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# Analyzing Household Farm Income, Off-farm Income and Mixed Income at Pho Yen Town, Thai Nguyen Province

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**Abstract:** *There is marked differences between household (HH) farm income, HH off-farm income and HH mixed income among surveyed households. Of which HH farm income is 74.41 million VND (1 USD = 22,600 VND), HH off-farm income is 131.88 million VND, higher than farm income, indicating that off-farm income plays an important role contributing a large part to mixed income of the surveyed households; HH mixed income is 143.657 VND per year.*

*Total HH income of off-farm households is 179.8 million VND a year, and composite households is 157.5 million VND, considerably higher than agricultural households (only 92,0 million VND per year). Due to HH mixed income of rural households is lower than urban households, thereby participating in non-farm activities or off-farm activities could increase overall cash income of the households. If the income from off-farm or non-farm activities is used to finance agricultural input purchase or long term capital investments for agricultural production, it can be an important source of cash that potentially used to improve agriculture production.*

*If for HH farm income, 2 factors as on-farm labor and total land have positively correlated with the HH farm income at highest impact, then capital and off-farm labor are 2 highest positive impact factors for HH off-farm income, and as a result, capital and total labor have positively correlated with the HH mixed income also at highest impact. Such mentioned factors in this study influencing on the HH income are very significant and they can be able as a basis for income improvement of rural households.*

*During the urbanization process and structural economically transformation process, it would be nice if there is a movement or reallocation of farming land from the off-farm households at urban or sub-urban areas to the agricultural households aimed not only for the off-farm household's concentration on their off-farm activities, but also for urban agriculture development with high value crops and livestocks, and it also is needed to increase such resources for off-farm income increase. Actually, off-farm income can compete with farm activities by withdrawing family labor from farm activities. Although off-farm income is very important and off-farm income is a good policy instrument to increase farm productivity and improve rural household income, therefore policies must orient at supporting off-farm activities and off-farm income, but do not dampen or barrier farm activities and farm income of households.*

**Keywords:** *Households; Household income; Farm income; Off-farm income; Mixed income; Household resource; Regression.*

## 1. INTRODUCTION

Basically with the livelihood characteristic of smallholders, households in Vietnam can be able to classify by 3 relatively different household groups such as(1) Agricultural households (called shortly as agricultural HHs or Ho Thuan nong) heavily rely on agriculture and agricultural assets for their livelihoods with their farm income is considered as agricultural income mostly includes crop income, livestock income, fish and agroforestry income, (2) Composite households or mixed households (composite HHs or Ho Hon hop) with their livelihood and income are based on both agriculture and non-agricultural activities or off-farm activities, and (3) Off-farm or non-farm households (off-farm or non-farm HHs, or Ho Phi nong nghiep) who have no land or very little land for cultivation, thereby their livelihoods and income are based on off-farm or non-farm activities and off-farm or non-farm income. Actually in Vietnam, if agricultural households and composite households usually live in rural areas, then off-farm or non-farm households often live in urban or sub-urban areas. Note that, off-farm income and non-farm income are used interchangeably in several places in this paper. The

difference between the two is that off-farm income is much broader than non-farm income, thereby in some cases, non-farm income is included as a component of off-farm income. In both rural and urban areas (mostly sub-urban areas), non-agricultural income or off-farm income is generated when a farmer, spouse or other family member works off the farm, thereby generating extra income for their family. Off-farm income and non-agricultural income has a great role in providing households with income security and liquidity to invest in new production activities or technologies especially under imperfection of credit market (Raphael O. Babatunde)[5].Participating in non-farm activities may take family labor away from agricultural activities, thereby potentially reducing family labor in production that can cause their own farm productivity to stagnate or fall. Off-farm income or non-farm income refers to the portionof farm household income obtained off the farm, including non-farm wages and salaries, pensions, industry, construction, commerce, service and interest income earned by farm families. To overcome credit constraints, agricultural households are increasingly seeking alternative sources of income by participating in off-farm activities. The income from off-farm or non-farm activities may then can be used for investment in agricultural production. So far, the pathways by which off-farm income affect agricultural production has not been a major subject of empirical research in the development economic literature (Raphael O. Babatunde)[5].

