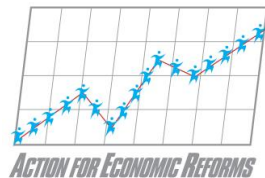


# THE ECONOMICS OF TOBACCO FARMING IN THE PHILIPPINES



**Presentation Version – September 2016**





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The Authors:

Jenina Joy Chavez

Jeffrey Drope

Qing Li

Madeiline Joy Aloria

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# **THE ECONOMICS OF TOBACCO FARMING IN THE PHILIPPINES**

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## LIST OF ACRONYMS

4Ps	Pantawid Pamilyang Pilipino Program
CAR	Cordillera Administrative Region
FGD	Focus Group Discussion
IAC-T	Inter-agency Committee - Tobacco
ILTC	Independent Leaf Tobacco Company
LMICs	Low- and Middle-Income Countries
NTA	National Tobacco Administration
Php	Philippines pesos
PMFTC	Philip Morris Fortune Tobacco Corp.
PSA	Philippine Statistics Authority
RA	Republic Act
TMI	Trans-Manila Inc.
ULPI	Universal Leaf Philippines Inc.
USD	United States (US) dollars
WHO FCTC	World Health Organization Framework Convention on Tobacco Control



## EXECUTIVE SUMMARY

If left unchecked, tobacco use is expected to be the leading cause of premature death and disability globally. Recognition of this threat prompted governments all over the world to enact appropriate tobacco control regulations, with the establishment of the World Health Organization Framework Convention on Tobacco Control (WHO FCTC) as a critical turning point. These initiatives recognize the importance of addressing both the demand side and supply side of tobacco control, including Article 17 of the treaty that compels Parties to find viable alternatives for tobacco farmers. This report seeks to illuminate key components of the supply side. Specifically, it focuses on the economic circumstances of Philippines' tobacco farmers, the incentives and constraints they face, and how these affect the viability of initiatives to direct them to alternative crops and livelihoods. This is done through a nationally representative survey of tobacco farmers and focus group discussions (FGDs).

The survey employed a multi-stage cluster sampling method, covering a total sample size of 421 tobacco farmers from 33 tobacco-growing municipalities in the Philippines. The selection was made from the registry of tobacco farmers lodged with the National Tobacco Administration (NTA), which were back-checked and validated by the team before the actual survey. The sampling design gave due consideration to geographic distribution, the proportion of contract- and non-contract farmers, and the differences across tobacco leaf types. It covered the various aspects of tobacco farming, and focused specifically on the planting season 2013 to 2014.

The survey found that tobacco farming is deeply entrenched in these regions. For example, the average survey respondent had been continuously farming tobacco for 18 years and cultivated around 0.9 hectares of land. Most heads of tobacco-growing households were more than 50 years old with a modal educational attainment of finishing high school. Moreover, tobacco farming continues to be a family affair in the Philippines, with half of household members reporting that they contributed to activities related to producing tobacco.

Tobacco growing is economically central to these households. It was the top source of income for 85% of the surveyed households. Farmers typically also grew other (non-tobacco) crops, providing additional income to 90.9% of the surveyed

households. The average annual income of surveyed households was Php158,408 – seventy percent (70%) of which came from tobacco farming. A majority (61.8%) of the respondents were “contract farmers” – those with a production and/or marketing contract with a tobacco firm – and reported planting on larger land parcels and selling more tobacco than their non-contract or independent counterparts. To be exact, contract farmers fare better with gross margins (total tobacco sales less major inputs such as fertilizer and agricultural chemicals) of USD2424.48/ha, compared to independent farmers at USD1697.84/ha. It is important to note several key facts. First, these are household incomes supporting, on average, 5 persons. Second, more than half of the farms were well less than a hectare. Third, incomes from farming did not decline after the implementation of the tobacco tax reform as the tobacco industry suggested would happen. Finally, there is no value of labour included in this calculation. Tobacco farming is widely considered the most labour-intensive crop, often 10 or more times as labour-intensive as other commonly-cultivated crops. Assigning the lowest estimated value to this labour, farmers’ profits drop precipitously, or for a large percentage, evaporate all together.

Differences between contract and independent farmers may stem largely from contract farmers using these commercial relationships to access financing or loans for multiple purposes. A contract farmer who applies for a loan receives approval from tobacco contract partners nearly 100% of the time. The series of FGDs conducted to support the survey confirmed that the availability of loans from their tobacco partners afforded farmers the flexibility to use the cash for additional inputs required for tobacco production, necessary household expenses, and for their children’s education-related needs. This research details other crucial variables including labor and physical inputs to tobacco cultivation, grading practices and pricing, including across leaf types and provinces.

As the Philippines government moves to fulfill its treaty obligations to the WHO FCTC, it will need to consider the complexities examined in this report. In particular, access to credit fundamentally shapes what opportunities are available to farmers. Similarly, improved markets for other agricultural goods will provide incentive for farmers to try alternative crops.

## INTRODUCTION

Tobacco continues to be one of the world's most pressing public health challenges. Diseases caused by tobacco use account for approximately six million annual deaths globally and roughly 4% of disease. By 2030, without intervention, tobacco will generate the highest burden of premature death and disability globally compared to all other modifiable risk factors. Moreover, citizens in low- and middle-income countries (LMICs) will be affected significantly more than their counterparts in high-income countries (Mathers and Loncar 2006). Already 80% of smokers in the world live in LMICs, so these individuals shoulder a disproportionate share of the burdens of tobacco-attributable diseases.

In the Philippines, tobacco-related disease kills approximately 71,850 people each year. Yet, nearly 16 million adults continue to smoke in the Philippines and, perhaps even more worryingly, more than a half a million children smoke. On average, nearly 20 percent more men die of tobacco-related diseases compared to other similar middle-income countries and nearly 10% more women (Eriksen et al 2015). Smoking exacerbates poverty: an average smoker in the Philippines needs to spend nearly five percent of their income to purchase 10 of the cheapest brand of cigarettes each day, often diverting their precious income away from necessary health and education expenditures. Recognizing the challenge, the Philippines ratified the World Health Organization Framework Convention on Tobacco Control (WHO FCTC) in 2005. The treaty – now with 180 Parties – compels each Party to implement a range of evidence-based tobacco control provisions such as higher excise taxes on tobacco products, smoke-free public places, warning labels on tobacco products and bans on marketing tobacco products.

Enacted in 2003, Republic Act No. 9211, or the Tobacco Regulation Act, governs the Philippine tobacco industry, and provides regulation for tobacco packaging, use (smoke-free public spaces), sales, distribution, and advertisement. It created the Inter-Agency Committee-Tobacco (IAC-T), composed of eight government agencies (Department of Trade and Industry as chair, Department of Health as vice-chair, and the Departments of Agriculture, Justice, Environment and Natural Resources, Science and Technology, Education, and the National Tobacco Administration),

representatives from civil society and the tobacco industry. The IAC-T implements, enforces and monitors RA 9211. In 2013, the Philippines reformed its tobacco tax structure to adopt a more unified specific tax structure and raised its tobacco taxes significantly. As a result, consumption has declined and revenues to the treasury from tobacco taxation have grown significantly (Kaiser, Bredenkamp and Iglesias 2016).

Notably, the WHO FCTC also seeks to address the supply side of tobacco control through articles 17 and 18 and specifically promotes alternative livelihoods for tobacco farmers. In the Philippines, among the stated purposes of RA 9211 is to “(a)ssist and encourage Filipino tobacco farmers to cultivate alternative agricultural crops to prevent economic dislocation”, and it mandates the promotion of tobacco growers’ cooperatives, and research and development towards this end. Further, the Sin Tax Reform Law of 2012 earmarks 15% of incremental revenues from tobacco excise taxes for provinces producing burley and native tobacco to, among other things, “assist tobacco farmers in planting alternative crops or implementing other livelihood projects.” The general idea of combining tobacco control measures with livelihood assistance is a popular one, but it requires careful scrutiny of what drives the market for tobacco as well as the incentives that make farmers stay with or switch from tobacco cultivation. Efforts have been made to examine the viability of alternative crops and livelihood diversification. Studies point to the low returns of tobacco farming and the unequal trading relations in which farmers are caught. There is general willingness to shift to other, notably high-value crops, but credit, market and related value chain constraints pose challenges, limiting the reach of nascent successes (Keyser 2007; Ochola and Kosura 2007). In the Philippines, tobacco is preferred for profitability and price stability, but off-season farmers plant crops with lower labor and other input costs (Espino and Doroteo 2008). The recent sin tax reform is seen as positive for making available resources to facilitate alternative economic activities (Kaiser, Bredenkamp & Iglesias 2016). To date, while some best practice examples can be identified, the question of crop and/or livelihood alternatives to tobacco remains a challenge, with world experts still grappling with the research and the rollout phase (WHO 2015).

With a farming population of more than 40,000 farmer cooperators in 2016, this is a very important issue for the Philippines.<sup>1</sup> Thus, a deeper and more complex understanding of the economic lives of tobacco farmers would help to inform policy and related efforts to help tobacco farmers going forward.

The tobacco industry has successfully used tobacco cultivation by smallholder farmers – those farming on small parcels of land (<3 ha) – to oppose tobacco control efforts with the well-honed argument that tobacco control measures will undermine the farmers’ economic livelihoods. Beyond the basic fact that tobacco production is global and any one country’s tobacco control efforts are unlikely to affect tobacco growing meaningfully in the short or even medium terms, the public health community mostly does not have the ready facts about tobacco farming to address the industry’s claims. In particular, there is only limited evidence on the quality of the economic livelihoods and whether it is the lucrative living that the industry typically claims. This research aims to establish these facts in a rigorous manner through a nationally representative economic survey of individual tobacco farmers across the major tobacco-growing regions of the Philippines. In addition, the study aims to illuminate the relationship between farmers and the tobacco industry, paying particular attention to the legal contracts that have become the norm in many countries, including the Philippines, and have been documented consistently to be lopsided in favour of the industry (see Goma et al 2015; Leppan et al, 2015; Magati et al 2016; Makoka et al 2016).



<sup>1</sup> According to the National Tobacco Administration, the number of farmer cooperators has fluctuated in recent years: 53,959 in 2013; 55,763 in 2014; 46,531 in 2015 and 40,982 to date in 2016. Farmer cooperators are the farmers in the NTA’s official registry and are the main owners/tenants of the land cultivated for tobacco leaf. In other countries, this would be the rough equivalent of a farming “household”; thus a farmer cooperator typically also represents additional household and sometimes paid non-family labour.



## SURVEY METHODOLOGY

To examine tobacco farmers' economic livelihoods, the survey sought to sample across all of the major tobacco growing regions. We implemented a professionally administered survey of 421 tobacco farmers across the entire country to construct a national picture of the socio-economic elements of farming. To determine sample size, we defined the population size  $N$  of tobacco farming in the country to be around 55,000 (NTA and Espino et al 2013). For the basic random sampling process, we adopted the conservative standard deviation  $\hat{p}$  to be 0.5, and the confidence level as 95% ( $Z=1.96$ ), and we allowed the margin of error  $e$  to be 5%.

$$n_1 = \frac{z^2 \hat{p}(1-\hat{p})}{e^2} \quad (1)$$

Based on equation (1), we obtained the unadjusted sample size needed to be 377. To adjust for population size, equation (2) was then considered.

$$n_2 = n_1 \frac{N}{N+n_1} \quad (2)$$

As the population size is large, the adjusted sample size remains at 377. Based on previous agricultural surveys in the country, we expected the response rate to be above 80% and sought to reach out to 500 tobacco farmers. We ended up with a sample size of 421 (a response rate of ~84.2%). We aimed for proportional geographic distribution by recruiting farmers from all major tobacco-growing areas. We used a multi-stage stratification and cluster-based design to address major issues in the field (e.g., disperse locations, accessibility, and safety). We prioritized major producing areas, and areas with the highest number of registered farmers. The survey covered the three major island groups, seven regions, and 33 municipalities, as illustrated in Table 1. Respondents were randomly chosen, using the NTA registry of tobacco farmers. Where listing problems (e.g. inaccuracies, failure to locate farmers, etc.) for particular *barangays* (sub-municipality units) were encountered, we used systematic sampling with a random start.

