Household Income Generation Strategies

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Section 1: Introduction

This document presents results of a descriptive analysis of income generating activities of 19 countries based on the Rural Income Generating Activities (RIGA) database. The RIGA database has mostly produced analysis using the rural sample of these countries' nationally representative living standards surveys. Our study pools rural and urban households to illustrate the characteristics and dynamics of household income generating strategies at the national level similar to Davis et al (2010).[1] The URIGA database is a compendium of this national data

Database

Table 1 describes the full set of surveys in the URIGA database, showing the country, name of the survey, year collected, number of overall observations as well as by urban/rural, and lastly, the level of per capita GDP in PPP 2005 US dollars. This database is comprised of 36surveys representing 19 countries. Section 2 presents our cross-sectional analysis which uses the most recent year of survey data for each country. For most surveys we have more than one point in time and for five countries namely Indonesia, Nicaragua, Nepal, Tajikistan, and Vietnam we have panel data. We exploit the longitudinal aspect of the database undertaking an analysis of income dynamics, presented in Section 3.

Definitions

Total household income is measured following the RIGA project methodology[2] which constructs net annual aggregates of income using a standardized approach. Income is disaggregated into 7 main categories which include agricultural wages, non-agricultural wages, crop activities, livestock activities, self employment (household nonfarm enterprises), transfers and other non-labor sources. Wages and self employment income are disaggregated even further by industry following the classifications specified in the International Standard Industrial Classification of All Economic Activities.[3] Ten industry groups are created that include (1) agriculture, fishing and forestry; (2) mining; (3) manufacturing; (4) electricity & utilities; (5) construction; (6) commerce; (7) transport, storage and communication; (8) finance, insurance and real estate; (9) services; and (10) other.

In this report, the aforementioned income activities are categorized into the following additional aggregations which are presented in Davis et al (2010)[1]: *agricultural* (crop, livestock and agricultural wages); *non-agricultural* (non-agricultural wages, self employment, transfer and other); *on-farm* (crop and livestock); *nonfarm* (non-agricultural wages, self employment); and *off-farm* (joining agricultural wages with the *non-agricultural* aggregation).

In addition, for the analysis of nonfarm activities, we also aggregate certain industry groups as follows: (1) manufacturing and construction; (2) utilities, transport, storage, communication,

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[1] Davis, Benjamin and Paul Winters, Gero Carletto, Katia Covarrubias, Esteban J. Quiñones, Alberto Zezza, and Kostas Stamoulis. 2010. "A Cross-country Comparison of Rural Income Generating Activities." *World Development* 38(1): 48-63

[2] See http://www.fao.org/fileadmin/user_upload/riga/pdf/ai197e00.pdf.

[3] See http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=27&Lg=1.

finance, insurance, real estate and services; (3) agricultural, fishing, forestry and mining, and leave commerce and other category as separate industries.