Within the framework of the study, total HH income is mixed income, including HH farm income and HH off-farm income. According to Irini Maltsoglou and George Rapsomanikis (2005)[4], Nguyen Thanh Binh (2011)[1],in Vietnam total HH income in rural areas is considerably lower than HH income in the urban areas.

The analysis of income at household level with different household groups and various income resources, mostly are HH farm income, HH off-farm income and HH mixed income, is highly important for understanding the investment and for supporting the efforts to deal with production investment, especially for agricultural production in rural areas. The main objective of the study is to describe the existing situation of key HH resources and analyze their effective or impact on HH income, including HH farm income, HH off-farm income and HH mixed income in different HH groups at a research site, where is adjoining Hanoi and hasa typically rapid process of urbanization. That is Pho Yen town belongs to Thai Nguyen province, Vietnam.

## 2. METHODOLOGY

Data used in this study were collected at 3 communes in Pho Yen town, Thai Nguyen province, where demonstrates typically a rapid urbanization, in years of 2017 and 2018. Of which, there are 2 rural communes and 1 urban commune (street). A household survey was administered to total of 300 households, including agricultural households, composite households and off-farm households with each commune is 100 households. Survey and questionnaire is applied for data collection. Heads of households were interviewed on a number of issues, including their key household resources (capital, land, farming land, labor, school year, age,…), farm income, off-farm income and total income. Collected data is analyzed by PivotTable.

In quantitative study, it is important to clearly identify variables, including dummy variable (e.g. resident place), quantitative variables (such as capital, labor, land, school year, age,…), dependent variables (such as HH farm income, HH off-farm income and HH mixed income). Variables that the study used in this study are defined in Table 1.

Factor analysis is a multivariate statistic method which starts from the research related to the dependence of the internal variables, and concludes the numerous complex variables into a few comprehensive factors.

**Table1.** *Description of variables in the regression models*

| Variables | Unit | Farm income | Off-farm income | Total HH income |
|---|---|---|---|---|
| Y | Million vnd | Farm income | Off-farm income | Total income |
| D | 1=Rural, 0=Urban | Resident place | Resident place | Resident place |
| $X_1$ | Million vnd | Capital | Capital | Capital |
| $X_2$ | Labor | Total labors | Total labors | Total labors |
| $X_3$ | Person(s) | Number of HH members | Number of HH members | Number of HH members |
| $X_4$ | Ha | Total land | Total land | Total land |

| | | | | |
|---|---|---|---|---|
| $X_5$ | Years | Age of HH head | Age of HH head | Age of HH head |
| $X_6$ | Years in school | Years of HH head | Years of HH head | Years of HH head |
| $X_7$ | Labor(s) | Farm labor | Off-farm labor | |
| $X_8$ | Ha | Farming land size | | |

The research was analyzed mostly using descriptive statistics and multiple regression. The multiple regression model is specified as follows:$Y = \alpha_0 + \alpha_1 X_1 + \cdots \alpha_n X_n$. Where Y is HH income, including farm income, off-farm income and total income, $\alpha_0$ is the intercept, term $\alpha_1$, .... $\alpha_n$ are the coefficients, $X_1$to $X_n$ are independent variables as mentioned at the Table 1.

## 3. RESULTS AND DISCUSSIONS

### 3.1. Key Household Resources and Income

Household resources widely are all things that can help provide what are needed for a household, a basic unit for socio-cultural and economic analysis. In this paper, we would like to limit some key household resources that are used as household resource variables in different analyses.

With HH farm income (Table 2), within 207 agricultural households, averagely each household has 2.84 labors, 1.98 farm labors, 4.51 family members, total land is 0.5149 ha, of which only 0.1886 ha for cultivation. Farm income is 74.41 million VND a year, but its Std.Deviation looks very high with value of 62.76 million VND. Note: 1USD = 22,600 VND.

