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# Agriculture, Diversification, and Gender in Rural Africa

Longitudinal Perspectives from Six Countries

EDITED BY

Agnes Andersson Djurfeldt,  
Fred Mawunyo Dzanku,  
and Aida Cuthbert Isinika





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# Contents

<i>List of Figures</i>	ix
<i>List of Tables</i>	xi
<i>List of Abbreviations</i>	xv
<i>List of Contributors</i>	xvii
1. Perspectives on Agriculture, Diversification, and Gender in Rural Africa: Theoretical and Methodological Issues <i>Agnes Andersson Djurfeldt, Fred Mawunyo Dzanku, and Aida Cuthbert Isinika</i>	1
2. African Smallholder Farmers on the Move: Farm and Non-Farm Trends for Six Sub-Saharan African Countries, 2002–15 <i>Magnus Jirström, Maria Francisca Archila Bustos, and Sarah Aloba Loison</i>	17
3. Assets, Gender, and Rural Livelihoods <i>Agnes Andersson Djurfeldt</i>	54
4. Gender and Rural Livelihoods: Agricultural Commercialization and Farm/Non-Farm Diversification <i>Agnes Andersson Djurfeldt</i>	81
5. Agrarian Change and Structural Transformation: Drivers and Distributional Outcomes <i>Agnes Andersson Djurfeldt, Göran Djurfeldt, Ola Hall, and Maria Francisca Archila Bustos</i>	113
6. Agricultural Intensification Response to Agricultural Input Subsidies in Tanzania: A Spatial-Temporal and Gender Perspective, 2002–15 <i>Elibariki E. Msuya, Aida Cuthbert Isinika, and Fred Mawunyo Dzanku</i>	137
7. Intensification, Crop Diversification, and Gender Relations in Malawi <i>Peter Mvula and Wapulumuka Mulwafu</i>	158



## Contents

---

8. Policies or Prices? A Gendered Analysis of Drivers of Maize Production in Malawi and Zambia, 2002–13	176
<i>Martin Prowse and Ellen Hillbom</i>	
9. Spatial and Gendered Linkages Between Non-Farm Diversification and Farm Productivity in Ghana	196
<i>Fred Mawunyo Dzanku and Daniel B. Sarpong</i>	
10. Technology Use, Gender, and Impact of Non-Farm Income on Agricultural Investment: An Empirical Analysis of Maize Production in Two Regions of Kenya	216
<i>Stephen K. Wambugu, Joseph T. Karugia, and Willis Oluoch-Kosura</i>	
11. Agriculture, Diversification, and Gender in Rural Africa: What Lessons Can We Learn?	233
<i>Agnes Andersson Djurfeldt, Fred Mawunyo Dzanku, and Aida Cuthbert Isinika</i>	
<i>References</i>	241
<i>Index</i>	261

# List of Figures

1.1	Village study sites	10
3.1	Capitals and assets	56
3.2a	Number of male and female farm managers by region, Ghana, Afrint III	61
3.2b	Number of male and female farm managers by region, Kenya, Afrint III	61
3.2c	Number of male and female farm managers by region, Malawi, Afrint III	61
3.2d	Number of male and female farm managers by region, Tanzania, Afrint III	62
3.2e	Number of male and female farm managers by region, Zambia, Afrint III	62
3.2f	Number of male and female farm managers by region, Mozambique, Afrint III	62
3.3	Male adult members as share of total household members of working age (16–60), by region and sex of head of household, Afrint III	67
3.4	Regions with significant differences in gendered use of agricultural techniques.	73
3.5	Tropical livestock units by sex of farm manager in regions where there were statistically significant differences between MMFs and FMFs, Afrint III	75
4.1	Share of cash income raised by male members in male-headed households, by income source and country, 2013	107
6.1	Welfare and agricultural intensification	143
8.1	Trends in maize production (million tons) and yields (metric tons per hectare) in Malawi and Zambia, 2000–14	178
8.2	National white maize producer prices in USD/ton in Malawi and Zambia, 2002–14	183
9.1	Ghana's overall and agricultural GDP growth, 2000–15	198
9.2	Non-farm diversification and farm labour productivity, by region	206
10.1	A simplified conceptual model	221



