RURAL-URBAN MIGRATION

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RURAL-URBAN MIGRATION AND IMPACT ON PADDY PRODUCTION:
Evidence from West Sumatera-Indonesia

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ABSTRACT

West Sumatra is one of the provinces with high levels of rural-urban migration. Minangkabau as the largest ethnic in this area has long been known to have high mobility levels. Thus migration has become a trademark inherent in this ethnic. Cultural factors become one of the drivers of the population to migrate. This paper offers an overviews of the impact of rural-urban migration on paddy production. For the people of West Sumatera, this commodity is important. In addition to basic food staples, the level of needs is also high. Due to the level of rice consume population of West Sumatra is greater than the national average. So keeping and increasing the availability of paddy becomes a challenge for the agricultural sector in West Sumatra. Using primary data generated through paddy farmer households survey in three villages, the effects of migration on paddy production is estimated by using a two-stage-least-square (2SLS) regression.

The results suggest that initially increasing remittances lead to negative effect on paddy production as less labor is available for household paddy cultivation. However, remittances may lead to increase input paddy production such as Sp36 fertilizer. An important finding from this study is migration leads rural household to diversification domestic resources with decreasing on farm activity and increase non-farm activity. Thus due to agriculture is still the major sector of employment and livelihood for rural household, improving this sector is the utmost importance for rural development.

Keywords: migration, agriculture, rural, paddy production

INTRODUCTION

Agriculture is an important sector in West Sumatera development, unsurprisingly around 37.55% of the population depends on livelihoods in this sector. The share of agriculture in Regional GDP fell from 23,86%, where 12,4% is the contribution from food crop sub-sector (BPS Sumbar, 2014). Paddy peasant household is the biggest group in food crops sub-sector whilst 90,42% and only 9,48% another food crop. This data further strengthen the important role of paddy farming in supporting development in this area.

The agricultural sector is also the largest labor absorber. However, labor productivity in the agricultural sector is still lower than in the urban services, manufacturing and construction sectors. In addition, the agricultural sector

is challenged by several pressures. Such as land degradation and conversion , irrigation, global climate change, unskill labor, and an increase in the rate of rural-urban migration, cause the agricultural sector to be less attractive to young people. Rural-urban migration flows increased rapidly over 4% per years, bring to pass Indonesia one of the fastest moving countries in the world. World Bank was argue, in years 2025, as many as 63% of the total population of Indonesia is expected to live in urban areas, an increase of about 10% from 2012 data which has reached 52% (World Bank, 2014).

As a consequence of the process of economic development, the activity of rural-urban migration is indeed a common phenomenon in developing countries. Moreover, the geographical condition of Indonesia as an archipelago country, causing migration activity cannot be separated from the life of the Indonesian population. Rural-urban migration flows are predominantly whitin provinces and inter-provincial in Indonesia. These include the people of West Sumatera.

The population of West Sumatra, especially the ethnic Minangkabau has long been known to have high mobility levels, this activity called *merantau*. The habit has been practiced for generations, institutionalized and cultured. So migration is an integral part of the life of the Minangkabau people. There is an idiom that half of the population of West Sumatra live outside the region. For Minang community , migration is not just about leaving the land of birth. But migration is a rite de passage for ethnic Minang especially men to seek knowledge, experience and seek glory in order to self-improvement, family and, hometown (Naim, 1979).

At the first time, migration wa limited only on the regions beyond the borders and belong commuter or circular. Recently Minangkabau people are found throughout all the province of Indonesia and stay in destination areas permanently. Several empirical studies show that Minang migrants have a high level of concern for their families, people and regional development. According to Murad (1978), migration does not appear to reduce kinship recognitions within the kinship and family system. Although migrant stay permanently, they can transfer the remittances for family left behind. In addition, the contribution is not only for family, but also for hometown. Similar with Huri (2006) stated that in general migrant Minang has a high spirit of philanthropy. Such contributions may be made either individually or by migrant organizations.

Clearly , West Sumatera is an interisting province to study the relationship between rural-urban migration and paddy production. The position of rice considered by the ethnic Minang is higher than other foodstuffs and the high level of rice consumption of the population causes the demand for rice is still high. So that the agricultural sector is still an important part of the economic structure of West Sumatra.