**Table2.** *Descriptive Statistics for variables in regression model of HH farm income*

| Characteristics | Mean | Std. Deviation | n |
|---|---|---|---|
| Farm income | 74.41 | 62.76 | 207 |
| Resident place | 0.85 | 0.362 | 207 |
| Capital | 29.62 | 61.84 | 207 |
| Total labors | 2.84 | 1.065 | 207 |
| Number of HH members | 4.51 | 1.451 | 207 |
| Total land | 0.5149 | 0.6015 | 207 |
| Age of HH head | 49.95 | 10.06 | 207 |
| School years of HH head | 8.15 | 2.06 | 207 |
| Farm labor | 1.98 | 0.79 | 207 |
| Farming land size | 0.1886 | 0.2459 | 207 |

For HH off-farm income, among 210 off-farm or non-agricultural households, each household has 4.68 persons, 3.01 labor in total, of which there is 2.09 off-farm labors, total land is 0.3594 ha with capital is 123.29 million VND a year, and off-farm income is 131.88 million VND per year, higher than farm income (Table 3), indicating that off-farm income plays an important role in mixed income of the surveyed households.

With HH mixed income or total income of the household, within 300 surveyed households, each household has 4.50 persons, 2.81 labors in total, total land is 0.44744 ha, of which 0.1848 ha for cultivation only, capital is 90.32 million VND per year, school year of household head is 8.71 and total household income is 143.657million VND per year (Table 4).

**Table3**. *Descriptive Statistics for variables in regression model of HH off-farm income*

| Characteristics | Mean | Std. Deviation | n |
|---|---|---|---|
| Off-farm income | 131.88 | 93.535 | 210 |
| Resident place | 0.57 | 0.496 | 210 |
| Capital | 123.29 | 160.659 | 210 |
| Total labors | 3.01 | 1.069 | 210 |
| Number of HH members | 4.68 | 1.393 | 210 |
| Total land | 0.3594 | 0.62025 | 210 |
| Age of HH head | 49.57 | 9.607 | 210 |
| School years of HH head | 9.08 | 2.095 | 210 |
| Off-farm labor | 2.09 | 1.041 | 210 |

Within 300 surveyed households in the research, there are 207 households are rely on agriculture, of which 95 households are agricultural households or farm households and 112 composite households, and 210 households are off-farm or non-agricultural households. Average farm income among 207

farm households is 74.41million VND a year. Of which, farm income of agricultural households is 90.2 million VND, higher composite households (61.2 million VND a year), but SD is 62.76 million VND, thereby CV is 84.3%. Off-farm income averagely among 210 households is 131.88 million VND per year, higher than farm income. Of which, highest is off-farm households with 179.8 million VND a year, next is composite households (96.5 million VND) and lowest is agricultural households (33.4 million VND a year). Total income or mixed income of 300 surveyed households averagely is 143.66 million VND a year or 2.662 million VND per HH/year, of which highest total income belongs to off-farm households (179.8 million VND per HH or 3.350 million VND per person/month), next is composite ones (157.5 million VND/HH/year or 2.697 million VND/person/month), and lowest one is agricultural households with only 92 million VND per HH per year or 1.877 million VND/person/month (Table 5).

**Table4.** *Descriptive Statistics for variables in regression model of total HH income*

| Characteristics | Mean | Std. Deviation | n |
|---|---|---|---|
| Total HH income | 143.657 | 92.8911 | 300 |
| Resident place | 0.67 | 0.472 | 300 |
| Capital | 90.32 | 144.264 | 300 |
| Total labors | 2.81 | 1.038 | 300 |
| Number of HH members | 4.50 | 1.401 | 300 |
| Total land | 0.44744 | 0.619966 | 300 |
| Age of HH head | 49.34 | 9.769 | 300 |
| School years of HH head | 8.71 | 2.238 | 300 |

Notes that, among 300 surveyed households, there are only 25 households (8.3%) who have trained labor, vast remainder (91.7% of total surveyed households) are non-train labors. For investment capital, averagely 95.6 million VND per household among 300 surveyed households, of which highest capital is off-farm household with 225.4 million VND, then is mixed household (47.5 million VND) and lowest is agricultural household (13.8 million VND per year). It means that in order to overcome credit constraints, mostly agricultural households and some mixed households are increasingly seeking alternative sources of income by participating in off-farm or non-agricultural activities.