Table 1 Survey included in the analysis

Countries	Survey Name	Year collected	Number of Observations			Per Capita GDP, PPP 2005 USD
			Total	Rural	Urban	
Eastern Europe						
Albania	Living Standards Measurement Study	2005	3 640	1 640	2 000	6 107
Albania	Living Standards Measurement Study	2002	3 599	1 640	1 959	5 259
Bulgaria	Integrated Household Survey	2001	2 633	877	1 756	7 664
Bulgaria	Integrated Household Survey	1995	2 468	824	1 664	6 851
Africa						
Ghana	Living Standards Survey Round Five	2005	8 564	4 979	3 585	1 208
Ghana	Living Standards Survey Round Three	1998	5 998	3 799	2 199	1 033
Ghana	Living Standards Survey Round Two	1992	4 523	2 945	1 578	937
Kenya	Household Integrated Budget Survey	2005	13 158	8 475	4 683	1 346
Madagascar	Enquête Permanente Auprès des Ménages	2001	5 080	1 979	3 101	929
Madagascar	Enquête Permanente Auprès des Ménages	1993-1994	4 505	2 653	1 852	917
Malawi	Integrated Household Survey-2	2004-2005	11 280	9 840	1 440	646
Nigeria	Living Standards Survey	2004	19 158	14 512	4 545	1 702
Tanzania	National Panel Survey, Wave 1	2009	3 255	2 055	1 200	1 237
Latin America						
Bolivia	Encuesta de Hogares	2005	4 086	1 751	2 335	3 772
Guatemala	Encuesta de Condiciones de Vida	2006	13 693	7 878	5 808	4 176
Guatemala	Encuesta de Condiciones de Vida	2000	7 276	3 852	3 424	3 960
Ecuador	Estudio de Condiciones de Vida	1995	5 810	2 532	3 278	5 664
Ecuador	Estudio de Condiciones de Vida	1998	5 801	2 535	3 266	5 866
Nicaragua	Encuesta de Medición de Niveles de Vida	2005	6 864	3 400	3 464	2 336
Nicaragua	Encuesta de Medición de Niveles de Vida	2001	4 191	1 839	2 352	2 169
Nicaragua	Encuesta de Medición de Niveles de Vida	1998	4 236	1 963	2 273	1 982
Panama	Encuesta de Niveles de Vida	2003	6 363	2 945	3 418	8 240
Panama	Encuesta de Niveles de Vida	1997	4 945	2 496	2 449	7 528
Asia						
Bangladesh	Household Income-Expenditure Survey	2005	10 080	6 400	3 680	1 165
Bangladesh	Household Income-Expenditure Survey	2000	7 440	5 040	2 400	970
Indonesia	Family Life Survey- Wave 3	2000	10 435	5 410	5 025	2 623
Indonesia	Family Life Survey- Wave 1	1993	7 216	3 786	3 430	2 396
Nepal	Living Standards Survey III	2003	5 071	3 655	1 416	919
Nepal	Living Standards Survey I	1996	3 370	2 655	715	829
Pakistan	Integrated Household Survey	2001	15 927	9 978	5 949	1 843
Pakistan	Integrated Household Survey	1991	4 792	2 396	2 396	1 656
Tajikistan	Living Standards Survey	2007	4 860	3 150	1 710	1 674
Tajikistan	Living Standards Survey	2003	4 156	2 640	1 520	1 250
Vietnam	Living Standards Survey	2002	29 380	22 621	6 909	1 784
Vietnam	Living Standards Survey	1997-1998	6 002	4 272	1 730	1 469
Vietnam	Living Standards Survey	1992	4 800	3 840	960	1 005

Section 2: Cross Sectional Work

Using the cross-sectional sample of recent year surveys, Table 2 presents detailed statistics on the household level of participation in the range of income generating activities described above, while Table 3 presents the composition and shares of income of activities. Both tables illustrate trends across levels of development, with countries ordered by per capita GDP.

Overall, all countries tend to have high levels of participation in on-farm activities regardless of the GDP per capita level. A slight negative trend is observed with increasing per capita GDP (PCGDP). The lowest participation rates are in Indonesia and Bolivia, respectively 34.4% and 38.6 percent. Conversely, involvement in nonfarm activities rises with PCGDP with wealthier countries demonstrating higher levels of participation in the nonfarm sector than poorer countries. Participation in the nonfarm sector ranges from 40-45 percent (Nigeria, Malawi, Madagascar) to nearly 90 percent (Bolivia).

While participation in agricultural activities is similar in on-farm participation in its inverse relationship with per capita GDP, involvement in non-agricultural activities is only weakly positively related to GDP levels. The lowest participation level in the non-agricultural sector is in Nigeria (45.2 percent) at the middle of the PCGDP distribution. Nearly all the countries with PCGDP higher than Nigeria's register participation rates above 90 percent; the ones with PCGDP below Nigeria's tend to be below 90 percent, and yet all are over 70 percent which is still considerable relative to participation levels in nonfarm activities. The differences are likely driven by involvement in transfer income originating either from public sources or private remittances.