**TABLE 1 - Respondents, by Region, Province and Municipality**

Region	Province	Municipality	n
<b>LUZON</b>			
<b>Cordillera Administrative Region (CAR)</b>	Abra	Pilar	15
<b>Region 1: Ilocos Region</b>	Ilocos Norte	Badoc	14
		Batac	16
		Pasuquin	4
		Pinili	19
		Vintar	3
	Ilocos Sur	Cabugao	16
		Candon	22
		Narvacan	13
		San Emilio	12
		Santa Cruz	14
		Santiago	16
		Sinait	16
		Sta. Maria	4
	La Union	Balaoan	17
		Bauang	15
		Sto. Tomas	3
	Pangasinan	Alcala	9
		San Fabian	11
		Villasis	7
<b>Region 2: Cagayan Valley</b>	Cagayan	Alcala	6
		Amulung	17
		Tuao	13
	Isabela	Aurora	11
		Cabagan	11
		Quirino	14
		Roxas	22
<b>Region 4B: MIMAROPA</b>	Mindoro	San Jose	15
<b>VISAYAS</b>			
<b>Region 6: Western Visayas</b>	Iloilo	Pototan	5
<b>Region 7: Central Visayas</b>	Negros Oriental	Guihulngan	11
<b>MINDANAO</b>			
<b>Region 10: Northern Mindanao</b>	Misamis Oriental	Alubijid	13
		Gitagum	15
		Laguindingan	22
<b>TOTAL</b>			<b>421</b>

Qualitatively, we conducted two focus group discussions in three major growing areas (Ilocos, La Union and Misamis Oriental), drawn directly from municipalities where data were collected. Within each focus group, there was a strong mix of gender, education level, and tobacco farming experience. The topics of questions included: the history of farming in the area, seasonal and daily activities and schedules of household members, access to credit, debt, food security, historical resource analysis, and broader stakeholder analysis.

## BACKGROUND

Philippine Government data show that the substantial part of tobacco production in the country takes place in the northern provinces of Luzon, with CAR, Region 1 and Region 2 collectively accounting for 90% of both total land area and quantity produced (PSA 2013). Hence, most previous studies focused on, and current industry analyses usually refer to, these areas. In contrast, our survey chose to do a nationwide survey to cover other tobacco-producing provinces in Luzon, and in the Visayas and Mindanao. Based on the 2013-2014 NTA Registry we used for the study, around 20% of farmer cooperators were outside those three regions.

In Luzon, most farmers produce Virginia and Burley tobacco. In the Visayas and Mindanao, and in most areas outside the three northern regions, Native Batek is the leaf of choice. Another leaf, Native Cigar Filler, is produced mostly in Northern Luzon. Because they are major inputs to cigarette and cigar manufacture, Virginia, Burley and Native Cigar Filler leaves lend themselves to contract farming arrangements. In contrast, it is rare to have contracts for Native Batek tobacco, which mostly sell retail, or is used in products like chewable tobacco.

Finally, information from the ground and from the NTA reveals variations in the tobacco season for the different leaf types and regions. In Luzon, for Virginia tobacco, planting starts September/October and ends in May. Burley and Native Batek season start mid-November, and end in June (for Burley) and July (for Native Batek). For Visayas, Native Batek season is from March to August/September. Native Batek in

Mindanao is planted from April/May to August/September, and harvested in October-November.

A notable development in tobacco cultivation has been unfolding rapidly in Mindanao that not only alters the mix of tobacco leaf production in the region, but also radically changes the position of tobacco farmers. Media reported in 2014-2015 (e.g., ABS-CBN News 2014, Galvez 2014) that Philip Morris Fortune Tobacco Corporation (PMFTC), a joint venture between Philip Morris International and Fortune Tobacco Company, has established a plant near Cagayan de Oro in Mindanao and has started actively enlisting local farmers in contract arrangements to grow Virginia tobacco. The research team visited the town of Claveria in Misamis Oriental to observe the farms from the outside and to talk to some farmers, but were limited in both efforts due to the tight security around the PMFTC plant. Our field observations confirmed the new large presence of tobacco growing – many farms were growing Virginia and there were many nurseries around Claveria growing Virginia seedlings. In addition to fairly ubiquitous advertisement posters for tobacco, there were also posters about Green Tobacco Sickness released by PMFTC. A notable component of PMFTC's strategy here is that, while they enlist contract farmers, the contract is for the fresh tobacco leaves. Some informants to whom we spoke suggested that because it is possible to grow tobacco leaves at any time due to the climate in the region, the idea is for PMFTC to get a continuous supply of fresh leaves, and not be confined to the traditional seasons in the North. The reported target reported in 2015 was to cover 1000 hectares, and to harvest a total of 40 hectares per week. Further, PMFTC will process the leaves to assure consistency in quality – drying and curing the leaves centrally using facilities that have been described as state-of-the-art such as conveyors and modern barns. Importantly, by taking this new role, PMFTC is essentially removing the value-added processing that contract farmers have traditionally undertaken. Farmers' contributions are limited to just their land and their labor for planting and harvesting. This is a new arrangement that requires further monitoring and study. The few contract farmers we talked to said they were satisfied thus far with their arrangement with PMFTC, and cited benefiting from credits/loans as well as educational scholarships for their children. It remains to be seen what the ultimate impacts of this new mode will be.

### BOX 1: Grading and Selling

The type of leaf and its intended market affect how farmers package their produce. Virginia, Burley and Cigar Filler are sold by weight in kilograms, while Native Batek is sold by the bale called a *paldo* or a *pardo*. A *paldo/pardo* is a bundle of 50 *mano*, or sticks of 100-120 leaves.

Leaf prices vary according to grade. The NTA mandates floor prices according to leaf grade (Grades AA, A, B, C, D, E, F1, F2 or R for Virginia and Burley; and High Grade, Medium 1, Medium 2, Low 1, Low 2 and Assorted for native leaves). Expectedly, these prices are more commonly observed in market situations where there are institutional buyers like integrators and contractors.

There is a different convention for Native Batek. Price is determined by the position of leaf (top versus lower leaves), leaf size/length, touch and smell/aroma. According to tobacco farmers in Mindanao, by leaf position, the top leaves or *udlot* get the top grades of *uno* or *dos*. Middle (*katug-an*) and lower (*sapod*) leaves fetch lower prices. Damaged leaves, the *tinaktakan* or *hinagpatan*, fetch the lowest price. Leaf size can be *managpa* (palm size), *maniko* (up to elbow pit), *manuksok* (sometimes also called *braso*; reaching the armpit), or *manablay* (also called *lukso*; can be hung on the shoulder). In Luzon, Native Batek leaves are graded according to size (small, medium, large or extra large). According to farmers and buyers in the *bagsakan* (market), most Native Batek tobacco, even those produced in Luzon, is sold in southern provinces like Bohol, Cebu, Negros, Zamboanga and Cotabato.





## RESULTS

### Socio-demographic Characteristics of Survey Respondents

The descriptive statistics presented in Table 2 begin to paint a picture of tobacco farming. First, there is more lowland than upland tobacco farming, and this is reflected in the sample, 79% versus 21%. In terms of gender, while the survey had more male respondents (78%), this likely had more to do with the fact that during the surveying, enumerators requested to speak with the person in charge of most of the agricultural-economic decision-making. In most households, respondents indicated that male heads of household were more likely to be that decision-maker, but that both men and women worked on the farms – typically, tobacco farming is very much a family affair in the Philippines. The NTA registry also lists farmer cultivators based on their ownership or control of the land. That is, only main owners or tenants are registered, even if the rest of the household members are tobacco farmers, too. Most farmers tended to be older than the general population with more than half of the farmers in the sample older than 50 years and an average age of 49.78 years. This is older than both the general population and even those involved in agriculture, which tend to be older than the broader population. Census-based projections in 2015 suggested that more than 51% of Filipinos are younger than 25 (age between 0 and 24 years), while a former Secretary of Agriculture cited an in-house survey noting a decline in the average age of farmers from 57 to 47 (Manila Times 2015). Farmers were also overwhelmingly likely to be married (94%). Most farmers reported cultivating tobacco continuously for multiple years (97.4%). The range of the number of years farming was wide – from two to 52 years – with an average of 18 years. Finally, the range of education was wide and more than half reported at least some post-secondary education (though very few had graduated). These levels of education are much higher than in Sub-Saharan African countries where similar research on tobacco farming has recently been conducted and revealed that the preponderance of farmers had only an elementary school education or less (Goma et al 2015; Magati et al 2016; Makoka et al 2016).

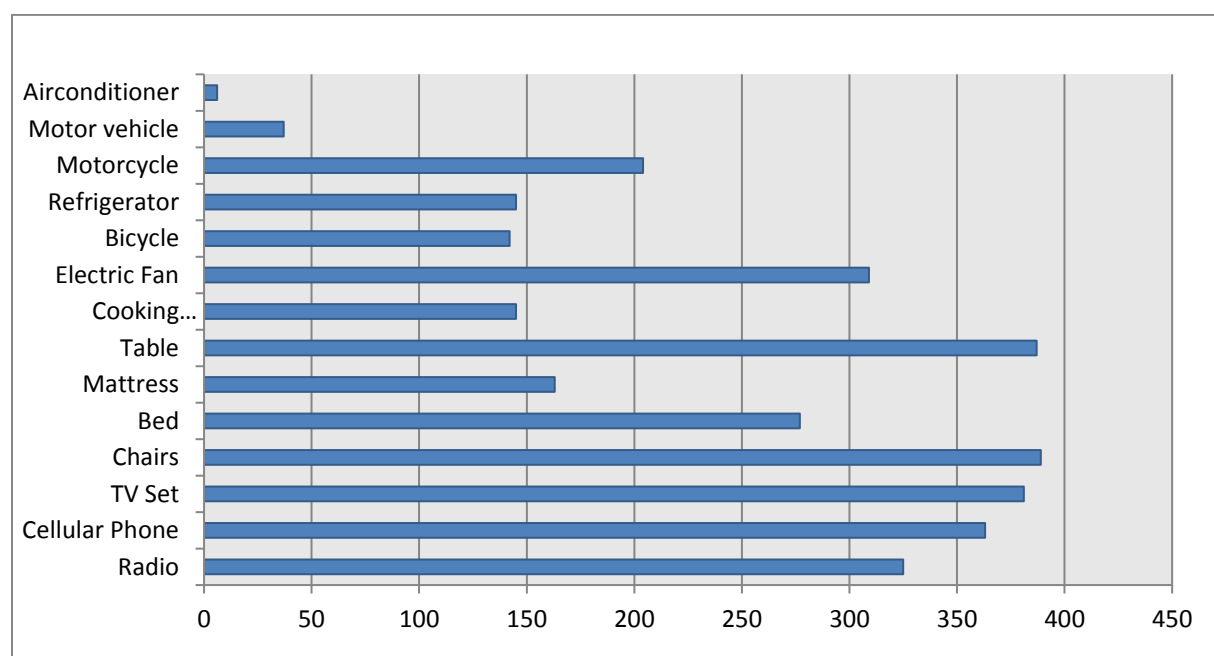
**Table 2 – Descriptive Statistics**

Characteristic	N=421	Percentage
Upland or Lowland		
<b>Upland</b>	88	20.9
<b>Lowland</b>	333	79.1
Gender		
<b>Male Respondents</b>	329	78.15
<b>Female Respondents</b>	92	21.85
Marital Status		
<b>Single</b>	16	3.8
<b>Married</b>	396	94.06
<b>Widowed</b>	9	2.14
Age (Years)		
<b>21-35</b>	48	11.4
<b>36-49</b>	162	38.48
<b>50&gt;</b>	211	50.12
Continuous versus Intermittent Farming		
<b>Continuous</b>	410	97.40%
<b>Intermittent</b>	11	2.60%
Education		
<b>College</b>	67	15.91
<b>2-Yr Associate Degree</b>	101	23.99
<b>Some College</b>	58	13.78
<b>High School</b>	130	30.88
<b>Some High School</b>	22	5.23
<b>Some Grade School</b>	23	5.46
<b>Technical Vocational</b>	20	4.75