**Table5.** *Farm income, off-farm income and total income by household groups*

| Household groups | Number of Agricultural HHs | Farm income (Mill. VND /HH/year) | Number of off-farm HHs | Off-farm income (Mill. VND/HH/year) | Total income(mill.VND) | |
|---|---|---|---|---|---|---|
| | | | | | HH/year | Person/month |
| Agricultural HHs | 95 | 90.2 | 5 | 33.4 | 92.0 | 1.877 |
| Composite HHs | 112 | 61.0 | 112 | 96.5 | 157.5 | 2.697 |
| Off-farm HHs | | | 93 | 179.8 | 179.8 | 3.350 |
| n | 207 | | 210 | | 300 | |
| Mean | | 74.41 | | 131.88 | 143.66 | 2.662 |
| SD | | 62.76 | | 93.5 | 92.9 | |
| SE | | 4.4 | | 6.5 | 5.4 | |
| CV% | | 84.3 | | 70.9 | 64.7 | |

Obviously that, during urbanization process of the research site, total household income of off-farm or composite households is considerably higher than agricultural households, meaning that total household income in rural areas is considerably lower than household income in the urban areas. Obviously that participating in non-farm activities or off-farm activities could increase overall cash income of the households. If the income from off-farm or non-farm activitiesis used to finance agricultural input purchase or longterm capital investments for agricultural production, it can be an important source of cash that potentially used to improve agriculture productivity. This result is fully appropriate with the research reported by Irini Maltsoglou and George Rapsomanikis (2005)[4].

### 3.2. Multiple Regression Analysis

*3.2.1. HH farm income*

The summary statistics of 8 variables in the multiple regression model for HH farm income is: $Y = -57.053 + 29.272D + 0.173X_1 - 8{,}22X_2 + 0.477X_3 + 31.194X_4 + 0.445X_5 + 3.505X_6 + 25.647X_7 + 27.946X_8$ (Table 6).

Obviously, household resources such as farm labor, total land, capital, school years of HH head,farming land size,age of HH head andnumber of HH membersas well have positive effect on farm HHincome. It means that if we do improve such mentioned factors, the HH farm income will be able to increase. For example, if all other variables are constant, when school year of HH head increases or adds on 1 unit (1 school year), then averagely HH farm income will be able increase up 3.505 million VND. Either all other variables are constant, when farm labor adds on 1, then HH farm income will increase 25.647 million VND; Similarly when total land raises 1 ha, then HH farm income will add on 31.194 million VND,… However, variable of total labor has negative effected on the HH farm income, implies that during total labor increases, thereby HH farm income reduces, due to some of these labors have moved to off-farm or non-farm activities, therefore it does not directly increase farm.

We can recognize that Standardized Coefficients of resident place, a dummy variable (with 1 is rural, 0 is urban), is positive with value of 0.169, indicating that HH farm income in rural areas is higher than urban or sub-urban areas. In other hand, Standardized Coefficients of on-farm labor is highest with the value of 0.323, implying that on-farm laborh as positive correlated with the HH farm income at highest impact. Second ones is total land (0.299). In addition, total land, capital, school years of HH head, farming land size, age of HH head, number of HH members have also positive correlated with the HH farm income at enough impact. Therefore, in order to increase farm income, it is needed to increase such factors as farm labor, total land, capital, school years of HH head, farming land size, age of HH head, number of HH members.