# List of Tables

1.1	Data collection regions and type, Afrint III	9
1.2	Number of cases in cross-section and panels, and attrition Afrint I to III	11
2.1	Land under cultivation, ha (mean and median)	20
2.2	Landholding size per capita	21
2.3	Land under cultivation (total and per crop) and share of households cultivating by type of crop	24
2.4	Maize production (t/farm) and cultivated area (ha)	26
2.5	Maize yields	28
2.6	Rice production (t/farm) and cultivated area (ha)	32
2.7	Rice yields (ton/ha)	36
2.8	Seed and fertilizer use (share of famers using)	40
2.9	Share of farmers selling and amount marketed by type of crop	42
2.10	Non-farm income shares	46
2.11	Production, commercialization, and diversification by sex of farm manager	48
2.12	Production, commercialization, and diversification by income group	50
3.1	Mean and median size of cultivated area (ha) by region and sex of farm manager	63
3.2	Mean and median number of working-age adults by household, by sex of head of household	68
4.1	Commercialization in maize, by country and sex of farm manager	88
4.2	Mean price of maize per 100 kg received, Afrint II and III (2010, PPP-adjusted USD), by sex of farm manager	89
4.3	Market participation for other food crops by sex of farm manager (share of growers participating in particular markets)	91
4.4	Share of households producing cash crops, by country and sex of farm manager	95
4.5	Cash income per adult equivalent (mean and median), by country and sex of farm manager for Afrint II and Afrint III, in 2010 PPP-adjusted USD for households that earned cash income	99



## List of Tables

---

4.6	Cash incomes per adult equivalent by sex of farm manager and income source, Afrint II and Afrint III, in 2010 PPP-adjusted USD for households who earned cash income	100
4.7	Commercialization in maize by country, sex of farm manager, and housing standard, Afrint III, for households who produced maize	106
4.8	Income per adult equivalent by sex of farm manager and region, Afrint III, in 2010 PPP-adjusted USD	109
5.1	Rates of intensification and crop and non-farm diversification by panel period	119
5.2	Descriptive statistics	121
5.3	Models of three processes of agrarian structural transformation	122
6.1	Mean difference in maize yields and agricultural technology adoption by region	142
6.2	Mean difference in yields and agricultural technology adoption over time	145
6.3	Mean difference in technology adoption and yields by sex of farm manager	148
6.4	Agricultural technology adoption and yields by wealth quartiles	149
6.5	Association between maize and rice intensification and livelihood outcomes	151
6.6	Fixed-effect estimates of the determinants of maize yields with improved seed and fertilizer adoption effect	154
6.7	Fixed-effect estimates of the determinants of rice yields in Morogoro with improved seed and fertilizer adoption effect	156
7.1	Mean area under maize cultivation (ha) and maize yield (kg/ha) by sex of farm manager	167
7.2	Share of households that grew a certain number of crops by sex of farm manager, Afrint I to Afrint III	169
7.3	Number of major crops grown by sex of farm manager	170
7.4	Share of households that produced other food crops, by sex of farm manager, Afrint I, II, and III	171
7.5	Proportion of households growing non-food cash crops by sex of farm manager	171
8.1	Maize area, production, and yield for all households with male and female farm managers in Malawi and Zambia, Afrint I–III	186
8.2	To what extent do the trends in maize cultivation differ between households with male and female farm managers?	187
8.3	Descriptive statistics for Malawian production function	188
8.4	Coefficients for Malawian production function	189
8.5	Descriptive statistics for Zambian production function	190

---

8.6	Coefficients for Zambian production function	191
9.1	Farm labour productivity and non-farm income across genders and region over time	204
9.2	Descriptive statistics of variables used in the regression analyses	207
9.3	Effect of non-farm income on farm labour productivity, Afrint II and III balanced panel	210
9.4	Effect of gendered intra-household non-farm earnings on farm labour productivity	211
10.1	Maize yields (kg/ha) by gender and region	222
10.2	Technology adoption for maize by survey round and gender (%)	224
10.3	Percentage of farmers using both fertilizers and high-yielding maize varieties	225
10.4	Probability of investing in fertilizer and the intensity of use in maize (aggregated non-farm income)	229
10.5	Probability of investing and the intensity of fertilizer use in maize (disaggregated non-farm income)	229