## Tobacco Farming Household Assets, Sources of Income and Total Income Reported

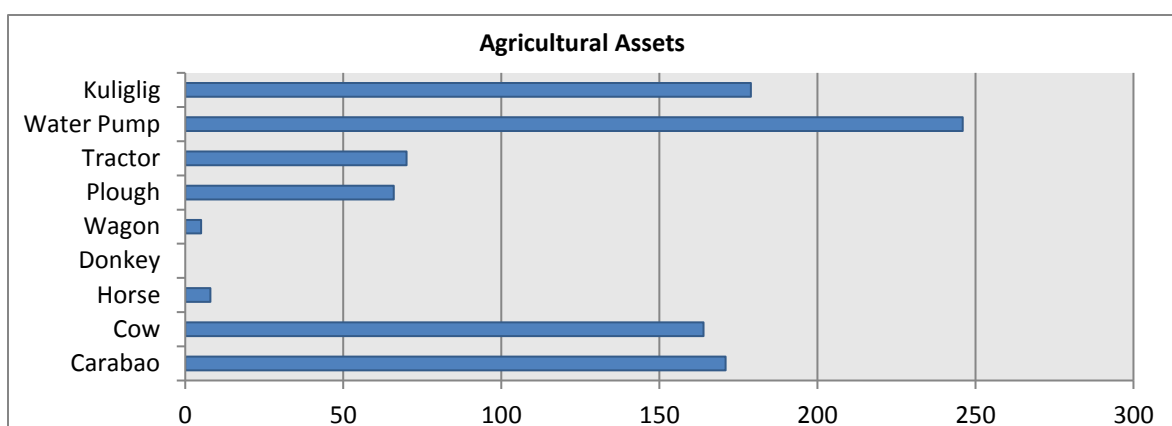
The survey enumerated household assets to evaluate this important aspect of quality of life for these households. As Figure 1 illustrates, basic furniture such as chairs, tables, and TV sets were present in almost all (92.4%, 91.92%, and 90.5%, respectively) of the respondents' homes. The majority of the households also owned electric fans (73.4%) and radios (77.2%). Meanwhile, very few of the surveyed households possessed an air conditioner (1.43%) and/or a motor vehicle (8.79%). Cellular phone penetration, however, was very high at 86.2% of the respondents, more than 20 percentage points higher than respondents with beds (65.8%).

**Figure 1 – Household Assets**



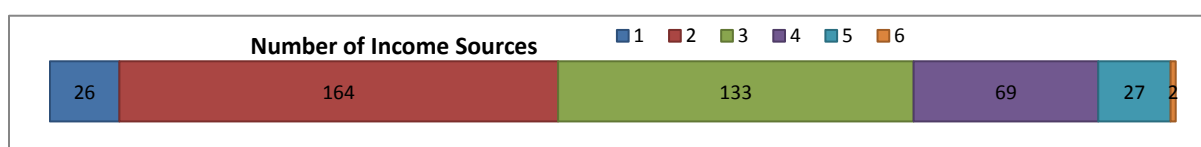
In terms of agricultural assets, Figure 2 below suggests some variation. All farmers possessed at least one of the main large farm animals: carabaos, cows, or horses. Water pumps and *kuliglig*, a popular type of hand tractor, are the most preferred equipment used by tobacco farmers in their work.

**Figure 2 Agricultural Assets**



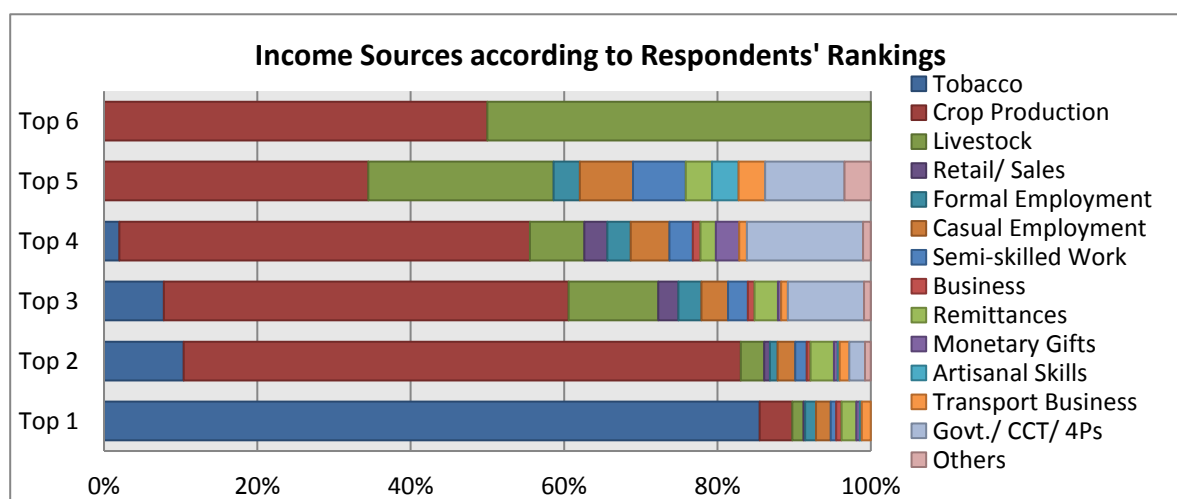
Tobacco farming households tend to be economically diverse. As Figure 3 illustrates, only six percent of surveyed households receive income solely from tobacco.

**Figure 3– Number of Sources of Income**



Tobacco was the top source of income for 85% of the surveyed households. As Figure 4 suggests, the second major income source of most tobacco-growing households was other (non-tobacco) crop production, which provided income to 90.9% of the surveyed households. Of those who did not identify tobacco as the top income source, half reported the top sources being other crop production, casual employment, or remittances.

**Figure 4 – Income Sources (N=421)**



As reported in Table 3, the mean size of the land cultivated for tobacco leaf was 0.9 hectare. While most farmers farmed one plot of land, 36% reported dividing their land into more than one parcel, often to devote space to other crops.

**Table 3 – Land Cultivation**

Total area of all land farmed	Obs.	Mean	Minimum	Maximum
	421	0.929 hectares	0.16 hectares	11 hectares

Number of parcels of all land farmed	Observation	Mean	Minimum	Maximum
	421	1.52 parcels	1 parcel	5 parcels
	No. of parcels	Freq.	Percent	
	1 parcel	270	64.13	
	2 parcels	94	22.33	
	3 parcels	49	11.64	
	4 parcels	5	1.19	
	5 parcels	3	0.71	
	Total	421	100	

Variable	Obs	Mean	Minimum	Maximum
<b>Size of Parcel 1</b>	419	0.62 has.	0.083 has.	3.5 has.
<b>Size of Parcel 2</b>	159	0.63 has.	0.01 has.	4 has.
<b>Size of Parcel 3</b>	58	0.61 has.	0.01 has.	9 has.

As Table 4 illustrates, the average annual income of surveyed households was Php158,408 – seventy percent (70%) of which comes from tobacco farming. The average total income from tobacco was Php103,060.

**Table 4 – Reported Income from Tobacco and All Sources**

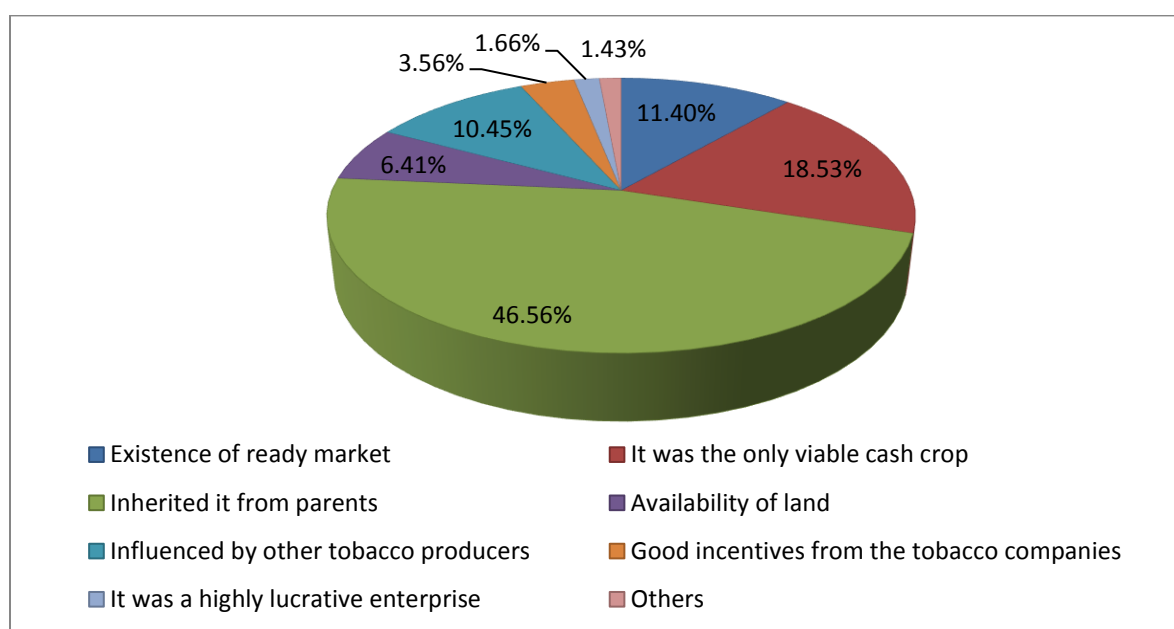
Income	Obs	Min	Max	Mean
<b>Total income from all sources</b>	421	Php5,475	Php933,360	Php158,408
<b>Total income from tobacco</b>	302	Php2,880	Php593,400	Php103,060



## Recruitment into Tobacco Farming and Membership in Farmer Cooperatives/Organizations

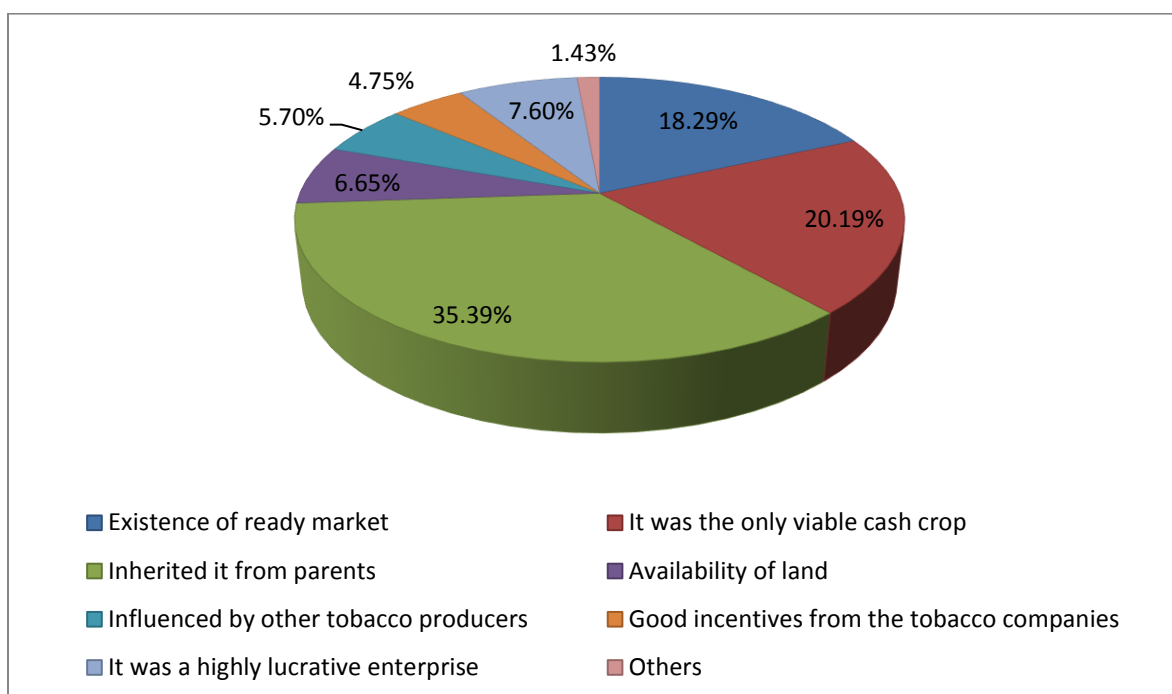
Farmers cultivate tobacco for various reasons. In Figure 5, we present the results to the question: why do farmers decide to start growing tobacco. The most common answer – nearly half of respondents – was that they learned it from their parents who also grew tobacco and they took over their parents' land. The second most common answer – nearly 19% - was the farmers' perception that it was the only viable crop for their land. The farmers' perception that tobacco had a ready market was another popular answer (~11%), as was the answer that tobacco producers influenced their decision (~10%).

