**Determinants of Exotic Poultry Breeds Adoption by Smallholder Farmers in Gibe District, Hadiya Zone, Ethiopia**

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# **ABSTRACT**

*This study aimed to assess the perception of farmers on exotic poultry; the contribution of exotic poultry production to household income and consumption and to identify factors that determine the probability and intensity of exotic poultry adoption among rural chicken producers. Using a multi-stage random sampling method, 155 households were selected for interview. Focus group discussions and key informant interviews were employed to collect quantitative and qualitative data. Based on the perception of farmers about the advantages of exotic poultry breeds production because of their superior market price of live chickens, egg production capacity, early maturing chicks, market price of egg and they also pointed out the barriers of exotic poultry breeds production because of susceptibility to disease, lack of vaccination, lack of chicks, needs more care. Besides, the mean annual income from the sale of eggs and a live chicken, adopters earned an advantage of 762.61 ETB over non-adopters. Additionally, in food consumption adopters were found to be better in different food groups i.e. adopters score higher in food consumption, particularly in consuming meat (egg and chicken meat). This also indicates adopters were found to be better in diet diversifying than non-adopters by the days recall method. On the other hand, the output of the model indicated that household size, experience of farming, farm size, sex, off/non-farm income, livestock holding, distance to the market, and access to credit service were found to be significant at 1%. Therefore, the study concludes that the probability of adoption and intensity of exotic poultry will be sustained through paying attention and moving along with those variables influencing the adoption decision and intensity significantly.*

***Keywords****: Adoption, exotic poultry, perception, Double-hurdle model, Likert scale*

**Introduction**

In Ethiopia, livestock plays a vital role in providing animal protein, exporting commodities, generating income, and source of energy among others (CSA, 2017). Despite the potential of livestock, outputs are produced and consumed on farms (World Bank, 2007; IGAD LPI, 2010). Of all domestic animals in Ethiopia, poultry is the most numerous which is represented exclusively by chicken. Due to their requirement for small feed, space, low cost, and high turnover rates, poultry rearing is an appropriate activity for the poor and product marketability (Mengesha *et al.,* 2008a) and plays significant social and cultural roles in the life of rural people (Kryger *et al.,* 2010). In most parts of the country, village chicken notably contributes to the livelihoods of the rural household as a preliminary point of investment, insurance against distress, and food security (Tadelle *et al.*, 2003; Aklilu, 2007; Reta, 2009).

The Ethiopian Livestock Master Plan (ELMP) has estimated that by the year 2020 annual chicken meat and egg production in Ethiopia would rise to 164,000 tones and 3.9 billion, respectively, increasing the share of chicken meat consumption to total meat consumption from 5% in 2014 to 30% by 2030 (Boere *et al*., 2015). Hence, to achieve this goal, exotic chickens have been introduced to enhance productivity in terms of egg and meat in Ethiopia as well as in the study area. With the assumption of high egg production capacity, fast growth, and high selling price of eggs, farmers perceive it as a good opportunity for exotic chicken production over the local one (Matiwos *et al.,* 2013). However, according to (the CSA, 2017) report of the 59.5 million chickens in Ethiopia over 94.31% are local. This implicitly indicates lower adoption of exotic breeds in the country according to the findings of (Simegnew *et al*., 2015) and there is no exception to this study area.

The distinguishing features of the local chicken are small-sized eggs, slow growth rate, late maturity, and longer age at first mating, small clutch size, and natural behavior to broodiness (Meseret, 2010). To this end, with the increasing population of the country, there is an increasing demand for the supply of egg and chicken meat. However, under the prevailing production potential, it is difficult to fulfill the demands for egg and chicken meat (Geleta *et al*., 2013; Ermias et *al*., 2015; Kefyalew and Tilahun, 2017). Out of the total chicken population, 11.2 million are found in Southern Ethiopia which accounts for 18.8% of the national chicken population and contributes about 18% of the total national egg production. Out of the total regional chicken population, 97.9% are found in the rural areas and Sidama, Hadiya, and Gurage zones account for about 43.6% of the total regional chicken population (CSA, 2017). Thus, the study aimed to assess the perception of smallholder farmers towards the adoption of exotic poultry, the contribution of poultry to household income and consumption, and factors affecting adoption decisions and the intensity of adoption at the household level in the study area.