Despite high levels of participation across GDP levels, the shares of income originating from on-farm and agricultural activities drop with increasing PCGDP. Conversely, nonfarm, off-farm and non-agricultural income are generally positively related to the level of development, driven largely by a greater share of income from nonfarm wage employment. Moreover, a greater share of income is derived from transfers among wealthier countries than poorer countries. This last trend could be due to greater resources in the government (translated into more public transfers) or greater extended-family wealth (resulting in greater remittances income).

**Table 2 Participation in Income Generating Activities**

		Income-generating activity												
		Group I							Group II		Group III			
Country and year	Per Capita GDP, PPP 2005 USD	(1) Agriculture-Crops	(2) Agriculture – Livestock	(3) Agricultural wage employment	(4) Non-farm wage employment	(5) Non-farm self-employment	(6) Transfers	(7) Other	(1)+(2)+(3) Agricultural total	(4)+(5)+(6)+(7) Non-Agricultural Total	(1) + (2) On-Farm Total	(4) + (5) Non-farm total	(6) + (7) Transfers & Other	(3) + (4) + (5) + (6) + (7) Off-farm Total
Malawi 2004	646	90,1%	59,2%	51,6%	20,5%	30,5%	86,3%	8,8%	93,0%	93,7%	91,0%	45,9%	87,6%	97,1%
Nepal 2003	919	88,2%	79,9%	34,8%	38,7%	23,7%	37,3%	28,4%	93,0%	83,7%	91,3%	54,3%	54,4%	91,7%
Madagascar 2001	929	68,6%	31,4%	8,9%	24,9%	22,9%	21,9%	41,3%	74,3%	73,9%	71,2%	42,2%	54,3%	77,4%
Bangladesh 2005	1 165	74,8%	63,9%	22,8%	43,3%	27,4%	37,3%	57,5%	75,2%	91,9%	71,2%	64,0%	72,9%	96,5%
Ghana 2005	1 208	60,0%	28,8%	3,3%	25,7%	45,5%	36,0%	4,2%	63,0%	78,5%	62,2%	61,7%	38,3%	79,7%
Tanzania 2009	1 237	80,9%	50,9%	17,1%	23,6%	40,6%	51,9%	1,0%	84,1%	81,0%	83,7%	54,0%	52,3%	84,6%
Kenya 2005	1 346	71,9%	62,1%	10,6%	35,2%	24,0%	49,9%	14,4%	76,8%	78,0%	75,1%	51,5%	54,7%	81,8%
Tajikistan 2007	1 674	89,8%	58,1%	21,3%	49,9%	16,4%	45,6%	2,7%	90,8%	81,6%	90,7%	61,4%	47,4%	88,6%
Nigeria 2004	1 702	59,7%	26,3%	0,9%	18,1%	25,9%	7,0%	3,1%	61,7%	45,2%	61,5%	40,2%	9,4%	45,8%
Vietnam 2002	1 784	78,7%	67,5%	11,2%	38,7%	40,1%	83,4%	25,3%	78,8%	95,7%	83,1%	64,4%	86,5%	96,4%
Pakistan 2001	1 843	40,1%	49,8%	15,1%	56,0%	21,5%	31,5%	14,7%	56,4%	83,6%	52,4%	67,2%	40,4%	88,5%
Nicaragua 2005	2 336	58,2%	38,5%	22,8%	56,2%	48,7%	44,2%	8,9%	69,2%	87,2%	65,1%	77,8%	48,4%	93,2%
Indonesia 2000	2 623	33,8%	6,8%	13,4%	44,8%	36,6%	85,5%	15,9%	42,1%	94,2%	34,4%	66,5%	87,2%	95,0%
Bolivia 2005	3 772	37,1%	20,6%	3,9%	44,0%	64,2%	29,4%	9,5%	40,6%	96,8%	38,6%	89,6%	35,1%	98,2%
Guatemala 2006	4 176	55,0%	25,3%	18,6%	63,2%	37,6%	63,4%	7,4%	59,4%	93,8%	55,6%	77,7%	65,9%	97,3%
Ecuador 1995	5 664	37,5%	46,3%	19,1%	58,2%	48,1%	32,3%	33,9%	58,6%	92,8%	54,7%	78,0%	54,6%	96,7%
Albania 2005	6 107	58,0%	49,2%	3,4%	43,4%	17,1%	71,8%	21,2%	59,2%	94,2%	58,7%	55,7%	73,5%	95,2%
Bulgaria 2001	7 664	38,3%	30,2%	3,7%	45,4%	4,2%	85,8%	9,3%	44,7%	96,5%	43,6%	47,8%	86,8%	97,0%
Panama 2003	8 240	44,9%	29,5%	12,9%	62,6%	44,6%	66,3%	14,9%	50,6%	96,9%	48,2%	83,9%	69,7%	98,6%