The objective of this paper is to assess the impact of rural-urban migration on rice production of household left behind in West Sumatera. It tests the hypothesis of the New Economics of Labor Migration (NELM) stating that migration is judgment between individu and family as a strategy diversification to cope the risks. The results of this paper are expected to

improve rice production, according managing remittances from migrant or migrant organizations and contribute to rural development againts the background of high rural outmigration.

LITERATURE FRAMEWORK

Several previous empirical studies have shown that migration can have a negative or positive impact on agricultural production. The negative impacts of migration on food availability can be seen from changes in the behavior of labor allocation and household production of food farmers. According to Rozelle, et.al (1999) the loss of labor due to migration has an impact on the decline of corn production in China. Similar results are presented by Maharjan (2012); Taylor and deBrauw (2003) and Aryal (2004) who found a negative relationship between migration and agricultural production. Although households hire labor, they are unable to substitute for the loss of family labor due to migration (Aryal, 2004). Refer to Miluka et al (2007) that the decreasing relative importance of agricultural sector is a pervasive phenomenon of economic development which often entails sizeable population movements out of rural areas.

Furthermore, migration causes a shift in farmer activity. Brad (2007) argues that migration has shifted the activity of farm households into the livestock sector. Studies in rural Albania by Miluka et al (2007) and McCarthy et al (2006) found that out-migration negatively affects traditional farming activities. Jokish (2002) and William (2007) say migration has an impact on decreasing interest in agriculture, the changing socio-cultural order in conserving agriculture that results in stagnation in the agricultural sector. Remittances encourage the emergence of the "Moral Hazard" problem because of income guarantees to be a disincentive for households to work in the fields, debilitate enthusiasm in the agricultural sector especially in need of physical strength. On the other hand, Sifelani, T (2009), Katz (2003), Richard and Black (1993) and Schmook (2008) revealed that migration breeds "feminization of agriculture" because of increased responsibilities, the number, and timing of women, to work at home and in the fields.

A number of studies also have provided empirical support to the positive impact of remittances on agricultural productin. Nonetheless, positive effects of migration commonly encountered are the role of remittances in increasing income and reducing poverty. (Adam and Page ,2005), World Economic Outlook (2005), Gupta et al (2009) and Acosta et al (2007). Studies in 74 low-income countries show that an additional 10% of remittance earnings decreased 3 , 5% of the poverty of the household of origin (Adams and Page, 2005). Gray (2009) reported that migration and remittance positively affected small-scale agriculture in the Southern Equadorian Andes.

As a capital transfer, remittances can improve the welfare of farm households (Black.R, 2003). Ratha (2003) further states that in developing countries, remittances not only increase household welfare levels but also have multiflier income effects. Because most of it is spent on consumer goods. William (2007) also reported that remittances can reduce poverty and increase consumption because one of the motivations for migration is to

increase income and diversify livelihoods to reduce the risk of market failure. So migration has helped in improving household welfare and food security.

The positive impact of migration is also found in several regions in Indonesia. Remittances sent migrants are a source of income for rural families in Grobogan District (Rahmi and Rudiarto, 2013). Similar findings are found in the results of the Entus (2011) study on 14 villages in West Java , indicating the positive impact of rural-urban migration on household income. Households receiving remittances generally allocate mostly for consumption and home investment (Arief, 2014).

METHODS OF RESEARCH

The data used in this study come from paddy farmer household survey questionnaires in Sulit Air village in Solok District, Sungai Tarab village in Tanah datar District , and Koto Baru village in Padang Pariaman District. The respondents of the research were that paddy farmer household. Primary data from a total of 238 migrant and non-migrant peasant paddy households was collected from April to Juli 2017. A structured questionnire was developed for the paddy farmer household survey such as demography, household size, labor allocation (on-farm, off-farm, and non-farm), agriculture production, livestock , the number of migrants. It also has data on incomes (sum and sources, government subsidies, remittances, migrant organization grants and others) . For in-depth information key informant interviews were carried out. Additionally, discussions with government officials and ethnic leaders.