**Statement of the Problem**

In Ethiopia, poultry are often the only livestock owned by very poor families so improvement in their production will assist families to improve their income, and consumption as excess chicken can also help to obtain other livestock such as small ruminants (Teklewold *et al.*, 2006; Jerevazio, 2014). Diversified production provides better risk management as well as a more secure source of income and food supply. Recently, there has been increasing demand for better quality food and more diverse diets. A more diversified diet is highly correlated with calories and protein sufficiency (Jerevazio, 2014). Chicken consumption is moreover closely associated with wealth status and they are consumed mostly during holidays in Ethiopia. According to the ELMP, the total poultry consumption accounts for 5% of the total meat consumption (Boere *et al*., 2015).

Despite the importance of poultry in household income, consumption, food security, and the national economy, the supply did not satisfy the demand for egg and chicken meat in Ethiopia because of the low productivity of local chicken in terms of egg and meat production (Ermias *et al*., 2015). As a result, exotic chicken breeds’ research and extension in Ethiopia started in the early 1950s (Tegegne *et al.,* 2010) to improve egg and meat production. Since then, a number of exotic chicken breeding and multiplication centers have been established with the aim of improving the national poultry extension activities which served as sources of improved birds and fertile eggs to disseminate to the producers (EEA: EEPRI, 2006). Despite all efforts, Ethiopian poultry consists of mainly local birds and with regard to breed, 94.31%, 3.21%, and 2.49% of the total poultry are local, crossbred, and exotic, respectively (CSA, 2017). Even if all existing studies revealed that all the imported breeds of chickens performed well under the intensive management system; but the contribution of exotic chickens to the Ethiopian economy is considerably lower than that of other African countries and the adoption of exotic breeds in most parts of the country is very low (Simegnew *et al*., 2015; Haftu, 2016).

So far, studies have been undertaken to identify the reasons for the low adoption of exotic chicken breeds. However, most previous studies focused largely on studying the intensity and investigating determinants, challenges, and opportunities of producing exotic chicken breeds (Teklewold *et al*., 2006; Jebessa, 2008; Ermias *et al*., 2015; Wondemeneh *et al*., 2015). However, important factors such as farmers’ perception of the particular technologies and also the contribution of that particular technology to consumption and the capacity to generate income for households were inadequately emphasized in previous research. Farmers’ perceptions of technologies are equally important in adoption decisions and thus deserve research attention (Abrhaley, 2006). Adesina and Zinnah (1993) found that farmers’ perceptions of technology-specific attributes affect the decision for adoption beyond other factors. However, earlier adoption studies have rarely considered the effect of perceptions on adoption decisions.

In Gibe district a big endeavor has been employed to improve poultry productivity by introducing and distributing exotic poultry breeds for a decade (GWLFO, 2017). Since then, Rhode Island Red and White Leghorns have been the most common exotic poultry breed types that were disseminated to the farmers in the study area. Till this day no research has been done that indicates the level of adoption of exotic poultry in the study area. Thus, the aim of this study was to examine the differences between adopter and non-adopter households in terms of income, and consumption; and to identify factors that determine the probability and intensity of adoption of exotic poultry by smallholder farmers in the study area.

## **1.3. Objectives of the Study**

The overall objective of the research was to assess the adoption of exotic poultry breed and estimates their contribution to household welfare by smallholder farmers in the Gibe district.