**Figure 5 – Decision to Initiate Tobacco Growing**



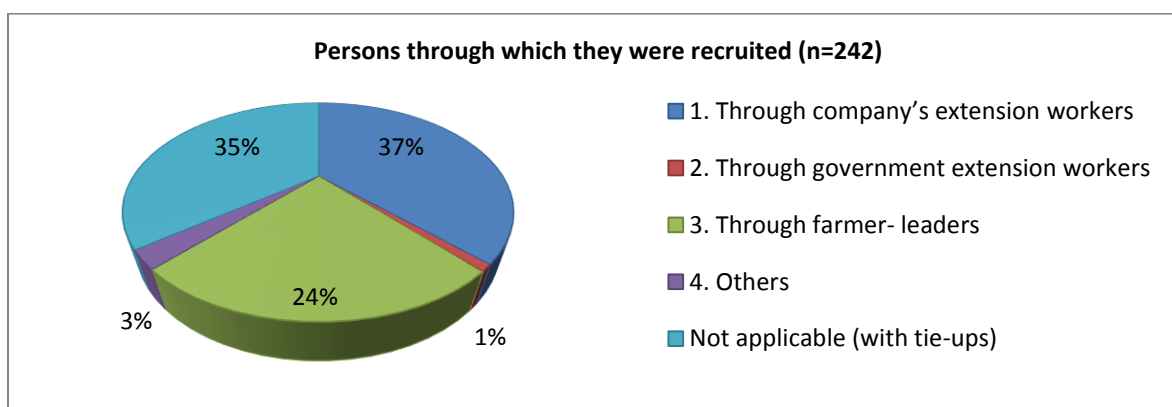
In Figure 6, we present the results from a second related question posed to the farmers about the reasons that they choose to continue to grow tobacco. In this case, more than a one-third of farmers still answered that they continue to grow because their parents did. However, more than 20% reported that they thought that it was the only viable cash crop. And ~18% pointed to the existence of a ready market for their tobacco.

**Figure 6 – Decision to Continue Growing Tobacco**



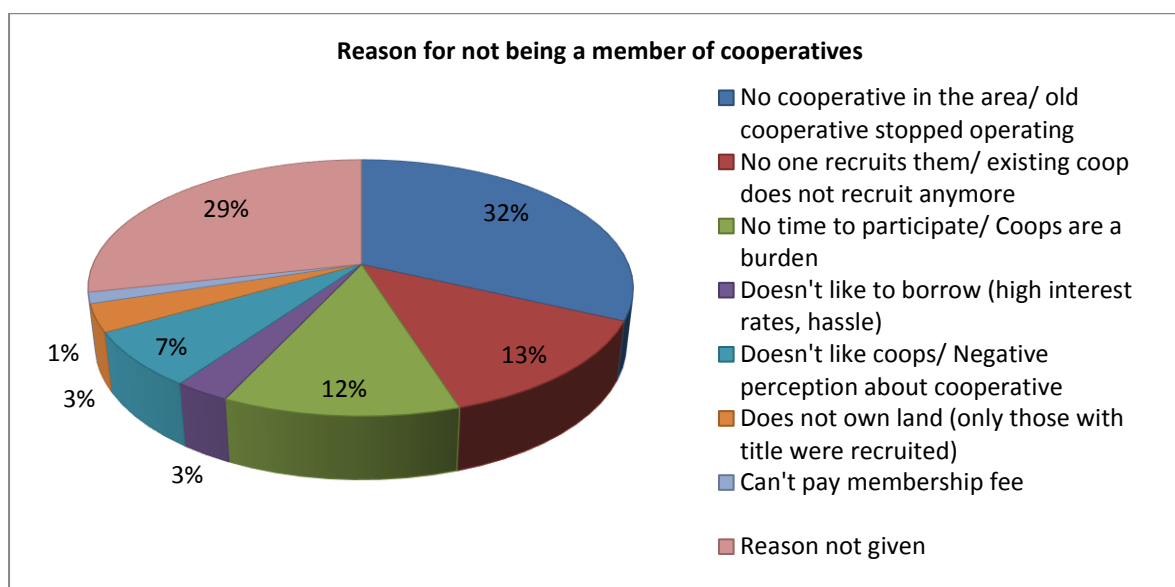
Survey respondents reported three principal ways in which they were recruited to tobacco farming, results that are presented in Figure 7. The modal explanation for recruitment was through tobacco companies' extension workers (37%). This explanation was followed closely at 35% by government agricultural extension workers. Finally, leaders of local farming organizations were also influential recruiters (24%).

**Figure 7 – Recruitment into Tobacco Farming**



Cooperatives and other types of farmer organizations are extremely common in tobacco farming in the Philippines. In the survey, two-thirds (66%) of respondents reported being members of a farmers' group/association or cooperative. In several provinces, however – including Ilocos Norte, Misamis Oriental, Iloilo, and Negros Oriental – these memberships were less common. In Figure 8, we present the major reasons why farmers have not joined a cooperative or other type of farming organization. The most common reason was the lack of available or operational cooperatives in the area. The ceasing of recruitment by the existing cooperatives was the next most common explanation. Notably, all farmers of native cigar filler indicated memberships in these types of organizations.

**Figure 8 – Why Farmers Choose Not to Join Farming Organizations**



## Contract vs. Independent Farming

A majority – 61.8% – of respondents reported being in a production and/or marketing contract with a tobacco firm. Of this 61.8%, more than half (58.9%) were contracted with the Universal Leaf Philippines Inc. (ULPI), 19.2% were contracted by Philip Morris Fortune Tobacco Corp. (PMFTC), 8.9% with Independent Leaf Tobacco Company (ILTC), and the remainder were contracted by smaller companies such as ConLeaf, Trans-Manila Inc. (TMI), and CDF Tabacalera.

In Table 5, we report some key figures about tobacco farmers' economic lives. First, contract farmers typically sold more tobacco (1638 kg on average) than independent farmers (763 kg), with the contract farmers dedicating more land on average to tobacco cultivation (0.71 ha) in comparison to their independent counterparts (0.57 ha). Contract farmers' yields are on average higher than independent farmers', which is likely a result of using more inputs, and/or possibly how they are using them.

**Table 5 – Tobacco Sales, Cultivated Land Size, Price and Income**

Type of Farmer	Average leaf Production (Kgs)	Tobacco Sale (Kgs)	Tobacco Land Size (Hectares)	Average Price (USD)	Reported Tobacco Income (USD)
Contract	2521.52	1638.13	0.71	1.48 (1.47)	2507.49
Independent	1674.14	762.84	0.57	5.93 (1.42)	1126.62
All	2292.02	1303.396	1.81	1.46	1327.51

At first glance, it appears that independent tobacco farmers earned significantly more in terms of the per/kg price, USD5.93 versus USD1.48 (because of the global market for tobacco leaf, tobacco prices are often in US dollars).<sup>2</sup> However, if we eliminate the major outliers (>1.5 interquartile range), the two groups earn similar prices, USD1.47 for contract farmers versus USD1.42 for independent farmers. Though not large, this revised price differential is statistically significant ( $p < 0.1$ ), which is consistent with other surveys. But it is important to note that there are 89 observations deleted as a result of eliminating the outliers. Specifically, with all the cases included, independent farmers have a much higher standard deviation (44.57 versus 0.36). Future research will need to examine why some independent farmers are getting much higher prices. One possible explanation from focus group participants suggests that some specialized tobacco that few farmers grow (particularly for cigars) can sometimes fetch higher prices. Finally, contract farmers' tobacco-specific average income was more than double that of the independent farmers: USD2507.48 compared to USD1126.62 ( $p < 0.01$ ).

<sup>2</sup> We used the average of the end-period exchange rates of 2013 (44.414) and 2014 (44.617), which is 44.515 Php=1 USD.

In Table 6, we present tobacco farmers' input costs. Contract farmers pay higher input costs per hectare, but notably, because contract farmers' per hectare yields for production are higher than independent farmers', their per/kg input costs are only slightly higher (USD0.50 versus USD0.45) and the difference is not statistically significant. This dynamic is logical because more and/or better fertilizer and chemicals (pesticides, herbicides) – which contracts farmers tend to use in great volumes than independent farmers – often increase yields. The levies paid differ between the two types of farmers, but notably, most respondents did not answer this question. We do not have confidence in this particular finding because in focus groups, it became clear that the payments and deductions are not entirely transparent and farmers find it very difficult to calculate these levies. Though transport costs were low for both groups, it is clear that contract farmers pay more for transporting their goods to market than their independent peers. Finally, independent farmers have slightly higher average interest costs, though we are somewhat skeptical about this finding, too; in this case, it is because in focus groups, contract farmers suspected that their interest was likely built into the contract in non-transparent ways and that they were likely paying more than they were being told or understood.

**Table 6 – Tobacco Farming Input Costs (in USD)**

Type of Farmer	Input Cost		Levy		Transport		Interest	
	Per hectare	Per Kg	Per hectare	Per Kg	Per hectare	Per Kg	Per hectare	Per Kg
Contract	1224.04	0.50	105.06	0.05	5.11	-	32.03	0.02
Independent	700.12	0.45	3.85	0.01	0.89	-	49.28	0.03
All	1024.45	0.49	46.29	0.05	3.50	-	38.60	0.02

Beyond the significant physical inputs of farming tobacco, recent research suggests that it is among the most labour-intensive crops to grow, if not *the most* intensive (Goma et al 2015; Magati et al 2016; Makoka et al 2016). In the Philippines, as Table 7 illustrates, it appears to follow a similar pattern. For contract farmers, the number of hours to produce one hectare on average was more than 2500 hours of labour, which works out to 1.12 hours per kg of tobacco produced. For independent farmers it was more than 3150 hours, which is 2.58 hours per kg of tobacco.



**Table 7 – Average Labour Hours for Tobacco Farming**

	Contract	Independent
<b>Per hectare</b>	2537.68	3157.97
<b>Per Kg</b>	1.12	2.58

Following recent research that has sought to assign meaningful value to household labour (e.g., Goma et al 2015; Kweyeh 1998; Magati et al 2016; Makoka et al 2016; Naher and Efroymson 2007), we assigned the average agricultural day labourer wage for 2013/2014 from the National Wages and Productivity Commission (NWPC) of the Department of Labor and Employment. The NWPC calculates values by region so we utilized the average<sup>3</sup> across the surveyed tobacco-growing areas in order to determine the total average labour costs in US dollars, which are presented below in Table 8.