In this study, the built model is part of the 57 equations model of household economic behavior of paddy farmers. The effects of migration on paddy production are built from 16 simultaneous equation models. It consists of 11 structural equations and 5 identity equations. In general parameter estimated by using a two-stage-least-squere (2SLS) regression with instrumental variables. Remittances is a determinat of impact migration on paddy production. In order to analyze the impact of rural-urban migration on paddy production, the predicted migration variable is included as an independent variable in the following regression formulas:

$$TKDLP = a_0 + a_1LLP + a_2UPHL + a_3PM + a_4TKDWP + a_5JRT + a_6DRT + \mu_1 \quad (1)$$

$$TKDWP = b_0 + b_1BP + b_2BLP + b_3PM + b_4UKK + b_5TKDLP + b_6PDI + b_7DRT + \mu_2 \quad (2)$$

$$TKLLP = c_0 + c_1LLP + c_2UPHL + c_3KP + c_4TKDRT + c_5BLP + c_6DRT + \mu_3 \quad (3)$$

$$TKLWP = d_0 + d_1TKDWP + d_2SP36 + d_3KP + d_4LLP + d_5DRT + \mu_4 \quad (4)$$

$$TKOFF = g_0 + g_1UPHL + g_2PM + g_3JT + g_4YT + g_5DRT + \mu_5 \quad (5)$$

$$TKNF = h_0 + h_1UPHL + h_2TKOFF + h_3KUP + h_4PM + h_5ET + h_6PDKK + h_7DRT + \mu_6 \quad (6)$$

$$BP = i_0 + i_1HBP + i_2BSAPRO + i_3ELL + i_4KP + i_5LLP + i_6DRT + \mu_7 \quad (7)$$

$$UREA = j_0 + j_1HUREA + j_2BSAPRO + j_3LLP + j_4KP + j_5EENRG + j_6DRT + \mu_8 \quad (8)$$

$$SP36 = k_0 + k_1LLP + k_2BLP + k_3KP + k_4BP + k_5EENRG + k_6DRT + \mu_9 \quad (9)$$

$$QP = l_0 + l_1LLP + l_2TKTP + l_3KP + l_4UREA + l_5SP36 + l_5DRT + \mu_{10} \quad (10)$$

$$SP36 = o_0 + o_1HSP36 + o_2LLNP + o_3BLNP + o_4BSAPRO + o_5KP + o_6EENRG + o_7DRT + \mu_{11} \quad (11)$$

$$BBP = HBP * BP \quad (12)$$

$$BUREA = HUREA * UREA \quad (13)$$

$$BSP36 = HSP36 * SP36 \quad (14)$$

$$BTKP = (TKDLP + TKLLP) * UPHL + (TKDWP + TKLWP) * UPHW \quad (15)$$

$$BPP = BBP + BUREA + BSP36 + BTKP \quad (16)$$

Overall, the previously of simultaneous equation models was identified and clearly overidentified. In terms of theory econometrics, it has provided satisfactory results for estimates of the sturtural parameters with Two-Stage Least Squares method.

RESULTS AND DISCUSSION

Characteristics of the Paddy Farmer Households

Paddy farmer households are defined as those households where the head's main cource of income is from paddy cultivation. Drawing on this Figure 1, that Koto Baru village has a higher percentage of household migrants compared to the villages of Sungai Tarab and Sulit Air (82% versus 56% and 73%).