**Specific objectives**

* To assess the perception of farmers on exotic poultry breeds
* To examine the contribution of exotic poultry production to household income and food consumption
* To examine factors that determine the probability and intensity of exotic chicken adoption among rural chicken producers in the study area

# **Research Methodology**

**Sampling Techniques and Data Collection**

Multi-stage sampling method was employed to draw sample respondents with a combination of purposive and simple random sampling techniques. In the first stage, Gibe district was selected purposively because it is the major poultry-producing area of the Hadiya zone due to its suitable agroecology for poultry production. In the second stage, kebeles in which exotic poultry breeds are distributed were identified. In the third stage, three kebeles were selected randomly (Homecho, Hamolla, and Omochora). In the fourth stage, the lists of households in the kebele were utilized so as to categorize adopters and non-adopters of exotic poultry breeds. Finally, 155 sample households were selected randomly for interview based on probability proportional to the size. The sample size for the study was determined based on Yamane (1967). The simplified formula is:

, where n is the sample size, N is households in the study area and e is the precision level at 8%.

The data collected from both primary and secondary data sources were quantitative and qualitative in nature. The primary data was collected through household surveys to acquire information on the household composition, welfare contribution of poultry, extension services, credit, and other issues. In addition, key informant interview (KII), and focus group discussion (FGD) was included to substantiate quantitative data. In semi-structured interviews, the respondents were informed about the objectives of the survey. Six enumerators were recruited and trained on data collection procedures. The two FGDs were held in Omochora and Homecho kebele with nine members in each group. Moreover, eleven KII, those who have knowledge about the study area were interviewed. Additionally, secondary data were collected from relevant sources such as population size, costs of agricultural inputs and outputs, land use patterns, and agroecology so as to supplement primary data.

**Methods of Data Analysis**

The perception was measured using a three and four-point Likert scale on chicken breed preference (superior, about the same & and inferior) and restraining factors (not barrier, somewhat barrier, moderate barrier& and extreme barrier) for adopting exotic poultry. Hence, the percentage score and rank for the developed farmers’ preference criteria were computed. Qualitative data were analyzed by narrating and describing to support the quantitative data. The contribution of exotic poultry breeds to household income and consumption was analyzed using descriptive statistics such as frequency, mean, and standard deviation. On the other hand, food consumption score (FCS) was used to assess the variety of food groups frequently consumed by respondents. In doing FCS, food groups are divided into eight standard groups (WFP, 2008).

FCS **=** a staples x staples+ a legum x legumes+ a vegetables x vegetables+ a fruit x fruit+ a animal (poultry) x animal (poultry)+ a sugar x sugar+ a dairy x dairy+ a oil x oil

Where, FCS = Food consumption score, ai = Weight of each food group, and xi = Frequency of food consumption. In principle, higher FCS indicates the frequent consumption of a given food group, better dietary diversity, and as well as food patterns of the households in seven days. The econometric model was used to analyze factors affecting adoption decisions, whereas the intensity of adoption of exotic poultry using truncated regression in second-hurdle for only adopters.

# **Results and Discussion**

**Farmers’ Perception of Exotic Poultry Breeds**

Out of the total exotic poultry producers, 91.9% of respondents perceived exotic poultry had a superior market price in terms of live chickens, and 8.1% of the respondents perceived a live chicken of exotic poultry breed and local breeds have the same market price. But, none of them respond market price of exotic poultry breeds is inferior to local breeds. Likewise, farmers’ perception of the market price of eggs of exotic poultry is another breed preference criterion to value the importance of the breed. Accordingly, 74.2% of respondents perceived egg of an exotic poultry breed has a superior market price to their local counterpart whereas 16.1% and 9.7% responded market price of eggs of exotic poultry is the same as and inferior to that of local, respectively.