Table 3 Share of Income Generating Activities in Total Income ("Means of Shares")

		Income-generating activity												
		Group I							Group II		Group III			
Country and year	Per Capita GDP, PPP 2005 USD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(1) + (2) + (3)	(4) + (5) + (6) + (7)	(1) + (2)	(4) + (5)	(6) + (7)	(3) + (4) + (5) + (6) + (7)
		Agriculture-Crops	Agriculture - Livestock	Agricultural wage employment	Non-farm wage employment	Non-farm self-employment	Transfers	Other	Agricultural total	Non-Agricultural Total	On-Farm Total	Non-farm total	Transfers & Other	Off-farm Total
Malawi 2004	646	50,7%	8,5%	11,3%	11,8%	10,3%	6,7%	0,6%	70,6%	29,4%	59,3%	22,1%	7,3%	40,7%
Nepal 2003	919	18,6%	16,0%	11,5%	23,7%	11,2%	16,4%	2,7%	46,0%	54,0%	34,6%	34,9%	19,1%	65,4%
Madagascar 2001	929	47,3%	7,0%	4,6%	19,1%	13,3%	5,6%	3,1%	58,9%	41,1%	54,3%	32,4%	8,7%	45,7%
Bangladesh 2005	1 165	14,7%	7,2%	12,5%	28,8%	17,2%	7,4%	12,1%	34,5%	65,5%	22,0%	46,0%	19,5%	78,0%
Ghana 2005	1 208	32,0%	1,8%	2,1%	18,4%	33,6%	11,8%	0,3%	35,9%	64,1%	33,8%	52,0%	12,1%	66,2%
Tanzania 2009	1 237	41,3%	10,8%	3,7%	13,7%	20,7%	9,7%	0,0%	55,8%	44,2%	52,1%	34,5%	9,7%	47,9%
Kenya 2005	1 346	24,9%	12,1%	5,9%	24,4%	12,2%	17,8%	2,8%	42,9%	57,1%	37,0%	36,6%	20,5%	63,0%
Tajikistan 2007	1 674	46,5%	5,0%	5,3%	26,0%	7,7%	8,7%	0,7%	56,9%	43,1%	51,6%	33,7%	9,4%	48,4%
Nigeria 2004	1 702	54,7%	3,5%	0,6%	16,8%	20,9%	2,8%	0,8%	58,7%	41,3%	58,2%	37,7%	3,6%	41,8%
Vietnam 2002	1 784	32,2%	4,5%	5,5%	23,7%	20,9%	10,7%	2,4%	42,2%	57,8%	36,7%	44,6%	13,1%	63,3%
Pakistan 2001	1 843	11,8%	10,5%	6,8%	38,4%	14,2%	13,7%	4,7%	29,1%	70,9%	22,3%	52,6%	18,4%	77,7%
Nicaragua 2005	2 336	11,1%	6,1%	11,4%	35,3%	20,7%	14,3%	1,2%	28,6%	71,4%	17,2%	55,9%	15,5%	82,8%
Indonesia 2000	2 623	13,9%	1,4%	6,7%	31,6%	20,3%	22,7%	3,5%	22,0%	78,0%	15,3%	51,9%	26,1%	84,7%
Bolivia 2005	3 772	11,5%	2,7%	2,6%	32,3%	36,0%	13,1%	1,9%	16,8%	83,2%	14,2%	68,3%	15,0%	85,8%
Guatemala 2006	4 176	11,7%	1,6%	10,3%	42,2%	15,9%	16,2%	2,0%	23,7%	76,3%	13,4%	58,1%	18,2%	86,6%
Ecuador 1995	5 664	9,0%	3,4%	10,3%	39,1%	23,2%	8,9%	6,0%	22,8%	77,2%	12,5%	62,3%	14,9%	87,5%
Albania 2005	6 107	9,9%	12,6%	1,9%	30,0%	12,7%	29,3%	3,6%	24,4%	75,6%	22,5%	42,8%	32,9%	77,5%
Bulgaria 2001	7 664	1,8%	5,1%	2,0%	33,0%	2,8%	54,2%	1,1%	8,9%	91,1%	6,9%	35,8%	55,3%	93,1%
Panama 2003	8 240	6,3%	0,6%	7,1%	47,0%	19,4%	17,9%	1,7%	14,0%	86,0%	6,9%	66,4%	19,6%	93,1%