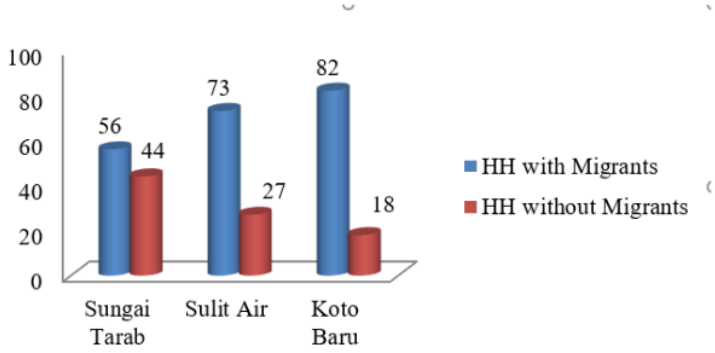

Figure 1. Distribution of Paddy Farmer Household in Three Villages

Of the total migrant households in Koto Baru had average three member migrate and in Sungai Tarab and Sulit Air had two. Koto Baru have higher rates of migration than others. This is suggest to be related to the geographical conditions of hilly villages and valleys causing less developed paddy farming. Ownership of migrant household paddy land in Koto Baru village is relatively smaller compared to Tarab and Sulit Air River (0.18 hectares versus 0.60 and 0.48). An important result of this study is that land tenure rates are thought to be one of the drivers of rural populations in West Sumatra to migrate.

Paddy farmer household with migrants have a somewhat older head of household (57 years versus 51) but with on average less education (7,67 years versus 8,93). Land asset household without migrant is much wider than household with migrant (0,61 hectares versus 0,43), but no difference in number of livestock. Types of ruminant livestock (cows, Buffalos or sheep) owned by household migrants 1 - 11 tail , whereas in household without migrant to 1-8 tail.

In addition to working in the on-farm sector, rural farmer households allocate domestic resources in off-farm and non-farm activities. This

diversification of resources is done by farmer households in order to maximize the value of labor returns (Polzin and McDonald, 1971), increase income, welfare and reduce risk (Yigiong, 2015). For all types of work, the domestic labor allocation of household migrants is smaller than non migrant (203,87 person workers versus 330.65). Hired labor in household migrants for paddy farming more than non-migrant households (84% versus 81). This phenomenon is a common finding in rural areas today, the rapidly urban industrial and service sector has encouraged many agricultural labor migrants to choose. The implication , supplying labor for agricultural is more from hired labor. For example, in Bojonegoro, the fulfillment of 66 percent of the agricultural sector's labor needs comes from outside the family (Andri, 2014). While Giesbert (2007) reports that migration activity in kenya has increased labor demand for leases by 11.4 percent.

Evidence was found that migration reduces the use of household male labor and increases both hired male labor and household female labor. This results reveal an increasing feminization of agriculture as a result of rural-urban migration being male dominated. In household with migrants, the allocation of female labor is slightly higher than male labor (5,97 person working hours versus 4,76), and this phenomenon does not occur in household without migrants. The results of this study are in line with the findings of some researchers including Chang et al. (2011) in China; Maharjan et al (2010) in Nepal; Sifelani (2009); Katz (2003) and Richard and Black (1993) explaining that migration has increasing "feminism" in agriculture. King and Vullnetari (2003) emphasized that there has been substantial reallocation of labor within the household, notably women and teneegers work longer hours to compensate for lack of male labor due to migration.

The average total household without migrant income (Rp 43,496,096 / year) is greater than a household with migrants (Rp 30,598,119 / year). This is consistent with Huy and Nonneman (2016), that households with a larger income tend to have fewer migrant members. In this context, the household tend to decide in migration to improve better standard living conditions. Total revenue from on-farm activity for approximately 33.9% of the total household income of paddy farmers. The average income from on-farm activity on a household with migrant is Rp. 10.376.413 / year while the household without migrant reached Rp. 14.783.821 / year. The sources of income that contribute substantially to the total income of the household with migrants are from on-farm activity, while household without migrants come from non-farm activity. In other words in household with migrant, paddy production is still the main source of income. While in household without migrant there has been a shift of domination of income source from on-farm to non-farm activities. Finally, an important finding is that a more diversified household income, reduce desire to migrate.

EMPIRICAL RESULTS

Labor Allocation Behavior

The results of Appendix 2 show that the number of farmer household members migrating (PM) is not significant influence of labor household

allocation in paddy production, neither of male labor and female. The behavior of the use of labor household significantly influenced by land size (LLP), female labor household allocation (TKDWP), household size (JRT) and type of household (DRT). The negative sign of the parameter of type of households (DRT) indicates that there is a tendency for the use of labor in household with migrants to be smaller than household without migrants. Not surprisingly, this is the result of the lack of households labor within migrant households.