In terms of egg production capacity, 85.5% of the exotic poultry producers perceived exotic poultry breeds are superior to local and 14.5% of them perceived the egg production capacity of the exotic poultry breed is the same as that of local counterpart. However, none of the adopters perceived rearing exotic poultry has the probability of getting inferior eggs than local ones. Another farmer’s evaluation criterion of the exotic poultry technology was the early maturing of chicks. In this point of view, 77.4% of the adopters perceived exotic poultry chicks superior growth rate than local chicks, and 12.9% reported both breeds to have the same maturity period. The respondents that perceived exotic poultry chicks inferior maturity was only 8.7%, this might be because of farmers’ misconceptions. According to the result of FGD “*the aim of rearing poultry is changed from subsistence to market purpose because of attractive market price of a live chicken and egg compared to local one”.*

Accordingly, 30.6% of adopters of the sample household perceived that exotic poultry is superior in their suitability (preference of egg) for consumption, and 61.3% of adopters perceived egg preference of exotic poultry are the same as their counterpart. While some respondents (8.7%) perceived eggs of the local breed as preferred as superior to exotic breeds. To sum up, the survey result and FGD showed that the attractive market price of a live chicken, high egg production capacity, early maturing chicks, the market price of eggs, and preference of eggs are the most preferred attributes of exotic poultry breeds.

From the sample households, 41.9% of them appeared to perceive that susceptibility to disease was identified as extremely affecting the adoption of exotic poultry, of which 38.7% perceived a lack of vaccination. The rest 37.1%, 29%, and 24.2% perceived expensiveness of chicken costs, the inaccessibility of chicks (shortage of exotic chicken breeds), and the need for more care respectively as extreme barriers to adopting exotic poultry. On the other hand, expensiveness of chicks’ costs (45.2%) needs more care (35.5%), and lack of vaccination (33.9%).

### **Contribution of Exotic Poultry Adoption to Household Welfare**

It is indicated in Table 2 that, the average annual poultry income of the sample households was 517.54 ETB. On average, adopters had higher annual poultry income of 975.11 ETB as compared, to non-adopters who on average had only 212.5 ETB. Therefore, the analysis result revealed that total annual household income from poultry shows that there is a mean difference between adopters and non-adopters. This implies that the higher income might come from the advantage the adopters obtained due to rearing exotic poultry. This also enables them to sell many eggs and a live chicken compared to local chicken producers.

Table 4. The Average Annual Income from Sale of Poultry for the Sample Respondent

|  |  |  |
| --- | --- | --- |
| Distribution statistics | Adopter  | Non-adopter  |
| Mean  | 975.11 | 212.5 |
| Standard deviation  | 598.10 | 270.93 |
| Minimum  | - | - |
| Maximum  | 2145 | 1266 |

Source: own survey data, 2018

The average food consumption score for adopters, 30.47 was higher than that of non-adopters, 26.78. This might be the reason that households rearing exotic poultry breeds generate more income than non-adopters and thereby get a chance to buy different food items. Any increase in a household’s food consumption reflects an improvement in that household’s dietary diversity and exotic poultry producer has a better probability of diversifying their diet than non-adopters.

The mean difference between adopters and non-adopters was 5.87 and 2.75 respectively. This might be because adopters had the advantage of consuming poultry meat and eggs many times more than non-adopters because adopters might have the opportunity to get many eggs and chicken. Furthermore, adopters could have the opportunity to get income from the sale of eggs and live chicken; this also enables the adopters to purchase meat of beef and goats from the market to feed their households.

The milk and milk product consumption status of adopters was found lower than that of non-adopters. The mean difference number of days milk consumed by adopters was 3.23 and non-adopters 5.03. This might be because the number of cattle owned by adopters is fewer than non-adopters. Cereals and tubers, meat (beef, goat, poultry, and egg), and vegetables were higher in the mean number of days consumed by the adopters which were 7.93, 5.87, and 4.61 respectively, whereas pulses, milk, oil, fruit, and sugar was higher in the mean number of days consumed by non-adopter which was 6.06, 5.03, 1.72, 1.54 and 0.44 respectively.

The frequently consumed food groups in the week recall period by the respondents include cereal and tubers, vegetables, oil, fruit, pulse, milk, meat (beef, goat, poultry, and egg), and honey respectively in their order of importance. Accordingly, the food consumption pattern of the household was 100%, 99.4%, 92.45%, 81.45%, 79.6%, 76.85%, 54.05%, and 43.3% of the sample respondents were cereal and tubers, vegetables, oil, fruit, pulse, milk, meat (beef, goat, poultry, and egg) and honey respectively.