# List of Abbreviations

ADMARC	Agricultural Development and Marketing Corporation
APIP	Agricultural Productivity Investment Programme
ASWAp	Agricultural Sector-Wide Approach
CFE	control function estimates
CFU	Conservation Farming Unit
DFZ	Deciduous Forest zone
ER	Eastern Region
FAO	Food and Agricultural Organization
FASDEP	Food and Agriculture Sector Development Policy
FE	fixed effect
FIDP	Farm Income Diversification Programme
FISP	Farmers Input Support Programme
FFM	female farm manager
FMF	female-managed farm
FRA	Food Reserve Agency
GDP	gross domestic product
GSZ	Guinea Savannah zone
IGLS	Iterative Generalized Least Squares
IRLAD	Irrigation, Rural Livelihoods and Agricultural Development
LMI	lower middle income
MGDS	Malawi Growth and Development Strategy
MFM	male farm manager
MMF	male-managed farm
NAIP	National Agricultural Investment Plan
NAIVS	National Agricultural Input Voucher Scheme
NGO	non-governmental organization
NFI	non-farm income
PPP	purchasing power parity



## List of Abbreviations

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RE	random effect
RGDP	real gross domestic product
RNFE	rural non-farm employment
SSA	sub-Saharan Africa
ST	structural transformation
TIP	Targeted Input Programme
UER	Upper East Region
USD	US dollar

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# Perspectives on Agriculture, Diversification, and Gender in Rural Africa: Theoretical and Methodological Issues

*Agnes Andersson Djurfeldt, Fred Mawunyo Dzanku,  
and Aida Cuthbert Isinika*

## Introduction

The signing of the Maputo Declaration in 2003 marked a renewed interest in the smallholder-based model of agricultural development among a broad range of stakeholders: domestic, regional, and global – states as well as non-governmental organizations (NGOs), farmers' organizations, and researchers. This broad coalition of interests united under the banner of pro-poor agricultural growth, in the conviction that small-scale farmers if given the right policies would provide for their own food security as well as generate a marketable surplus (Mellor 1995, Lipton 2005). The eventual outcome of increasing smallholder productivity was perceived to be the gradual structural transformation of African economies, as envisaged in the 2008 *World Development Report, Agriculture for Development*, for instance (World Bank 2007).

Several challenges to the optimism of the smallholder-based growth model have arisen over the past two decades, however. While at the macro level GDP (gross domestic product) growth has been rapid and there are indeed signs of structural transformation in a number of African economies (Fuglie 2011), the inclusivity of growth processes can be questioned on several grounds. Shrinking farm sizes and increasing land size inequalities within the smallholder sector, and the emergence of middle sized farmers, are reported in studies from several African countries (Jayne et al. 2014). Nonetheless, the prospects for leaving the agricultural sector altogether are small, as shown by income data that demonstrate the persistent role of agriculture in rural

livelihoods across Africa as well as the poor opportunities for diversifying into high-return activities outside agriculture (Davis et al. 2016, McCullough 2016). To such universal tendencies can be added the gender-specific aspects of exclusion based on norms and institutions that discriminate against women with respect to agricultural assets, inputs, and markets (Meinzen-Dick et al. 2014, Quisumbing et al. 2015), as well as intergenerational challenges arising from an increasingly youthful population (Losch 2012, Wiggins et al. 2015). Finally, studies attest to growing divergence in spatial terms, between well-connected, well-endowed places and more marginal areas (Andersson Djurfeldt 2013, Davis et al. 2016). The confluence of these tendencies—increasing socio-economic differentiation amid rapid economic growth (both within and outside agriculture)—could be suggestive of generally improving livelihoods, but also growing polarization within the small-holder sector over time.

To date, few studies have considered these tendencies longitudinally or in parallel—in this sense agricultural livelihoods are not situated in time or space, nor in relation to other processes such as non-farm diversification. In practice, however, rural livelihoods are characterized by sectoral as well as spatial linkages, while they are also imprinted by relations of gender and generation. Moreover, the seasonality of the agricultural calendar as well as inter-annual variations in weather and markets makes time an especially important dimension in studies of rural Africa. This book contributes through addressing the dynamics of intensification and diversification within and outside agriculture in contexts where women have much poorer access to agrarian resources than men. We use a longitudinal cross-country comparative approach to consider these linkages which have so far received limited attention in the wider literature, as well as the broader policy debates.

The book has three interrelated aims. Descriptively, the aim is to summarize and present findings from the third wave of a unique dataset – the Afrint dataset which follows smallholders across six countries from 2002 to 2013/15.