On the contrary, hired labor equations is significantly influenced by remittances. It means that increase remittances may impetus farmer households ability to hiring labor. Presumably it sign that the loss of household labor due to migration compensated by the potential income gains deriving from migrants remittances. Nonetheless, this results only prevailed on hired male labor , either of female.

Futhermore, the lack of households male labor due to migration apparently influence the use of off-farm labor and non-farm labor. Migration reduce the use of both the use of off-farm and non-farm labor on household with migrants. However, the negative coefficients of type households emphasized that the household with migrant use of off-farm labor and non farm less than household without migrants.

Production Behavior

The parameter estimation results of the impact of rural-urban migration on paddy production is described in appendix 1. Production inputs analyzed in this research were paddy seed, labor, Urea and Sp36 fertilizer. The variables that influence the use of paddy seed are seed price, seed subsidy and land area. Remittances have no effect on the use of paddy seeds. There is no difference in the use of paddy seed between migrant and non migrant households.

The next inputs production is fertilizer. Urea fertilizer is influenced by the price of urea, land area and remittance. There are differences in the behavior of urea fertilizers between migrant and non migrant households. The results of this study indicate the positive role of remittances in increasing investment in the agricultural sector. However, the effect of remittance does not appear on SP36 fertilizer use behavior. Influential variables are the area of land and the use of other inputs of production.

The next is the results of the analysis of the behavioral model of paddy production. The value of determination coefficient shows that 84 percent variances of paddy production behavior can be explained by land area variable (LLP), total labor of paddy (TKTP), remittance (KP, urea use (UREA), use SP36 (SP36), and dummy of household type (DRT). The variables simultaneously affect the behavior of paddy production significantly at the level of confidence less than one percent.

Partial test results show that the variables significantly affect the land area, fertilizer Sp36 and submissions. Sp36 land and fertilizer have significant effect on rice production. This result is similar with research by Hardono (2012) which states that rice production is influenced by Sp36 fertilizer and land, but the use of labor and urea fertilizer has no significant effect.

The reason for the total labor and urea fertilizer has no significant effect on rice production is suspected because of other factors outside model is stronger that affect it. As Eicher and Staatz (1990) point out, productivity differences can be caused by non-technical factors outside of conventional production factors (land, employment and capital) such as the contribution of new technologies, human resources and institutional innovation.

An important finding of this research is that the remittances variable have a significant and negative sign. The negative sign of the parameter illustrates the tendency that remittance flows have an impact on the decline in rice production in areas with high levels of migration. Several previous empirical studies reported similar findings. Among them is Tuladhar et al (2014) study which found that migration negatively impacted rice production in Nepal. Each increase of one member of the migratory household causes a decline in rice production of 163 kg / hectare. The coefficient of remittance is negative, it is estimated that the loss of production can not be compensated by the remittances received. The proportion of remittances used for investment in the agricultural sector is still relatively smaller compared to other allocations.

Some empirical evidence found that remittances received by households in rural origin were used for consumption. Almost 80% of remittances are used for daily consumption. Huy and Nonneman (2016) in Vietnam, Jokisch (2002) in Ecuador Canar and Semyonov-Gorodzeisky (2008) in the Philippines also found the fact of the migratory effect on the decline in agricultural production.

According to Maharjan et al (2012) the negative effect of migration on agricultural production is due to the remittances received by rural households not being used to increase production such as buying fertilizer. While Huy and Nonneman (2016) argue the impact of reduced labor availability due to migration is the cause of the decline in agricultural production.

In addition to these reasons, community characteristics and customs can also influence paddy production performance. For the Minang community in general, paddy farming is done only for subsistence purposes. The agricultural sector is still considered a marginal job. That's why about 95 percent of Minang migrants' jobs are trades, employees and craftsmen, while agriculture is only 5-7 percent. Reinforced by urban election as a wandering destination that reaches 92 percent while rural is only 8 percent (Kato, 2005). Unlike the Javanese who still choose rural areas as the destination of migration, so many found Javanese communities living in remote areas of plantation or agriculture in West Sumatra.