**Table 8 – Average Labour Cost in USD**

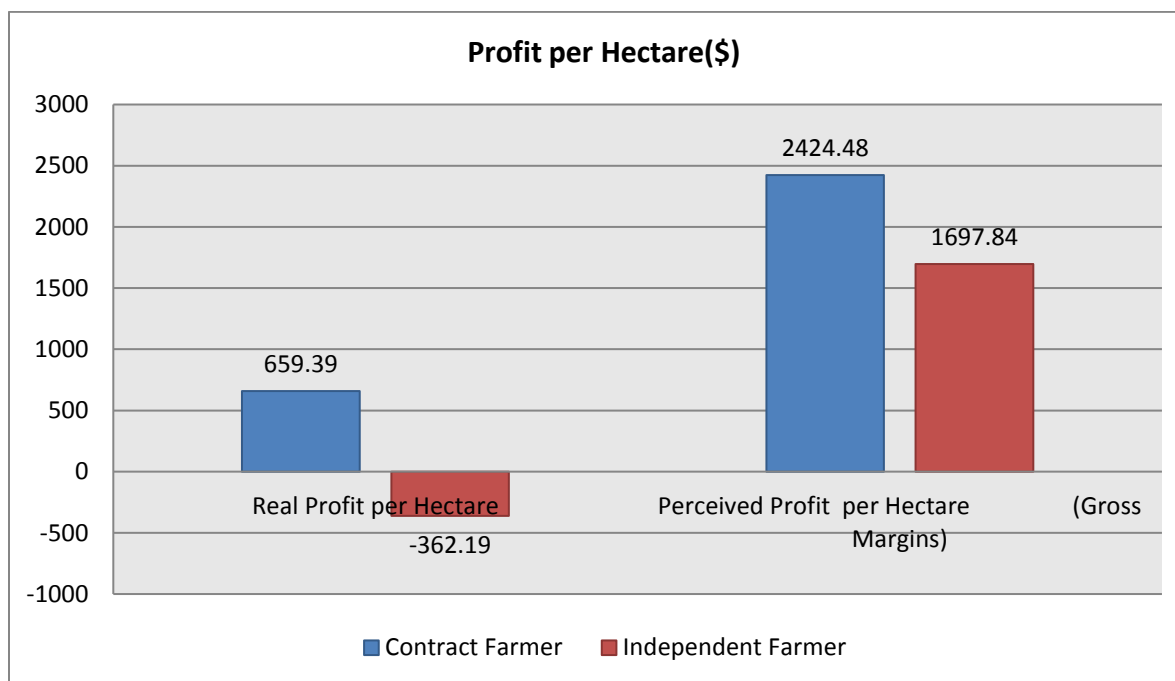
	Household Members		Hired Labour	
Type of Farmer	Per Hectare	Per Kg	Per Hectare	Per Kg
<b>Contract</b>	1728.99	0.76	335.12	0.14
<b>Independent</b>	2151.62	1.76	299.89	0.33
<b>All</b>	1889.99	1.04	321.70	0.20

Figure 9 presents one of the central findings of the research. On the right-hand side pair of columns are the “perceived profits” for both types of farmers. Perceived profits are more or less what most agricultural economists would term “gross margins”: essentially the gross revenues from tobacco sales minus the gross physical input costs. In most studies, these input costs typically include only the major inputs such as fertilizer, seeds and chemicals, but in this research, other inputs are included including levies, transportation costs, interest and paid non-household labour. The results suggest that contract farmers fare better at USD2424.48/ha compared to independent farmers at USD1697.84/ha, with the difference statistically significant ( $p < 0.01$ ). These profit findings are comparable to other recent studies (Briones 2014;

<sup>3</sup> For our computations, the daily minimum wage used is Php245, or the average for the agricultural rates for the relevant provinces/regions covered, in or around the 2013/2014 season: CAR, Php247; Region 1, Php213; Region 2 (average for Isabela/Php243 and Cagayan/Php240), Php241.5; Region 4B, Php215; Region 6, Php245; Region 7, Php277; Region 10, Php279

Espino et al 2013) and in fact reflect a slight increase in average per/ha income from the time period before the implementation of the Sin Tax reform.

**Figure 9 – Profits Per Hectare in USD**



Note: Both passed the t-test (significantly different at 95% level)

The shortcoming of gross margins is that they do not incorporate any value for household labor. As we know from above (Table 7) and other recent work on tobacco farming (e.g., Goma et al 2015; Makoka et al 2016b), tobacco farming is extremely labour-intensive. One recent study in Malawi found that tobacco farming was more than 10 times more labour intensive than growing soybeans (Makoka et al 2016b). If we take an extremely conservative value of labour – that of the average wage of an agricultural day labourer in the Philippines– the average profit of the contract farmer drops to less than USD700 per hectare and the independent farmer’s profits become negative (i.e., actual losses). We argue too that this value of labour is an underestimation because most tobacco farmers have a larger skill set and more education than the average day labourer and therefore would be more likely to find better-paying jobs if they were not tobacco farming. We also ran the analyses using the International Labour Organization’s minimum wage for the Philippines, which is higher than the day labourer rate, and the profits were negative for both contract and independent farmers using the alternative measure.

In Table 9, we compare the livelihoods of farmers in Luzon to their counterparts in more southern island groups. We find that Luzon's farmers on average are significantly better off than farmers in the south.

**Table 9 – Cross-Regional Profit Comparison (USD)**

Region	Per Hectare			Per Kilogram		
	Perceived Profit	Real Profit	# of Obs	Perceived Profit	Real Profit	# of Obs
<b>Luzon</b>	2312.76	455.68	335	0.8	0.09	336
<b>Mindanao/Visayas</b>	491.89	-1432.73	25	1.75	-1.11	2
<b>Combined</b>	2186.31	324.54	360	0.8	-0.25	338

In Table 10, we compare profit by leaf type. Most notably, Virginia and Burley contract farmers tended to fare the best. In contrast, when labour was included, the Native Batek and Cigar Filler farmers appeared to struggle the most.

**Table 10 – Profit Comparison by Leaf Type (USD)**

	Virginia		Burley		Native Batek	Native Cigar Filler
	Contract	Independent	Contract	Independent		
Perceived Profit per Hectare	2241.35	2301.63	2695.06	2513.12	404.49	2368.01
Real Profit per Hectare	724.33	480.63	624.13	551.12	-4862.03	-1336.58
Perceived Profit per Kg	0.81	0.7	0.91	0.75	0.38	0.9
Real Profit per Kg	0.11	-0.49	0.13	0.18	-9.4	-0.96
#of Observations	109	76	84	4	38 for per ha profits; 16 for per kg profits	49

There is some skepticism about incorporating a value for household tobacco labour (Keyser & Lungu 1997), but such skepticism assumes very low (or no) opportunity costs. The Philippines, however, is a fairly diversified economy, one that is even vibrant in some parts of the country, so the opportunities available to many tobacco farmers are real, often better-paying and more numerous than in many other poorer, heavy tobacco-growing economies, such as Malawi's. Therefore the opportunity costs of growing tobacco are likely to be much higher than we incorporate here. Note that in the FGDs, farmers clearly indicated that adult household members are paid, except for the household head, the farmer's spouse and young children. Unpaid adults took on most of the tasks and for longer hours, but young children were expected to help in a great variety of the tasks. Given the hesitation to discuss child labour (see below),

it is likely that their labour hours were understated. Finally, note that the survey design captures these distinctions such that the paid labour in the total input costs represents only the non-household paid labour.

We sought to understand better why a majority of farmers chose to enter into contracts while nearly four out of ten chose to remain independent. Accordingly, we examined farmers' decisions to contract farm through multivariate analysis. Working initially from the existing literature that examines agricultural technology adoption (e.g., Giné and Yang 2009; Simtowe et al 2010; Shiferaw, Kebede and You 2008) and tobacco contract farming more generally (e.g. Briones 2014; Little and Watts 1994; Makoka et al 2016), and the results from the focus group discussions with farmers, we identified a list of variables that likely condition this decision. We also used machine-learning techniques to make certain that we were not missing any additional variables from the dataset (the survey had many questions) and as an additional check of robustness. We present only the statistically significant coefficients from the regression; however, the full regression analysis and the results from the machine learning are available in the online appendix.

In Table 11, we present the significant coefficients from the regression analysis. First, we observe from the negative coefficient for land allocated to rice farming that the farmers that allocated more land to rice farming were more likely to remain independent farmers. It is difficult to explain this finding, but it is possible that these farmers were in a better position to remain independent perhaps because they had more economic flexibility as a result of greater food security. The coefficient for farmers' experience (years farming tobacco) was negative and significant, suggesting that more experienced farmers were also more likely to remain independent. The coefficient for marriage was positive, suggesting that married farmers were more likely to enter into contracts. Finally, the positive coefficient for input costs suggests that those paying higher input costs were more likely to contract farm. We have some concerns about the direction of causality with this variable because we know the contract farmers pay more in input costs. It is likely that there is some simultaneity in this instance, but resolving this statistical issue is beyond the purview of this research.

**Table 11 – Decision to Contract Farm**

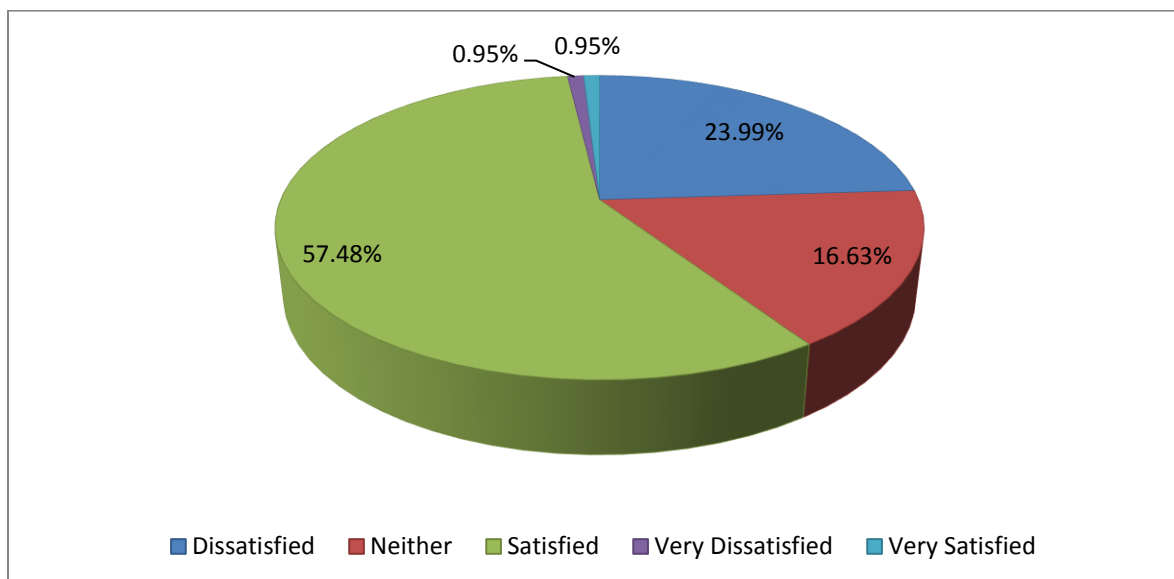
VARIABLES	Coefficient	Standard Error
Land Allocated to Rice Farming	-0.683*	0.349
Experience	-0.0355**	0.0147
Married (vs.Single)	1.702***	0.616
Input Costs	3.64e-05***	1.11E-05
Observations	338	

Note: Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

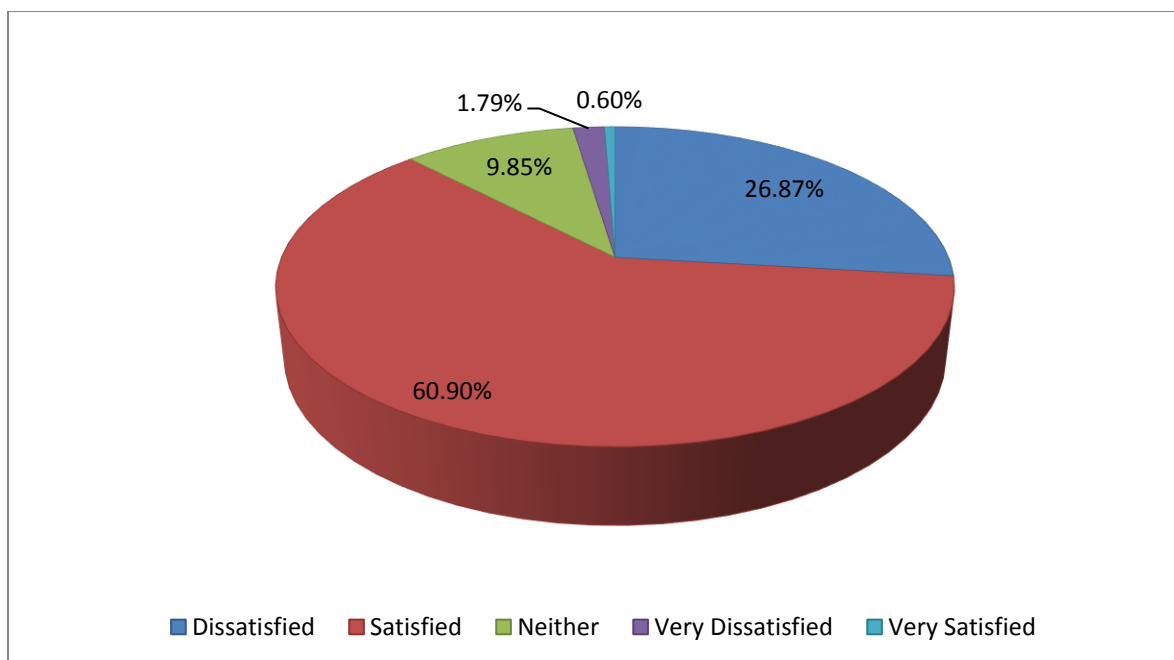
In Figures 10 and 11, we examine farmers' satisfaction with the grading process of their leaf and the ultimate payment. While more than half the survey respondents reported satisfaction with each part of the process, these topics also consistently generated some of the most passionate discussions in the FGDs. Many farmers reported that buyers treated them unfairly in terms of classifying, grading and pricing, and that they lost money as a result. One farmer, representing a common sentiment from the FGDs, opined:

“It’s the way they classify and price our product, Ma’am. That was really the issue. When they picked up our tobacco from us, they already sorted them into classes/grades, the [tobacco company] personnel does it. When the tobacco is turned over, those with the same classes can still be priced differently. It’s like this, say for the best classification, the bundles do not fit in one weighing box. To our surprise, the full box was priced lower than the excess bundles. According to them, the full box had lower quality than the excess. This malpractice forced us to leave the company.”