Theoretically, our aim is to provide nuance to the current dominance of structural transformation narratives of agricultural change through adding insights from gender studies as well as village-level studies of agrarian change. Placing agrarian change in relation to broader livelihood dynamics outside the farm sector and contextualizing them nationally and regionally is a necessary analytical adaptation to the unfolding empirical realities of rural Africa. We are convinced that the combination of these perspectives will enhance the research frontier in several fields and is of interest to academics within a number of disciplines.

Finally, the policy aim of the book is to provide suggestions for more inclusive policies related to rural development. Outlining the weaknesses of present policies and illustrating gendered inequalities in access to agrarian

resources will provide opportunities for identifying possible alternatives to existing policy.

## **Theoretical Perspectives**

As noted initially, the period since the early 2000s has seen the resurrection of smallholder-based approaches under the rubric of pro-poor agricultural growth. These approaches draw inspiration from the empirical example of the Asian Green Revolution and mark a distinct break with the neglect of smallholder agriculture that characterized the 'lost decades' of the 1980s and 1990s. Such models revolve around two interconnected theoretical assumptions: that small-scale farmers are efficient producers and that increased commercialization among them can encourage broad-based poverty reduction and growth. Both of these postulates are based on the dynamics of agricultural development in parts of South and South East Asia in which comprehensive rises in smallholder productivity in combination with improved markets, especially for staple crops, led to falling poverty among farmers themselves as well as landless labourers (Rosegrant and Hazell 2000, Ravallion and Datt 2002, Ravallion and Chen 2004, Djurfeldt and Jirström 2005).

At an overarching level therefore, raising smallholder productivity, enhancing commercialization, and dealing with poor producer incentives for food staples are seen as the vehicles for achieving broad-based agricultural growth and reducing poverty (Dorward et al. 2004, Jayne et al. 2006b, Diao et al. 2010, Jayne et al. 2010). Encouraging smallholder inclusion in agricultural value chains at different scales is in this respect crucial. Diversification within agriculture towards higher-value crops and a gradual movement into the non-farm sector in this way presages a gradual exit out of agriculture as the economy moves through the process of structural transformation. Where access to agricultural assets is relatively equal and initial production potential is high, rising agricultural labour productivity is more likely to emerge, enabling family members to be pulled into non-farm activities—pursuits which over time tend to be concentrated in urban centres (Hazell et al. 2007).

## **Challenges to the Pro-Poor Growth Model**

More recently, differentiation within the smallholder sector has prompted the realization that the smallholder-based model may be inappropriate for resource-constrained households because of their limited chances of

commercial engagement (Masters et al. 2013, Hazell and Rahman 2014). Here poverty reduction will not follow from commercialization or agricultural policy—rather, social policy intervention could be a better alternative.

While proponents of pro-poor agricultural growth increasingly recognize the practical limitations of the smallholder model in terms of reaching marginal households, three strands of criticism have also been levelled against the *theoretical* bedrocks of the model.

The efficiency of small-scale producers has been questioned by advocates of large-scale farming, who argue that modern technologies and procurement systems have undermined the inverse relationship between productivity and land size that underpins the notion of superior smallholder efficiency. As such, both food security and poverty reduction are better achieved through large-scale agriculture (Collier and Dercon 2014).

A second body of criticism relates to the poor fit of an Asian-inspired smallholder model to African conditions. Specifically, poor infrastructure, low initial productivity, weather-related unpredictability, and weak linkages to urban areas and industry pose considerable challenges to the possibilities for raising smallholder productivity in the same way it occurred in Asia (Ellis 2007).

A final strand of critique emanates from the scholarship on agrarian class differentiation, which questions the market optimism of the pro-poor agricultural growth model. Among these researchers, the insertion of smallholders into local and sometimes global value chains is perceived to encourage polarization of assets and incomes, as accumulation among the more well-positioned leads to the marginalization of the poor (Havnevik et al. 2007, Bernstein 2010, Bernstein and Oya 2014).

### Gender and Farm Productivity

The considerable empirical evidence of gender differences in farm productivity must be added to the theoretical admonitions raised by critics of the smallholder model. The general conclusion in the literature is that systematic productivity gaps exist in favour of male-headed households, with gaps in the region of 4–40 per cent (Udry et al. 1995, Goldstein and Udry 2008, FAO 2011, Kilic et al. 2015, Slavchevska 2015). Although some of the gaps are attributable to unobservables, differences in farm input access and use account for a substantial part of the gender gaps (Doss and Morris 2001, Alene et al. 2008). The received literature also shows that gender differences in productivity have a spatial dimension, mainly based on agro-ecology (Udry 1996, Oseni et al. 2015), with the gap being substantial in low agro-productive regions where rainfall, for example, is more limiting. Whereas factors such

as farm size and the presence of female family labour tends to narrow the productivity gap (Slavchevska 2015), others such as male adult labour and area cultivated to export crops tends to widen the gap (Kilic et al. 2015).