Based on the description, the migration activity of the Minangkabau tends to decrease the participation of peasant households with migrant in farming. Cultural factors and customs assumpted driven by this factors. But there is no difference in the behavior of rice production between households with and without migrant. This means that the decrease in the number of residents due to migration not only affects households with migration but also to households without migrant.

CONCLUSION

In this paper we shows that initially increasing remittances lead to negatif effect on paddy production. Suggested it impact of less labor is available for household paddy cultivation. However remittances may lead to increase input paddy production such as fertilizer. The results also suggest that there is an increasing feminisation of the agricultural sector, female labor allocation more higher than male in household with migrant. This condition not occur in household without migrants.

An important findings from this study is migration leads rural household to diversification domestic resources with decrease on farm activity and increase non farm activity. According to this results have some highly relevant policy implication. Thus due agriculture is still the major sector of employment and livelihood for rural household, improving this sector is the utmost importance for rural development. Reallocation contribution from migrant organization on agricultural sector is also important, considering that Minangkabau migrant is generally very high.

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Appendix 1. Results of Estimation of Behavioral Parameters of Labor Behavior

Endogen ous Variables	Exogenous variables	Parameter Estimates	Standar Error	t-Test	Pr > |t|
TKDLP	Intercept	-6,46523	3,953992	-1,64	0,1034
	UPHL	0,000071	0,000049	1,44	0,1513
	PM	0,607267	0,501046	1,21	0,2268
	LLP	4,741181	1,121811	4,23	<.0001
	TKDWP	0,805283	0,204403	3,94	0,0001
	JRT	0,762341	0,296315	2,57	0,0107
	DRT	-2,69697	1,588491	-1,7	0,0909
R^2	=0,20891	F-Hitung	=11,43	Pr>F	=<.0001
TKDWP	Intercept	9,018922	2,524152	3,57	0,0004
	BP	0,005962	0,014606	0,41	0,6835
	BLP	8,03E-10	1,476E-07	0,01	0,9957
	UKK	-0,06403	0,034087	-1,88	0,0616
	PM	-0,16056	0,353265	-0,45	0,6499
	TKDLP	0,260989	0,08704	3	0,003
	PDI	-0,22543	0,110962	-2,03	0,0433
	DRT	0,967051	1,110112	0,87	0,3846
R^2	=0,06689	F-Hitung	=3,43	Pr>F	=0,0017
TKLLP	Intercept	18,62818	15,78057	1,18	0,239
	LLP	53,59035	4,359949	12,29	<.0001
	UPHL	-3,07E-06	0,000186	-0,02	0,9868
	KP	1,105E-06	6,384E-07	1,73	0,0849
	TKDRT	-0,03749	0,016588	-2,26	0,0248
	BLP	8,038E-07	6,928E-07	1,16	0,2471
	DRT	-5,2195	4,906877	-1,06	0,2886
R2	=0,472	F-Hitung	=36,31	Pr>F	=<.0001
TKLWP	Intercept	7,097094	2,836263	2,5	0,013
	TKDWP	-0,12665	0,362974	-0,35	0,7275
	SP36	0,026308	0,020095	1,31	0,1918
	KP	1,086E-07	3,082E-07	0,35	0,7249
	LLP	24,84391	3,23456	7,68	<.0001
	DRT	1,098394	2,321041	0,47	0,6365
R2	=0,4761	F-Hitung	=44,08	Pr>F	=<.0001
TKOFF	Intercept	95,28409	13,5088	7,05	<.0001
	UPHL	-0,00112	0,000173	-6,48	<.0001
	PM	2,692479	1,72839	1,56	0,1206
	JT	41,38419	1,072882	38,57	<.0001
	YT	-3,37E-07	9,96E-08	-3,39	0,0008
	DRT	-12,3866	5,645842	-2,19	0,0292
R2	=0,88399	F-Hitung	=362,17	Pr>F	=<.0001