**Figure 10 – Satisfaction with Payment**



**Figure 11 – Satisfaction with Grading**



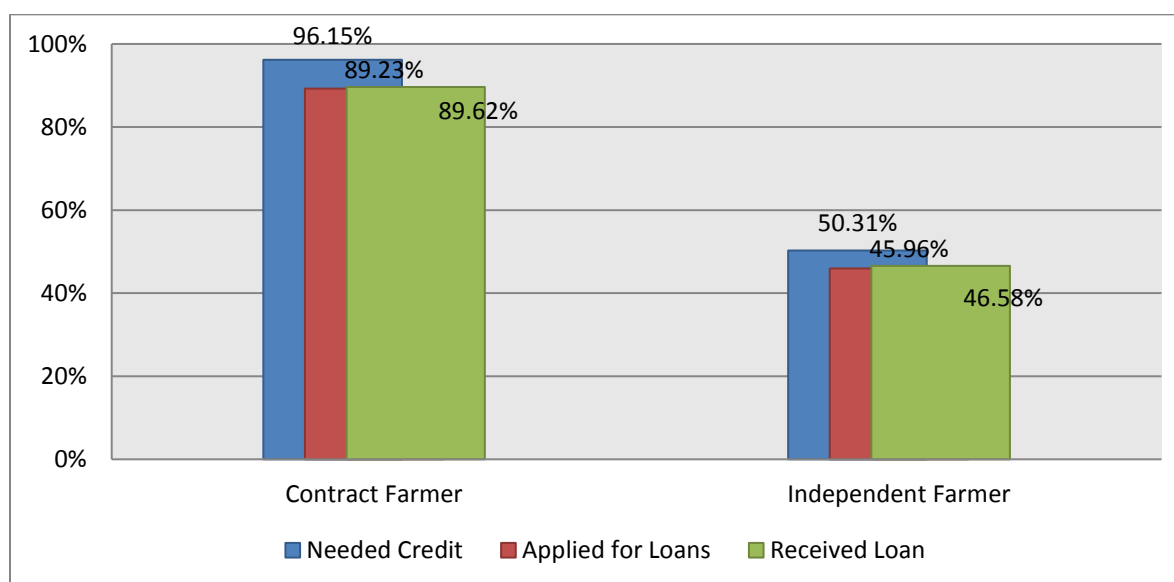


## Credit and Debit

Across all of our focus groups, farmers placed considerable importance on their access to credit. In fact, this topic tended to dominate the FGDs. In particular, contract farmers reflected on the fact that credit built into their contracts – and specifically the fungibility of cash credit – afforded them flexibility to use the cash for necessary household expenses, which consistently included schooling for their children. Said one FGD participant from Ilocos: “When the company releases cash, I prioritize school expenses. When [tobacco company] releases cash I buy school requirements instead of using it for tobacco. That’s why tobacco is such a big help. If there’s no cash release, I will get a loan from another entity. That’s just how it is.”

In Figure 12, we examine the dynamics of credit. In terms of farmers’ need for credit, nearly all contract farmers (96%) reported needing credit. Nearly 90 percent applied for loans and the same proportion received one or more of them. For independent farmers, the narrative is significantly different. Only about one half reported needing credit and about 45% of independent farmers reported applying for a loan with a similar proportion reporting receiving one.

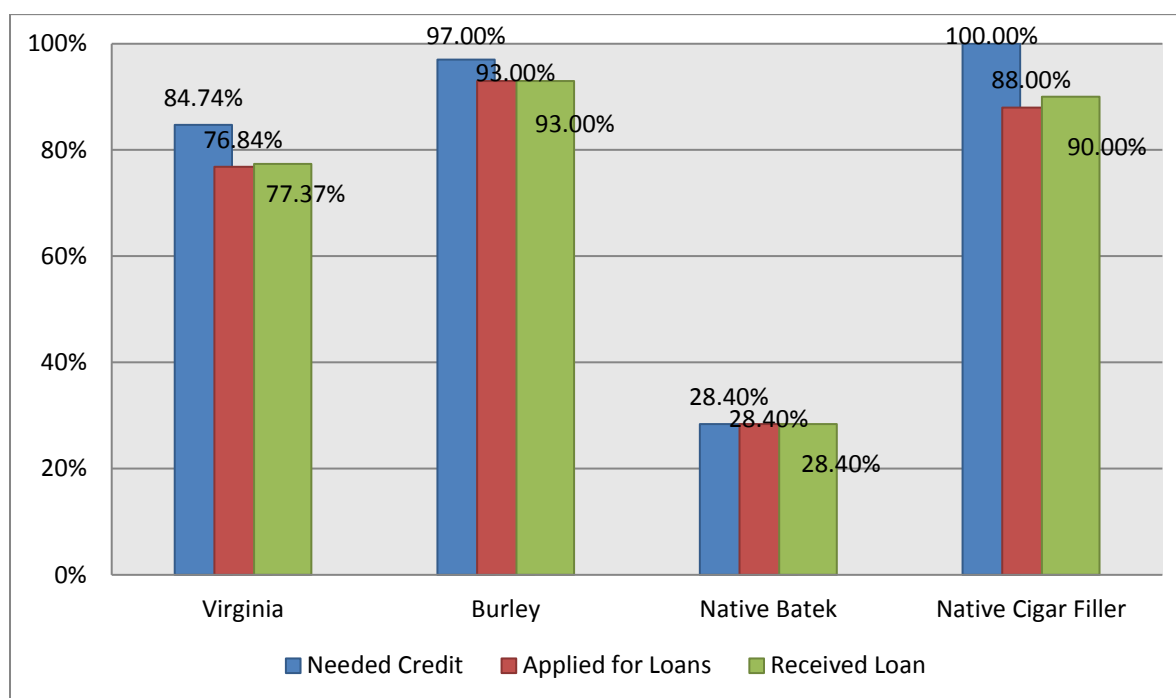
**Figure 12 – Dynamics of Credit – Contract vs. Independent Farmer**



Note: Among independent farmers, one individual noted receiving a loan without having applied for one. We cannot explain this anomaly.

In Figure 13, we examine credit dynamics by leaf type. Notably, very high proportions of all of Virginia, Burley and Native Cigar Filler farmers reported need for credit. Burley farmers were most likely to apply for loans and had the highest proportion of securing one. In contrast, only a minority (~28%) of Native Batek farmers reported needing credit or applying for it. This corresponds closely with the findings in the previous table because Native Batek farmers are all independent.

**Figure 13 – Credit Dynamics by Leaf Type**

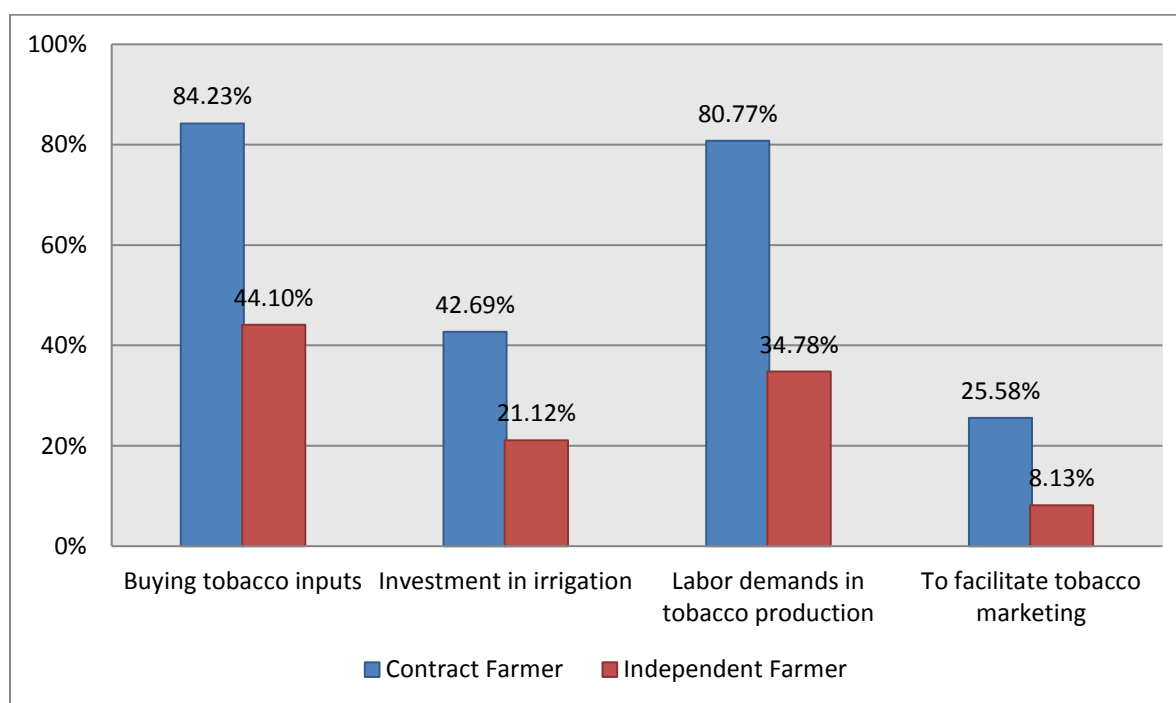


In Table 12, we present the average loan in US dollars and the reasons for taking out the loan. The most significant loan category in monetary terms was to buy physical inputs to grow the tobacco. Money to pay labor and/or to invest in irrigation was also significant in monetary terms. Contract farmers tended to take out higher loans than independent farmers ( $p < 0.05$ ).

**Table 12 – Average Loan in USD**

Activity	Contract Farmer	Independent Farmer	Combined
<b>Buying tobacco inputs</b>	462.15	370.93	440.42
<b>Investment in irrigation</b>	194.67	137.53	174.39
<b>Labor demands in tobacco production</b>	240.46	218.74	236.41
<b>To facilitate tobacco marketing</b>	77.87	-	77.87

In Figure 14, we present the reasons that farmers indicated for seeking credit. Of those farmers seeking credit, more than 80% of contract farmers indicated that they needed money to buy inputs or to pay outside labor. In contrast, less than half of independent farmers indicated they needed money to buy inputs and just over a third to pay outside labour.

**Figure 14 – Reasons to Seek Credit**


Note: In all categories, contract farmers' higher demands for credit were significant ( $p < 0.01$ ).