**Determinants of Household Exotic Poultry Adoption Decision**

The result of the model shows that if the household size increases by one unit, the probability of adopting exotic poultry increases by 6.4%, with other variables being constant. This might be due to the fact that having a large household size increases the capability of the household to manage chickens. It might not need to hire additional labor for poultry management purposes. This creates an opportunity to save money and accumulate capital to purchase other production inputs and food. Therefore, household with large household size contributes to better poultry management and cheap labor hence reducing the cost of production than to the families hired in labor. This study is in agreement with the findings of Teklewold *et al*. (2006) and Dehinenet *et al*. (2014) which revealed that having a large household size influences the adoption of exotic poultry and dairy technology positively and significantly respectively.

The marginal effect of livestock possession implies that an increase in livestock possession by one unit in TLU would decrease the probability of exotic poultry breed adoption by 3%, other variables being constant. The adopter of exotic poultry breed possessed significantly lower livestock in TLU than non-adopters. This might be the households divert their objectives to invest in big businesses rather than a poultry technology by perceiving investing in large business offer better return. This is inconsistent with the findings of Endrias (2003) and Haji (2003) which suggest that farmers with more livestock tend to have higher adoption of sweet potato varieties and cross breed dairy cow respectively. The result of this study confirms with the finding of Wondemeneh *et al*. (2015) which revealed that having large livestock affect adoption of exotic poultry breeds negatively and significantly.

Farm size was also found to have a negative and significant influence on farmers’ likelihood to adopt exotic poultry at 1% level. The result implies that, a one timad (0.125 hectare) additional land the household allocate for crop production would decrease the farmers’ likelihood of exotic poultry adoption by 14%, other variables being constant. This might be access to more arable land discourages farmers from adopting exotic poultry and this land holding also enables farmers shift their objective to crop production rather than small animal rearing because of adequate farmland holding by expecting higher benefit from the crop. This finding is in agreement with the finding of Wondemeneh *et al*. (2015) which revealed that having large farm size decreases exotic poultry adoption but contrary to the findings of Ermias (2015) which also indicated that large farm size positively and significantly influences exotic poultry adoption.

The marginal effect of household assessment of exotic poultry outputs taste variable implies that a percent positive shift of households towards exotic poultry output taste, increases the probability of adoption by 17%, with other variables kept constant. This might be if farmers perceive the output taste of exotic poultry as acceptable and suitable for consumption, this also enhances the probability of this breed’s adoption. Even if some literature tells us the output taste of local poultry breeds is more acceptable for home consumption, however, this finding revealed that the farmers perceived the output taste of local and exotic breeds equally. This finding also is in agreement with the finding of Ermias (2013) also revealed that the acceptance of the taste of the new technology output by household family members positively influences adoption.

As a percent increase in households with access to credit, the probability of adopting an exotic poultry breed decreases by 16% other variables being kept constant than those who do not have access. This finding was inconsistent with the proposed hypothesis. This might be due to, the better households obtain access to credit, the lower the farmers invest in poultry technology with the expectation of hoping better benefit from large investments rather than poultry technology (or the farmers might shift to invest in other businesses). Participation in cooperatives was found to positively and significantly affect exotic poultry adoption at a 5% level. The marginal effects of this variable showed that holding other variables constant; a one percent increase in participation in cooperatives, increases the probability of exotic poultry adoption by 11%. This might be because a farmer who participates in a cooperative may have frequent contact with DAs and would be more likely to have information about exotic poultry breeds and their characters than those who have never participated in a cooperative. This finding is in agreement with Tura *et al.* (2010) which indicated that being a member of cooperatives increases the probability of technology adoption.