## Diversifying Within and Out of Agriculture

In theoretical terms, raising smallholder productivity constitutes the basis for moving away from agriculture, as households diversify initially within and eventually out of agriculture. At the macro level the outcome of these processes is the structural transformation of the broader economy in which agriculture gradually loses its dominance in terms of employment and value added (Chenery and Syrquin 1975, Timmer 2009).

In practice, however, many rural livelihoods combine incomes from the farm and non-farm sectors, mainly through rural non-farm employment (RNFE). The rural growth linkages literature in general postulates complementarities between the farm and non-farm sectors (e.g. Haggblade et al. 1989, Delgado et al. 1994, Delgado 1998, Haggblade et al. 2007). Other studies have explored the effect of non-farm earnings or participation on farm productivity indirectly through its impact on farm input use (Savadogo et al. 1994, Hertz 2009, Mathenge et al. 2015). The empirical evidence is mixed: while some find that farm investments are increasing with non-farm earnings or participation (Lamb 2003, Ellis and Freeman 2004, Oseni and Winters 2009), others observe the opposite (Ahituv and Kimhi 2002, Kilic et al. 2009, Mathenge et al. 2015), or find no significant effect (Chikwama 2004).

The observation that there is a general decrease in farm sizes across sub-Saharan Africa (Jayne et al. 2010, Jayne et al. 2014), while at the same time diversification into RNFE is observed to be increasing (Haggblade et al. 2010, Losch et al. 2012), could lead to the conclusion that the two processes may be competitors, not counterparts. Despite these tendencies and earlier warnings of de-agrarianization and de-peasantization stemming from the literature on agrarian differentiation (Bryceson 2009), recent data on the importance of agriculture to rural livelihoods show that agriculture consistently contributes around 70 per cent of household cash incomes (Jirström et al. 2011, Davis et al. 2016, see also Chapter 2 in this volume). While engagement in the non-farm sector is high (70 per cent participation in the nine African countries covered by Davis et al. 2016), its relative contribution to rural incomes is low, pointing to the continued importance of agriculture to rural livelihoods, but also the important complementary role of non-farm diversification.

## **Gender and Non-farm Diversification**

The general conclusion from the existing literature on gender and non-farm diversification is that participation and participation impacts are not gender blind. Whereas women tend to diversify more into non-farm self-employment than men, wage employment is more the domain of men than women (see for example Newman and Canagarajah 2000 on Ghana and Uganda). Nationally representative household surveys in Ghana for instance, have shown that participation in RNFE is higher among women than men. Gender difference in rural non-farm participation could be context-specific, however. For example, Rijkers and Costa (2012) found in their rural non-farm entrepreneurship study that whereas women were less likely to be non-farm entrepreneurs in Bangladesh, Indonesia, and Sri Lanka, no gender difference was found in Ethiopia. However, since asset endowment matters for access to high-return non-farm diversification opportunities, if asset accumulation is gendered, as indeed it is (Deere and Doss 2006, Deere 2010, Deere et al. 2013), then one would expect high-return non-farm opportunities to also be gendered, and actually this is the case (Lanjouw and Feder 2001).

Although Bagachwa and Stewart (1992) have suggested that RNFE opportunities tend to be more egalitarian than large-scale industrialization, some authors have found that the impacts of non-farm employment are not the same for women and men. For example, in Ghana, because women are more involved in non-farm self-employment, and because this type of RNFE tended to be inequality-increasing, Canagarajah et al. (2001) found that non-farm activities were inducing inequality among female-headed households rather than male-headed households. On the other hand, wage employment tended to increase inequality among men.

Even among women, non-farm participation probabilities differ between women heading their own households and women living in male-headed households. For example, being a female head of household has been found to increase the chances of non-farm labour market participation but not necessarily so for women in general (Canagarajah et al. 2001).