TKNF	Intercept	143,6546	65,65578	2,19	0,0297
	UPHL	-0,00194	0,000789	-2,46	0,0144
Endogenous Variables	Exogenous variables	Parameter Estimates	Standar Error	t-Test	Pr > |t|
	TKOFF	-0,35214	0,109157	-3,23	0,0014
	KUP	-2,63E-06	7,097E-07	-3,71	0,0003
	PM	-4,52695	7,670631	-0,59	0,5557
	ET	8,606E-06	1,083E-06	7,94	<.0001
	PDKK	3,288103	2,850041	1,15	0,2498
	DRT	-42,2446	24,95754	-1,69	0,0919
R2	=0,32621	F-Hitung	=18,82	Pr>F	=<.0001

Appendix 2. Results of Estimation of Behavioral Parameters of Paddy Production

Endogenous Variables	Exogenous Variable	Parameter Estimates	Standar Error	t-Test	Pr > |t|
BP	Intercept	27,25071	8,335151	3,27	0,0012
	HBP	-0,00151	0,000918	-1,65	0,1011
	BSAPRO	-0,00003	9,124E-06	-3,29	0,0012
	ELL	-6,62E-08	4,081E-07	-0,16	0,8713
	KP	-1,04E-07	3,7E-07	-0,28	0,7798
	LLP	60,33427	2,485074	24,28	<.0001
	DRT	0,460465	2,924738	0,16	0,875
R^2	=0,74282	F-Hitung	=115,09	Pr>F	=<.0001
UREA	Intercept	112,2497	27,79912	4,04	<.0001
	HUREA	-0,01629	0,008302	-1,96	0,0509
	BSAPRO	-0,00005	0,000047	-1,08	0,2824
	LLP	137,4615	12,39628	11,09	<.0001
	KP	3,525E-06	1,875E-06	1,88	0,0614
	EENRG	-2,33E-06	4,157E-06	-0,56	0,5763
	DRT	-33,519	14,02405	-2,39	0,0176
R^2	=0,39928	F-Hitung	=27,25	Pr>F	=<.0001
SP36	Intercept	38,80822	16,11867	2,41	0,0168
	LLP	101,4951	33,42688	3,04	0,0027
	BLP	7,486E-06	2,118E-06	3,53	0,0005
	KP	2,181E-06	1,876E-06	1,16	0,2462
	BP	0,203785	0,5314	0,38	0,7017
	EENRG	-2,26E-06	4,204E-06	-0,54	0,5906
	DRT	-11,4446	14,15215	-0,81	0,4195
R^2	=0,37542	F-Hitung	=24,74	Pr>F	=<.0001
QP	Intercept	163,4745	215,5933	0,76	0,4491
	LLP	4323,027	414,1052	10,44	<.0001
	TKTP	4,483824	3,289313	1,36	0,1742

	KP	-0,00005	0,000026	-1,82	0,0707
	UREA	0,265588	1,889841	0,14	0,8884
	SP36	4,660197	1,659132	2,81	0,0054
	DRT	171,6612	195,7762	0,88	0,3815
R^2	=0,84238	F-Hitung	=212,1	Pr>F	=<.0001

Appendix 3.. The Name of Variables

TKDRT	=	Total Labor Domestik
BP	=	Paddy Seed
UREA	=	urea
SP36	=	SP36
QP	=	Pady Production
LLNP	=	Paddy land
UREANP	=	Urea for non-paddy
SP36NP	=	Sp36 for non-paddy
QNP	=	Non-Paddy production
BBP	=	Cost of paddy seed
BUREA	=	Cost of a urea
BSP36	=	Cost of SP36
BTKP	=	Cost of labor allocation
BPP	=	Cost of paddy production
BBNP	=	Cost of non paddy seed
BUREANP	=	Cost of urea non paddy
BSP36NP	=	Cost of SP36 non paddy
BTKNP	=	Cost of labor allocation for non paddy
BPNP	=	Cost of non paddy procuction
KUP	=	Profit of paddy production
TNP	=	Total revenue from non paddy production
KUNP	=	Profit of non paddy production
KP	=	Remittances
BSAPRO	=	Input production subsidies
HUREA	=	Price of urea
HSP36	=	Price of SP36
HBP	=	Price of paddy seed
EENRG	=	Energy Household expenditures
DRT	=	Dummy household
ELL	=	Others Household expenditures

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