Notes that value of Variance Inflation Factor(VIF) of all mentioned 9 independent variables in the regression model is also lower than 10, indicating that the regression model has no Multicollinearity (Table 6). The Pearson Correlation between resident place and capital is negative value, implying that investment capital of household in rural areas is lower than urban areas, therefore it is needed to attract the investment from urban for rural areas. In other hand, the Pearson Correlation between resident place and household human resources (e.g. number of HH members, labor) is negative impact, indicating that household human resource in rural areas is lower than urban areas. The Pearson Correlation between resident place and school year is also negative impact, implying that school years at rural areas nowadays is lower than urban areas. Other point is Pearson Correlation between capital and total land, farming land and farm labor is also negative impact, indicating that actually, households with the more total land, more farming land and more farm labor as well, the less capital for agricultural investment, therefore they do need capital for agricultural development.

The Adjusted R Square is 0.310, indicating that all 9 independent variables in the regression model can be able to explain about 31.0% of changes of dependent variable (farm income), the remainder of 69.0% will be explained by other variables outside of the multiple regression model or error. Durbin-Watson is 1.798, higher than 1 and lower than 3, indicating that there is no autocorrelation within the discussed multiple regression model.

**Table6.** *Coefficients for HH farm income*

| Characteristics | Unstandardized Coefficients (B) | Standardized Coefficients (Beta) | t | Sig. | Correlations (Zero-order) | Collinearity Statistics (VIF) |
|---|---|---|---|---|---|---|
| Intercept | -57.053 | | -1.450 | 0.149 | | |
| Resident place | 29.272 | 0.169 | 2.418 | 0.017 | 0.191 | 1.458 |
| Capital | 0.173 | 0.170 | 2.640 | 0.009 | 0.027 | 1.239 |
| Total labors | -8.220 | -0.140 | -1.651 | 0.100 | 0.068 | 2.131 |
| Number of HH members | 0.477 | 0.011 | 0.148 | 0.882 | 0.044 | 1.650 |
| Total land | 31.194 | 0.299 | 2.967 | 0.003 | 0.482 | 3.031 |
| Age of HH head | 0.445 | 0.071 | 1.043 | 0.298 | 0.030 | 1.395 |
| School years of HH head | 3.505 | 0.115 | 1.629 | 0.105 | -0.026 | 1.493 |
| On-farm labor | 25.647 | 0.323 | 4.516 | 0.000 | 0.388 | 1.529 |
| Farming land size | 27.946 | 0.110 | 1.179 | 0.240 | 0.396 | 2.575 |

*Notes: Adjusted R Square: 0.310*
*Durbin-Watson: 1.798*

*3.2.2. HH Off-Farm Income*

The summary statistics of 7 variables in the multiple regression model for HH off-farm income is: $Y = -130.623 + 74.993\ D + 0.327\ X_1 + 6.658X_2 - 0.699X_3 - 2.690X_4 - 0.073X_5 + 7.584X_6 + 47.075X_7$(Table 7).

We can see that the Unstandardized Coefficients and Standardized Coefficients of variables of number of HH members, total land and age of HH head have negative impact, implies that households with the more number of family member, more total land and higher age of HH head, the less off-farm income due to the need of agricultural production investment. Standardized Coefficients of capital and off-farm labor are highest with values of 0.562 and 0.524 respectively, indicating that these two variables of capital and off-farm labor have positively correlated with off-farm income at highest impact. In addition, resident place also has high and positive Standardized Coefficients (0.398), meaning that resident place also has influence on off-farm income or non-farm income, and households living at rural areas have off-farm income lower than those who living at urban areas or sub-urban areas.

Such variables as resident place, capital, total labor, school year and off-farm labor have positively correlated on off-farm income, indicating that off-farm income of households living at urban areas is higher than rural areas, therefore it would be nice if there is the movement or reallocation of farming land from the off-farm households at urban areas to the agricultural households at rural areas aimed not only for the off-farm household's concentration on their off-farm activities, and it is needed to increase such resources for their off-farm income increase, but also for the development of agricultural production of agricultural households. Actually at the research site, off-farm income can compete with farm activities by withdrawing family labors from farm activities, as a result, there is a transition of farm labors and other HH resources away from agriculture. This is considerably as an impact of urbanization and re-structural transformation process. The finding is quite appropriate to researches of Fitsum Wakweya Bayissa (2010)[3], Nguyen Thanh Binh (2011)[1], Finn Tarp (2017)[2].