## **Dual Exclusion?**

As can be inferred from the literature both on agricultural productivity as well as non-farm diversification, women face a dual exclusion based on a lack of agricultural assets, but also related to their limited access to alternative livelihood sources outside agriculture. Given the well-documented institutional bias against women with respect to ownership and control over key agricultural assets, it may be tempting to conclude that the smallholder model

excludes women a priori. Studies of intra-household relations suggest, however that gendered segmentation of livelihoods may be complementary rather than conflicting, with female engagement in non-farm activities supplementing men's work in agriculture (Jackson 2007, O'Laughlin 2007). Agricultural livelihoods therefore need to be understood both in relation to gendered patterns of labour use and income generation, but also in relation to the non-farm sector. This book attempts to contribute to filling an empirical gap in this respect using data from a longitudinal dataset collected in six African countries.

## **Research Design**

The present book constitutes a follow-up study to two earlier phases of the African Agricultural Intensification (Afrint) project. The analysis relies heavily on a quantitative dataset—collected by the Afrint group<sup>1</sup> in eight African countries in 2002 and 2008 (Ethiopia, Ghana, Kenya, Malawi, Mozambique, Nigeria, Tanzania, and Zambia) and again in six of these countries in 2013/15 (Ghana (2013), Kenya (2013), Malawi (2013), Mozambique (2015), Tanzania (2015), and Zambia (2013)). The data hence consist of two panel rounds (2002–8 and 2008–13/15) and three cross-sections: 2002, 2008, and 2013. Two earlier volumes have reported on Afrint I and II (Djurfeldt et al. 2005, Djurfeldt et al. 2011).

The data used in this book cover those countries for which data are available for all of the three rounds of data collection, that is Ghana, Kenya, Malawi, Mozambique, Tanzania, and Zambia. In addition, qualitative data have been collected intermittently during the second and third phase of the project but with a focus on the latter.

## **Quantitative Data Collection**

The research design is based on a multiple-stage purposive sample, with the selection first of countries, regions second, villages third, and finally households. The original database was collected with the aim to assess the possibilities for an Asian-style Green Revolution in the context of sub-Saharan Africa (Djurfeldt et al. 2005). With this overarching objective in mind, a multi-stage purposive design was used to select countries and at a second stage regions that were deemed to be above average in terms of agro-ecology and

<sup>1</sup> <<http://www.keg.lu.se/en/research/research-projects/current-research-projects/afrint>>.



accessibility, but excluding the most vibrant rural economies. Within each country, variability was used as the sampling criterion for the selection of regions, such that each country sample contains regions that are both dynamic and less dynamic. The interpretation of the original sampling criteria at the country level varied somewhat—and the Malawi sample therefore contains four regions selected on the basis of crop production characteristics, while the Mozambique sample contains three rather than two regions.

Within each region, villages were again purposively selected and a random sample of the village population was taken based on household lists.<sup>2</sup> The sample is therefore representative at the village level. The self-identified farm manager was interviewed and data were collected for a set of household-level variables.

Data collection has been carried out at three points in time: for Afrint I, data were simultaneously collected in eight countries in early 2002, while Mozambique was added in 2005. For Afrint II, data were collected in late 2007 and early 2008 in nine countries as a follow-up to the first data collection round. For Afrint III, funding for resurveying was not available for the full dataset, moreover the funds that were secured were erratic, leading to a staggered data collection effort. Data were collected simultaneously in Ghana, Kenya, Malawi, and Zambia in early 2013, but in Tanzania in early 2015, and in Mozambique not until September of 2015. In what follows we will refer to the first round of data collection as Afrint I, the second as Afrint II, and the third as Afrint III. The first panel period (Afrint I to Afrint II) is referred to as Panel I and the second (Afrint II to Afrint III) is referred to as Panel II.

The dataset contains fifteen regions and fifty-six villages, the distribution of which are detailed in Table 1.1 and Figure 1.1.

A balanced panel design has been used to take into consideration attrition as well as changes in the village populations over time, maintaining statistical representativity between the rounds of data collection. A balanced panel design entails keeping the size and representativity of the cross-sections intact by sampling households to make up for attrition. In addition, substantial changes in the village populations between the rounds of data collection in terms of in-migration are addressed through additional sampling of in-migrants specifically. The dataset hence contains three groups of respondents: (1) panel households sampled either in two (Panel I or Panel II) or all three rounds of data collection (Afrint I, Afrint II, and Afrint III); (2) households sampled to make up for attrition (sampled in Afrint II or Afrint III); and (3) migrant households that have been added to take into consideration

<sup>2</sup> In the case of Tanzania, a stratified random sample was collected at the village level.