## Switching

In Table 13, we examine farmers' interest in switching to alternative crops through multivariate analysis. Working from the limited literature on this topic (e.g., Altman et al; Goma et al 2015; Kibwage et al 2009; Magati et al 2016; Makoka et al 2016; Leppan 2014; Espino et al 2008.) and results from the FGDs, we identified variables that likely affect farmers' decisions to switch. Because of the large number of questions in the survey, we also used a variety of machine-learning methods to make certain that we did not miss any significant variables and as an additional check of robustness of the findings. In the interest of space, we present only the coefficients that are statistically significant here, while the remaining calculations are available in our online appendix. The negative coefficient for upland farmers suggests that these farmers are less likely to switch, which is perhaps logical because they typically grow a type of tobacco that fetches a higher price. Notably, the coefficient for experience is positive, suggesting that more experienced farmers are more open to switching. The FGD results suggested strongly that most farmers feel that there has been a long, steady downward trend in prices and profits, so their perspective is a longer term one. The coefficient for hectares dedicated to tobacco farming is negative suggesting that the farmers cultivating more tobacco are less likely to switch. It is possible that these farmers enjoy higher returns because of the efficiencies gained from the comparatively larger scale. The vocational education coefficient is positive suggesting that those with this type of technical education are more open to switching. Again, this finding is logical since these farmers are more likely to have employment options beyond tobacco farming. The tobacco farming as the primary livelihood coefficient is positive suggesting that those farmers that make their primary living from tobacco farming are more likely to be open to switching. Finally, the dummy variable for farmers living in La Union or Pangasinan was positive and significant suggesting that these farmers are more open to switching. We do not have a strong explanation for this finding and it begs more research as to what might be different about this region. Despite the admitted openness of some farmers to switching to other crops, it is important to note that an overwhelming majority of the respondents (97%) had been planting tobacco continuously, from a minimum of two to as long as 52 years, suggesting that the crop is well entrenched.

**Table 13 – Likelihood of Willingness to Switch**

VARIABLES	Coefficient	Standard Error
<b>Upland</b>	-1.215***	0.373
<b>Experience</b>	0.0192*	0.011
<b>Hectares of Land assigned for Tobacco Farming</b>	-0.664*	0.396
<b>Vocational School</b>	0.963*	0.501
<b>Other Ilocos Region</b>	0.957***	0.346
<b>Tobacco Farming as Primary Livelihood</b>	0.675*	0.400
<b>Observations</b>	418	

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

## Child Labour

In Table 14, we examine the use of child labour in these tobacco-farming households. Farmers were asked to identify for which tobacco farming-related tasks they use children under 15 from their household. We also asked for the time of day that the children were working to evaluate whether it was during school hours. In general 46 households (~11% of the sample) indicated that they use children for some tobacco-related agricultural task. We expect that this is a gross under-estimation because farmers are aware that it is illegal to use child labour when they should be in school and because there is some social stigma attached to using children in this manner. In our estimation, an individual-level economic survey method is a poor way to evaluate this information. Instead, independent observation of a random selection of farms across regions would be a superior method to investigate this important topic, but was beyond the resources and scope of this investigation.

Table 14 – Child Labour in Tobacco Cultivation from Household

Tasks Related to Tobacco Cultivation	# total cases – help of children		# total cases – during school hours	
	Household	Hired	Household	Hired
Seedbed prep & seedling care	6	1	5	0
Land Prep	6	0	6	0
Furrowing	9	0	5	0
Basal fertilization	11	1	7	1
Pull, transport & transplant seedlings	15	1	14	1
Watering	9	0	5	0
Replanting	13	1	7	1
Side dressing	8	0	5	0
Cultivation and weeding	12	2	9	2
Irrigation	5	0	3	0
Spraying	5	0	2	0
Topping	3	0	3	0
Desuckering	1	0	1	0
Harvesting	19	0	11	0
Sticking and poling	21	0	10	0
Loading	10	0	7	0
Curing	10	0	7	0
Unloading	13	0	7	0
Sorting, grading and baling	11	0	7	0

## Food Security

The issue of food security and tobacco farming has received scholarly attention over the last couple of decades or more, with specific concern that tobacco farmers are more likely to be food insecure than other farmers because they grow a crop that is not edible (Benfica et al 2005; Eriksen et al 2015; Khisa 2011; Peters et al 1994). Of course, the realities are more complex than this simple interpretation. Accordingly, we examined this issue in the survey and FGDs. First, more than 85% of the respondents consumed rice as their staple food, with corn as the staple food for the remainder of the respondents. As Table 15 demonstrates, of the 333 farmers (79.33%) in the sample whose food is provided at least in part by growing their own crops, 210 respondents (63%) indicated a food supply that lasted 6 months or less. In general,



the duration of the respondents' supply demonstrates substantial range, with the longest period extending up to a full year.

**Table 15 – Staple Food Production by Month**

Food Self-Sufficiency	Observation	Mean	Minimum	Maximum
<b>Whether the household produces their own food (Yes = 1, No = 0)</b>	421	.793	0	1
<i>333 or 79.33% of total respondents said their households produce their own food.</i>				
Longevity of Food Supply	Observation	Mean	Minimum	Maximum
<b>Months that staple food production last for household</b>	333	6.8 months	1	12
	Month	Freq.	Percent	
	1 month	6	1.80	
	2 months	17	5.11	
	3 months	49	14.71	
	4 months	41	12.31	
	5 months	29	8.71	
	6 months	68	20.42	
	7 months	21	6.31	
	8 months	11	3.30	
	9 months	7	2.10	
	10 months	24	7.21	
	11 months	4	1.20	
	12 months	56	16.82	
	Total	333	100	

Table 16 below demonstrates how the remaining 88 farmers who do not produce their own food-crops acquire food. Most of these farmers, 75 of the 88 (85.2%), buy their food through income generated from tobacco farming and other facets of their economic livelihood.

**Table 16 – How Non-Food Growing Farmers Acquire Staple Food**

Manner of Getting Staple Food (if not producing own)	Frequency	% of Total
<b>Buy staple food</b>	75	17.81
<b>Get for free</b>	1	0.24
<b>Work for food</b>	12	2.85
<b>Grow all or some food</b>	333	79.1
<b>Total</b>	421	100

As discussed above, most of the respondents across each major island group produce their own food. As presented in Table 17, more than 80% of the respondents rated their levels of food security at ‘4’ or higher. Broadly, in terms of rating their and others’ levels of food security, their own livelihood is most trusted, with a mean of 3.91 (out of 4), compared to the level of security of fellow tobacco farmers (3.81) and with non-tobacco farmers (3.18). These relatively high levels of perceived food security suggest that the relationship between tobacco-growing and food security is a complex one. Clearly, some successful tobacco farmers are choosing not to grow food crops but are still able to adequately feed their households using the proceeds from tobacco growing.

**Table 17 – Perceived Level of Food Security**

	Luzon	Visayas	Mindanao
<b>Staple food of the family</b>	Rice (98.31%)	Corn (68.75%), Rice (31.25%)	Corn (92%), Rice (8%)
<b>% who produce their own food</b>	76.90%	75%	98%
<b>Level of food security of household (Average)</b>	3.9	3.6	3.98
<b>1 (Always lacks food)</b>	1.13%	0%	0%
<b>2 (Sometimes lacks food)</b>	6.20%	6.25%	0%
<b>3 (Sometimes sufficient/lacks food)</b>	12.11%	25%	6%
<b>4 (Usually has sufficient food)</b>	60.85%	68.75%	90%
<b>5 (Has sufficient food)</b>	19.72%	0%	4%
<b>Average number of income source</b>	2.6	3.8	3.6
<b>% of respondents who considered switching away from tobacco farming</b>	30.7%	50%	10%

In Table 18, we examine the determinants of food security in a multivariate analysis. We used the extant literature on tobacco farming and food security to identify a first round of relevant variables (Benfica et al 2005; Eriksen et al 2015; Khisa 2011; Peters et al 1994). We also used our discussion of food security in the FGDs to help inform the analysis. Finally, we used machine learning to complement these two methods and as a check of robustness. In the interest of space, we present only the statistically significant variables. The fully specified model with all variables is available in the online appendix. Not surprisingly, the coefficients for sufficient household income and household assets are positive, which suggests that such households are more likely to be food secure. Notably, the farmers growing the Native Batek varietal of tobacco leaf were more likely to be food secure, which is likely most attributable to

the food crops they are growing in the alternate season and/or which crops they grow simultaneous to tobacco. Finally, those farmers who think tobacco farmers are better off than non-tobacco farmers in terms of food security also happen to be more likely to be food secure, which is not a surprising finding since those who are food secure are likely to expect that their peers are also.

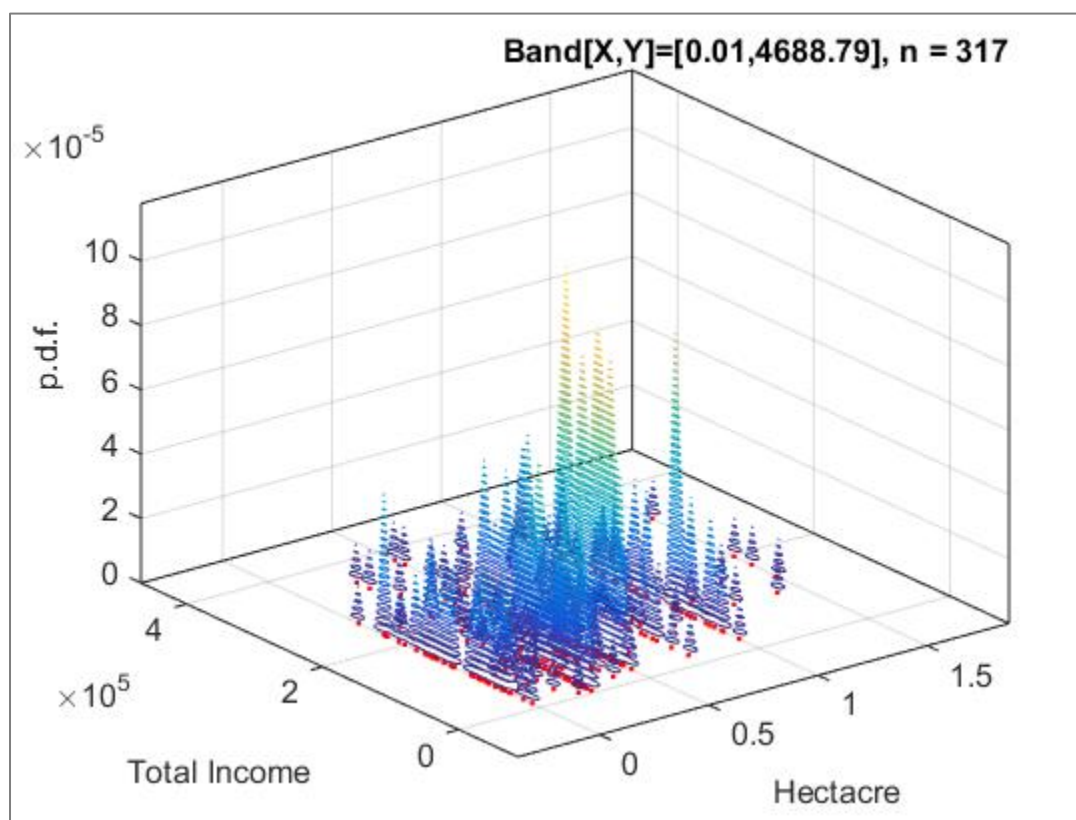
**Table 18 – Food Security**

VARIABLES	Coefficient	Standard Error
<b>Sufficient Income</b>	0.687***	0.177
<b>Thinking Tobacco Farmers are more food secure than Non-tobacco farmers</b>	1.573***	0.384
<b>Growing Native Batik</b>	1.348**	0.610
<b>Asset Accumulation</b>	0.269***	0.064
<b>Frequency of receiving tobacco farming related income</b>	-0.00470*	0.003
<b>Observations</b>	406	

Note: Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Finally, in Figure 15 we examined how farmers choose to allocate land for growing food versus tobacco. In Sub-Saharan Africa, it is typical for farmers no matter their plot size to grow roughly the same amount of their staple food, maize. Scholars posit that it is a “hedge” of sorts wherein the farmers expect to use the cash proceeds of tobacco sales to buy food for their households but grow some maize as insurance (Goma et al 2015; Magati et al 2016). But these results demonstrate no discernible pattern of land allocation and we speculate it is because there are typically two growing seasons in most of the tobacco-growing regions of the Philippines (even three in parts of the southern Philippines) and as a result, farmers can grow their staple crop in the wet season and have more flexibility in the drier season to grow tobacco and/or other food crops. Tobacco farmers, as already noted, are rarely, if ever, single-crop farmers.