The VIF of all 8 independent variables in the off-farm income regression model are lower than 10, indicating that the regression model has no Multicollinearity (Table 7).

**Table7.** *Coefficients for HH off-farm income*

| Characteristics | Unstandardized Coefficients (B) | Standardized Coefficients (Beta) | t | Sig. | Correlations (Zero-order) | Collinearity Statistics (VIF) |
|---|---|---|---|---|---|---|
| Intercept | -130.623 | | -2.200 | 0.029 | | |
| Resident place | 74.993 | 0.398 | 4.997 | 0.000 | -0.278 | 2.707 |
| Capital | 0.327 | 0.562 | 8.915 | 0.000 | 0.531 | 1.701 |
| Total labors | 6.658 | 0.076 | 1.003 | 0.317 | 0.199 | 2.463 |
| Number of HH members | -0.699 | -0.010 | -0.155 | 0.877 | 0.189 | 1.921 |
| Total land | -2.690 | -0.018 | -0.334 | 0.739 | -0.096 | 1.221 |
| Age of HH head | -0.073 | -0.007 | -0.117 | 0.907 | -0.027 | 1.739 |
| School years of HH head | 7.584 | 0.170 | 2.257 | 0.025 | 0.242 | 2.422 |
| Off-farm labor | 47.075 | 0.524 | 7.609 | 0.000 | 0.545 | 2.026 |

*Notes: Adjusted R Square: 0.511*

*Durbin-Watson: 1.951*

Pearson Correlation between dummy variable of resident place and off-farm income is negative impact, meaning that off-farm income of households living at rural areas is lower than urban areas. Similarly, Pearson Correlations between resident place with capital, total labor, number of HH member, school years of HH head and off-farm labor are also correlated in negative impact, implying that capital, total labor, number of family member, school year of HH head and off-farm labor of rural households are lower than urban areas. In other hand, Pearson Correlations between capital with total labor, number of family member, total land and age of HH head are also correlated in negative impact, indicating that the households with the more total labor, more number of HH member, more total land and more age of HH head, the less capital the households have.

The Adjusted R Square is 0.511, meaning that all such 8 independent variables in the regression model can be able to explain about 51.1% changes of dependent variable (off-farm income) and the remainder of 48.9% will be able to explain by other independent variables outside the regression model or error. Durbin-Watson is 1.951, higher than 1 and lower than 3, indicating that there is no autocorrelation within the mentioned multiple regression model.

*3.2.3. Total HH Income*

The summary statistics of 6 variables in the multiple regression model for total HH income (HH mixed income) is presented as follows: $Y = -163{,}409 + 63.340D + 0.376X_1 + 36.992X_2 + 1.154X_3 + 18.518X_4 + 0.786X_5 + 8.569X_6$ (Table 8).

Obviously, all household resource variables such as capital, total labor, number of family member, total land, age of HH head, and school year of HH head as well have positively correlated on the HH mixed income (total HH income), therefore we can be able to improve and increase such mentioned factors aimed at mixed household income increasing. Standardized Coefficient of capital is highest (0.584), next is total labor (0.413), implying that these 2 factors have highest impact on HH mixed income. In other hand, Standardized Coefficient of resident place is enough with the value of 0.322, indicating that resident place has also highly correlated with HH mixed income, but Pearson Correlation between resident place, a dummy variable, with HH mixed income has correlated in negative impact on HH mixed income, indicating that HH mixed income of rural households is lower than urban households.