Table 6. Marginal Effects of Probit Regression for Decision of Improved Poultry Adoption

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variables  | Coef. | Std. Err | P > / Z / | Marginal Effect |
|  \_cons | .0240419 | 1.228487 | 0.984 |  |
| SEXHH | -.1420707 | .5741261 | 0.805 | -.0120684 |
| AGEHH | -.0048424 | .0236433 | 0.838 | -.0053841 |
| EDULHH | -.2944477 | .3467843 | 0.396 | -.0760895 |
| FAMSZE | .3459991 | .1146506 | 0.003\*\*\* | .0646253 |
| LIVHOLD | -.3400996 | .1010693 | 0.001\*\*\*  | -.0298333 |
| FARMSIZE | -1.094162 | .3495348 | 0.002\*\*\* | -.1367179 |
| OFFFARM | .0000667 | .0000956 | 0.485 | .0000127 |
| OUTPUTTASTE | 1.098008 | .4236057 | 0.010\*\* | .1679179 |
| DRESISTANCE | -.0515801 | .3638348 | 0.887 | -.0578759 |
| CREDIT | -1.089799 | .4055898 | 0.007\*\*\* | -.1613552 |
| EXTENSION | -.0075753 | .1082704 | 0.944 | .0013689 |
| PAINCOOP | 1.11379 | .4757398 | 0.019\*\* | .1091037 |
| MARKDISTCE | -.2671294 | .095369 | 0.005\*\*\* | -.0379448 |
| YRSADOPTION | .209183 | .0397534 | 0.000\*\*\*  | .0453777 |
| Household exotic poultry breed adoption decision, Log likelihood = -34.98 Pseudo R2 = 0.66, LR chi-square (14) = 138.67, Prob> chi2 = 0.000, N = 155 |

Source: Model result, 2018 \*\* and \*\*\* indicate a significant level

### **3.4.2. Determinants of the intensity of improved poultry adoption**

Other variables being constant, female farmers were found to keep 4.7 more exotic poultry breeds compared to their male counterparts. This might be because female-headed households are generally resource-poor and more interested in low-cost technologies, which are less capital-intensive and easily manageable. Another important thing might be men, usually leave poultry farming to women and children because of the perception that poultry farming is a minor and not benefitting man’s efforts. The finding of this is in agreement with Wondemeneh *et al*. (2015) and Simegnew *et. al*. (2015) which revealed that being a female increases the intensity of exotic poultry adoption positively. However, the result was not consistent with Teklewold *et al*. (2006) and Teha (2007) and the results of similar studies conducted on technology adoptions which indicated being a female negatively and significantly influences the intensity of adoption.

Off-farm/non-farm income for a household has a negative and significant influence on the numbers of exotic poultry kept at a 10% level. Its coefficient showed that, as the income of the households from off-farm/non-farm activities increases by one unit, it decreases the number of exotic poultry production by 0.0008 than those households who did not earn, other variables being constant. The implication of this result is that having off-farm/non-farm income might divert the limited capital and active labor force available from exotic poultry management to other competing alternative income-generating activities. Farmers compare the net benefit gained from different activities and invest their labor and money accordingly. Those farmers participating in off-farm/non-farm activities may have access to better job opportunities, which are more rewarding than poultry production. This finding is consistent with Jebessa (2008) which indicated having off/non-farm income decreases the intensity of improved poultry adoption.

On average, if the time elapsed since the farmer adopted exotic poultry breeds increased by one year, the number of exotic poultry kept increased by about 1.4, other variables being constant. This might be because those households who adopted exotic poultry breeds earlier derived the benefit from the technology more than late adopters, which might increase the intensity of exotic poultry breed adoption in the household. This finding is with consistent Quddus (2012) and Dehinenet *et al*. (2014) which revealed that technology experiences a positive influence on dairy technology adoption.