**Figure 15 – Total Income Against Hectares of Food Crop Grown**



## Conditional Cash Transfer

Perhaps one of the more telling findings of the survey was the fact that nearly 20% of respondents were recipients of Pantawid Pamilyang Pilipino Program (4Ps), the Philippines cash transfer program, which is designed to deliver social assistance and alleviate extreme poverty. Under the program, every month an enrolled family is given 500 pesos, and 300-500<sup>4</sup> pesos each for up to three school-age children, provided that the family complies with health and education conditions.

In an effort to understand farmers who were recipients, we examined this question with a multivariate regression analysis. The results are presented in Table 19. First, the coefficient for household size is positive suggesting that larger households are

<sup>4</sup> 300 pesos per month for ten months in a year for children in elementary school; 500 pesos per month for ten months in a year for children in high school; the ten months constitute the schoolyear

more likely to be part of 4Ps. This follows studies that suggest that poverty tends to be higher the larger the household size (Orbeta 2005; Virola and Martinez Jr. 2007). The coefficient for cooperative membership is negative, suggesting that cooperative members are less likely to be 4Ps recipients. This finding is logical because in the focus group discussions, farmers frequently identified farming cooperatives as a type of social safety net. The coefficient for the size of the farmers' land is positive. This finding is less easy to interpret and our focus group discussions did not shed light on this. The coefficient for tobacco as a primary livelihood is positive suggesting that these households were more likely to be part of 4Ps. The dummy variable for living in La Union or Pangasinan is positive and significant again – we do not have a clear explanation for this finding.

**Table 19 – Determinants of Tobacco Farmers Receiving Conditional Cash Transfer Benefits (4Ps)**

VARIABLES	Coef.	Std.Err
Household Size	0.391***	0.084
Member of Cooperative	-0.925***	0.318
Size of Land	0.566*	0.330
Tobacco Farming as Primary Livelihood	1.480**	0.620
Frequency of receiving tobacco farming related income	0.00853***	0.003
Other Ilocos Region	0.754*	0.452
Observations	418	

Note: Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 20 presents poverty indicators for the major tobacco-growing regions drawn from Philippines Statistical Authority data. Four of the seven regions have higher poverty incidence among families than the national level, while five of the seven regions have higher headcount poverty. Based on reported income from all sources, average income is Php158408 (USD3558) for the covered areas, or 14 times as much as the national per capita poverty threshold of Php10969 (USD246). At this average income, respondents with family size of up to 14 would not be considered poor. However, survey data also show wide disparity, with the minimum income at Php5475 (USD123) or barely half of the national threshold (see also Table 4). Note

that this research is not designed to specifically measure poverty among tobacco farming households, and thereby cannot give a definitive assessment of this dynamic. Still, solely based on the preponderance of 4Ps beneficiaries, and despite the higher proportion of those with supposedly secure contracts, it can be said that 20% of tobacco farming families are considered among the poorest of the poor in the country.

**Table 20 – Poverty Indicators for Tobacco-Growing Regions – First Semester 2015**

Region / Province	Per Capita Poverty Threshold (in Pesos)	Poverty Incidence among Families (%)	Poverty Incidence among Population (%)
<b>PHILIPPINES</b>	<b>10,969</b>	<b>21.1</b>	<b>26.3</b>
<b>CAR</b>	<b>11,017</b>	<b>20.6</b>	<b>26.7</b>
<b>Abra</b>	10,703	32.6	42.7
<b>Region I</b>	<b>10,564</b>	<b>17.2</b>	<b>21.7</b>
<b>Ilocos Norte<sup>a/</sup></b>	10,806	12.3	15.0
<b>Ilocos Sur</b>	11,419	13.8	16.4
<b>La Union<sup>a/</sup></b>	10,907	19.0	22.8
<b>Pangasinan</b>	10,285	18.5	24.1
<b>Region II</b>	<b>11,116</b>	<b>16.5</b>	<b>21.5</b>
<b>Cagayan</b>	10,673	18.0	21.8
<b>Isabela</b>	11,485	15.3	20.4
<b>Region IV-B</b>	<b>10,097</b>	<b>22.0</b>	<b>29.8</b>
<b>Occidental Mindoro<sup>a/</sup></b>	10,143	32.4	44.2
<b>Region VI</b>	<b>10,738</b>	<b>24.2</b>	<b>30.5</b>
<b>Iloilo</b>	11,111	21.0	26.6
<b>Region VII</b>	<b>10,910</b>	<b>27.0</b>	<b>30.5</b>
<b>Negros Oriental</b>	11,246	41.9	46.6
<b>Region X</b>	<b>11,257</b>	<b>34.9</b>	<b>40.9</b>
<b>Misamis Oriental<sup>a/</sup></b>	11,119	18.9	24.1

**Source:** Philippine Statistic Authority

**Notes:**

a/ Caution in utilizing the estimate for these provinces must be observed due to its very small sample size.

b/ Coefficient of variation of 2015 first semester provincial poverty incidence among families is greater than 20%.



## Knowledge About the Sin Tax Law

During the debate about the Sin Tax law and subsequent to it, the tobacco industry has warned that the law would have dire consequences for tobacco farmers. Tobacco farmers – reportedly brought to Manila by large tobacco firms – even protested outside of the Congress of the Philippines during the legislative deliberations. Accordingly, in the survey, we asked about respondents' knowledge of the Sin Tax Law, using a single open-ended question: What do you know about the Sin Tax law? Results show that there was remarkably little knowledge of the law among the respondents, with 85% of farmers reporting that they had never heard of the Sin Tax. An additional 10% gave a general response of it being a tax on alcohol and/or cigarettes, while the rest provided an eclectic mix of responses: used to increase the price of cigarettes; related to smoking; tax imposed on tobacco farmers; used to reduce the price of tobacco; used to generate funds for farmers; and the goal is to ban tobacco/smoking. In the FGDs, most farmers were confused at us raising the issue because they felt that the tax would not affect prices, as they did not think that it would affect demand for their leaves in the broader market (and had not observed any change). Considering the independent finding in this report that average tobacco incomes did not decrease after the tax's implementation, the farmers' analysis is pretty accurate. Finally, perhaps expectedly, the farmers also did not know any of the specific provisions of the law, including the share in incremental revenues that are supposed to be allocated to tobacco growing areas.



## CONCLUSION

These survey and FGD results demonstrate that cultivating tobacco leaf in the Philippines does not typically generate high economic returns for smallholder farmers. While this research suggests that the gross margins in 2013-14 are fairly consistent compared to recent years – and actually even a little bit more than the years immediately before the tobacco “sin” tax reform in 2013 – when we incorporate even a very conservative estimate of the value of unpaid household labour into the equation, it is clear that tobacco farming is simply not a lucrative endeavor for most farmers. A farmer from La Union summed it up better than any survey:

“In tobacco farming, it’s not like you will prosper, no. You just earn for your everyday needs, you don’t earn so much and become a millionaire. What we earn is just for everyday sustenance. If there is something left, it’s not enough. That’s why the life of a farmer is difficult because when we start to plant tobacco we need to get a loan. The company will support us.”

Further, there were tangible and important differences across region and leaf type, and between contract and non-contract farmers. In other words, some farmers were making a reasonably good living from cultivating tobacco while others very much struggled. But at the most, smallholder tobacco farming pays for the cost of the labour deployed, with some limited real profits to count. However, this is generally true only for Luzon, but not for Visayas/Mindanao and native Batek farmers.

These findings have enormous implications for thinking about how to move farmers to alternative crops as per the Philippines’ commitment to its own tobacco control legislation, RA 9211, and Article 17 of the WHO FCTC. On one hand, poor farmers should be easy to convince, but on the other, some of the variables affecting their ability to farm tobacco effectively might also condition their ability to embark on other economic activities successfully. In terms of more successful tobacco farmers, it might be difficult to convince these individuals to take risks and try another crop or a different vocation altogether. However, these more successful farmers might also be the ones best prepared to try a new endeavor.

While the findings suggest that tobacco farmers do not appear in general to be more vulnerable to poverty than the general population, there is irrefutable evidence that a significant proportion of tobacco farmers would qualify as being in the lowest income quintile in the country. In the Philippines as in many developing countries, “poverty has always been agricultural” (Reyes et al 2012). While tobacco is not among the crops with the highest poverty rates, a negligible percentage of tobacco farmers ever plant only tobacco. The major off-season crops of choice for them are rice and corn – in other words, the crops where the biggest numbers of poor farmers are (Reyes et al 2012). This provides little incentive to shifting to these crops, while, as already mentioned, shifting to higher value-added crops might be out of farmers’ reach given their existing capacities. The disparity, evidenced by the wide range of incomes reported, within the tobacco farming population is also a key concern to be considered in the design of specific interventions. Clearly, efforts to move farmers to viable alternative livelihoods face a complex set of challenges.

Despite the apparent lack of significant financial return from tobacco farming, there remains a strong attraction to tobacco farming for many farmers. The assured market – even if prices are in long-term decline – and the easier access to credit are among the largest factors determining this decision to continue cultivating tobacco leaf. Even with what appears to be chronic indebtedness for farmers, the ability to generate cash on a relatively consistent (though not necessarily frequent) basis through tobacco farming serves as a lifeline for everyday sustenance and higher-level needs such as education and health. Tradition continues to be a non-trivial explanation, too: a family legacy of farming is clearly important to many, as is simply the number of years that these farmers have been cultivating tobacco leaf. Further, they understand the broader value chain and where they fit into it. Farmers know how to cultivate tobacco leaves so they continue to do so even when the economic incentives appear to be limited.

The complexities of the economic conditions of tobacco farmers present considerable but not insurmountable challenges to shifting tobacco farmers to other crops or livelihoods. It will, however, require dedicated investments and intervention to create the market conditions necessary to shift them to and then keep them in the new crops/vocation. Observing PMFTC’s recent investments in Virginia tobacco farming in Mindanao – while frustrating because it increases tobacco production on the island – actually somewhat ironically offers considerable hope that with the correct



incentives, farmers can be shifted from one crop to another. The concerted effort on the part of the government, farmers' organizations and civil society going forward must be to effectively incentivize farmers to grow crops other than tobacco – most importantly, crops that lead to viable economic and healthier livelihoods.



All photos provided by Jenina Joy Chavez

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## 2014 Report

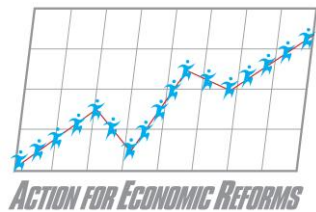
Governments continue to confront complexities at the intersection of public health and economic policymaking as they seek to develop and improve tobacco control policies. This report seeks to evaluate these dynamics, including risks, opportunities, and threats, utilizing recent developments at this major policy intersection in the Philippines. The themes that emerge in the Philippine case resonate with experiences in many other countries, making it an ideal case study. The report begins with an examination of the potential implications of emerging international trade and investment

agreements. We then investigate the political economy of foreign direct investment and its impacts on tobacco control in the Philippines.

Next, through the lens of the intersection of tobacco control and trade/investment policies, we evaluate the challenges of intra-governmental cooperation and coordination. Finally, we focus on a major related development, the country's recent restructuring of tobacco excise taxation, which many believe is developing into a Philippine public health success story. We investigate these key lines of inquiry through a thorough survey of official documents, existing literature, and interviews with 37 key informants from every relevant sector. Each line of inquiry provides discrete lessons for those working at the intersection of tobacco control and economic policy, while highlighting key overlapping institutional features that affect the work of tobacco control proponents. The thread that links these discrete features is the persistent challenge facing different actors to navigate divergent policy objectives across sectors.

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