**Table8.** *Coefficients for total household income*

| Characteristics | Unstandardized Coefficients (B) | Standardized Coefficients (Beta) | t | Sig. | Correlations (Zero-order) | Collinearity Statistics (VIF) |
|---|---|---|---|---|---|---|
| Intercept | -163.409 | | -3.416 | 0.001 | | |
| Resident place | 63.340 | 0.322 | 4.750 | 0.000 | -0.129 | 2.299 |
| Capital | 0.376 | 0.584 | 10.157 | 0.000 | 0.416 | 1.655 |
| Total labors | 36.992 | 0.413 | 6.656 | 0.000 | 0.389 | 1.930 |
| Number of HH members | 1.154 | 0.017 | 0.291 | 0.771 | 0.289 | 1.789 |
| Total land | 18.518 | 0.124 | 2.475 | 0.014 | 0.069 | 1.248 |
| Age of HH head | 0.786 | 0.083 | 1.516 | 0.131 | 0.054 | 1.487 |
| School years of HH head | 8.569 | 0.206 | 3.260 | 0.001 | 0.174 | 2.007 |

*Notes: Adjusted R Square: 0.402*
*Durbin-Watson: 1.639*

The VIF values of all mentioned independent variables within the regression model are lower than 10, indicating that regression model has no Multicollinearity (Table 8).The Adjusted R Square is 0.402, meaning that all such 7 independent variables in the mentioned regression model can be able to explain about 40.2% changes of dependent variable (HH mixed income) and the remainder of 59.8% will be able to explain by other independent variables outside the regression model or error. Durbin-Watson is 1.639, higher than 1 and lower than 3, indicating that there is no autocorrelation within the mentioned multiple regression model.

Obviously that, the process of urbanization and structural economically transformation urgently needs a movement or reallocation of farming land from the off-farm households at urban or sub-urban areas to the agricultural households aimed not only for the off-farmhousehold's concentration on their off-farm activities, but also for the development of urban and rural agriculture with high value crops and livestocks, and it also is needed to increase such resources for off-farm income increase. Although off-farm income is very important and off-farm income is a good policy instrument to increase farm productivity and improve rural household income, therefore policies must orient at supporting off-farm activities and off-farm income, but do not dampen or barrier farm activities and farm income of households

## 4. CONCLUSION

There is marked differences between household (HH) farm income, HH off-farm income and HH mixed income among 300 surveyed households. Of which HH farm income is 74.41million VND

(1USD is equal 22,600 VND), HH off-farm income is 131.88 million VND, higher than farm income, indicating that off-farm income plays an important role contributing a large part to HH mixed income of the surveyed households; HH mixed income is 143.657 VND per year.

Total HH income of off-farm households is 179.8 million VND, and composite households is 157.5 million VND, considerably higher than agricultural households (only 92,0 million VND per year). Due to HH mixed income of rural households is lower than urban households, thereby participating in non-farm activities or off-farm activities could increase overall cash income of the households. If the income from off-farm or non-farm activities is used to finance agricultural input purchase or longterm capital investments for agricultural production, it can be an important source of cash that potentially used to improve agriculture production.

If for HH farm income, 2 factors as on-farm labor and total land have positively correlated with the HH farm income at highest impact, then capital and off-farm labor are 2 highest positive impact factors for HH off-farm income, and as a result, capital and total labor have positively correlated with the HH mixed income also at highest impact. Such mentioned factors in this study influencing on the HH income are very significant and they can be able as a basis for income improvement of rural households.

Although most rural households are involved in the farm sector, the role of off-farm income has become increasingly important for improving the households' income. There is a certain difference in the structure of income source of rural and urban households. Rural households get the biggest source of income from agricultural activities. On the contrary, income source from off-farm activities is the main income of urban households. Income from agricultural activities only takes a small proportion in the structure of urban households' income. In order to overcome credit constraints, mostly agricultural households and some mixed households are increasingly seeking alternative sources of income by participating in off-farm or non-agricultural activities.

During the processes of urbanization and structural economically transformation, it would be nice if there is a movement or reallocation of farming land from the off-farm households at urban or sub-urban areas to the agricultural households aimed not only for the off-farm household's concentration on their off-farm activities, but also for urban agriculture development with high value crops and livestocks, and it also is needed to increase such resources for off-farm income increase. Actually, off-farm income can compete with farm activities by withdrawing family labor from farm activities. Although off-farm income is very important and off-farm income is a good policy instrument to increase farm productivity and improve rural household income, therefore policies must orient at supporting off-farm activities and off-farm income, but do not dampen or barrier farm activities and farm income of households.

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