Table 7. Results of Truncated Regression for the Intensity of Improved Poultry Breed Adoption

|  |  |  |  |
| --- | --- | --- | --- |
| Variables  | Coef. | Std. Err | P > /Z/ |
|  \_cons | -1.792229 | 6.988532 | 0.798 |
| SEXHH | -4.730603 | 2.52972 | 0.061\* |
| AGEHH | .152765 | .1293698 | 0.238 |
| EDULHH | -2.500418 | 1.685245 | 0.138 |
| FAMSZE | .2670054 | .4709789 | 0.571 |
| LIVHOLD | .0901489 | .3848683 | 0.815 |
| FARMSIZE | -.8181667 | 1.872679 | 0.662 |
| OFFFARM | -.000755 | .0003931 | 0.055\* |
| OUTPUTTASTE | -2.495525 | 2.171688 | 0.251 |
| DRESISTANCE | -1.919302 | 1.595845 | 0.229 |
| CREDIT | -.0271926 | 1.977674 | 0.989 |
| EXTENSION | .3879361 | .3724581 | 0.298 |
| PAINCOOP | 7.0924 | 2.99909 | 0.018\*\* |
| MARKDISTCE | -.8476907 | .4711787 | 0.072\* |
| YRSADOPTION | 1.404782 | .2797666 | 0.000\*\*\* |
| Intensity of exotic poultry breeds adoption by household, limit: lower = 0, upper = +inf, Wald chi2(14) = 70.74, log-likelihood = -167.26, Prob> chi2 = 0.0000, N = 62 |

Source: Model result, 2018 \*, \*\* and \*\*\* indicates significant level

# **Conclusion**

The role of poultry in household income, consumption, food security, and national economy is important however, the supply did not satisfy the product needs of people because of the low productivity of local chicken in terms of egg and meat production. As a result, the introduction of exotic chicken breed research and extension in Ethiopia started in the early 1950’s to improve egg and chicken meat production. Yet, the contribution of exotic chicken to the Ethiopian economy is considerably lower than that of other African countries and the same is true for the study area. To this end, this is a study aimed at estimating welfare impacts at the household level. A multi-stage sampling procedure was employed to draw kebeles from the district to gather quantitative data. Besides, qualitative data were collected through FDG and KII with different stakeholders in the kebeles*.*

This study was conducted in order to assess the perception of farmers about exotic poultry breeds and examine the contribution of exotic poultry production to household income and consumption. Finally, to identify factors that determine the probability and intensity of adoption of exotic poultry breeds by smallholder farmers. The study used both descriptive statistics and econometric models for data analyses. The analysis was made using SPSS version 20 and STATA version 11 software packages. Results of descriptive analysis generally showed that the adopter of exotic poultry breeds differs from their non-adopter counterparts in various demographic, socioeconomic, and institutional-related perspectives.

Farmers perceive positively for exotic poultry production because of the market price of a live chicken, egg production capacity, early maturing chicks, and the market price of the egg. They also negatively perceive it as a result of susceptibility to disease, lack of vaccination, costs of chicks, lack of chicks, need for more care, and high feed requirements. The t-test result revealed that total annual household income from poultry showed that there was a significant mean difference between adopters and non-adopters at a 1% level. On the other hand, sample households were compared in terms of the contribution of poultry for consumption. Hence, adopters and non-adopters were compared in terms of chicken meat and eggs consumed in the seven-day recall method. As a result, the mean number of days consuming chicken meat and eggs for adopters which is 5.87 found to be higher than for non-adopters 2.75. Thus, the mean difference between adopters and non-adopters was significant at a 1% level. Moreover, the average food consumption score for adopters, 30.47 was higher than that of non-adopters, 26.78. Thus, the number of food items from different food groups consumed by sample respondents in the seven-day recall method was found to be significantly different for adopters and non-adopters at a 10% level.

Finally, the result of the model shows that household size, farm size, livestock holding, experience of rearing exotic poultry, distance to the nearest market, and access to credit service were found to influence exotic poultry adoption at 1% whereas households assessment of exotic poultry output taste, participation in cooperatives at 5%.Generally, adopters benefited more from poultry technology as compared to non-adopters in terms of increased household income from the sale of live chicken, eggs, and egg consumption.

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