others in the form of transfers.

4. Based on IFLS 2014 data, as well as by using the labor supply model with altruism, labor supply in Indonesia is elastic (value elasticity greater than 1) with elasticity value of 1.4 for uncompensated and 1,1 for compensated Elasticity. This means that if an increase in wages, then the percentage increase in working hours due to wage increases is greater than the increase in wages themselves. It shows that wages are still a significant incentive for people to increase their working hours. This information is important for Policy making, both at the corporate level (firm) and for the government. If the increase in working hours goes hand in hand with the increase in output, then the wage increase policy will have a big effect on the increase in output.
5. The elasticity of labor supply with altruism is smaller than the standard labor supply (without altruism), which is 1.4 compared to 2.1 for uncompensated and 1.1 compared to 2.0 for compensated elasticity. It is an indication that ignoring altruism phenomena in estimating labor supply models will have implications for the calculation of over-estimate labor supply

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