The positive relationship between the share of income from non-agricultural activities and GDP per capita can be observed in Figure 1. This figure also conveys the nonlinear, U-shaped relationship between participation in the non-agricultural sector and PCGDP.

Figure 1 Share of and participation in non-agricultural income activities, by per capita GDP
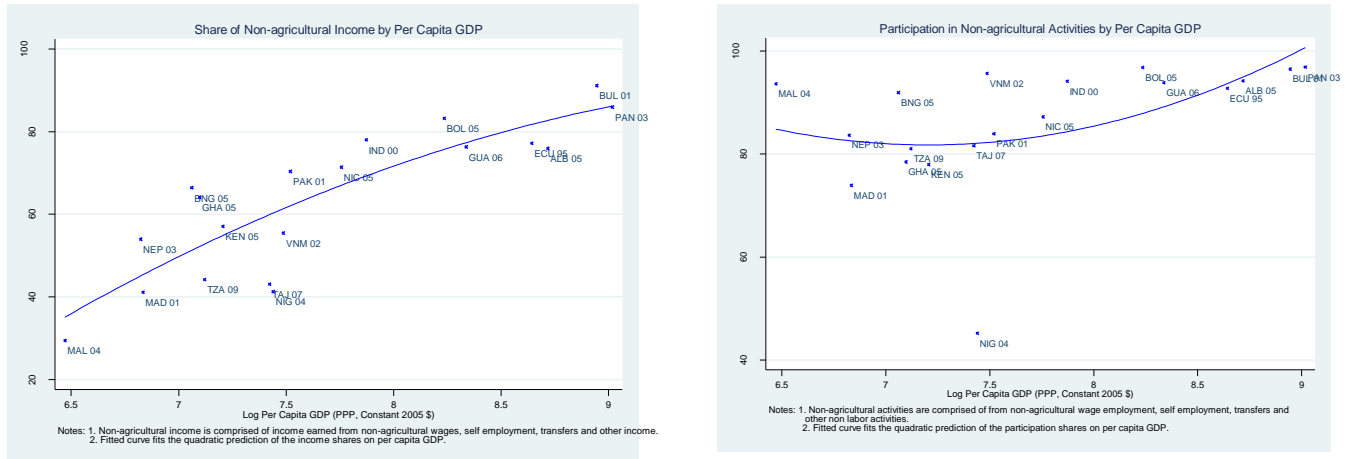
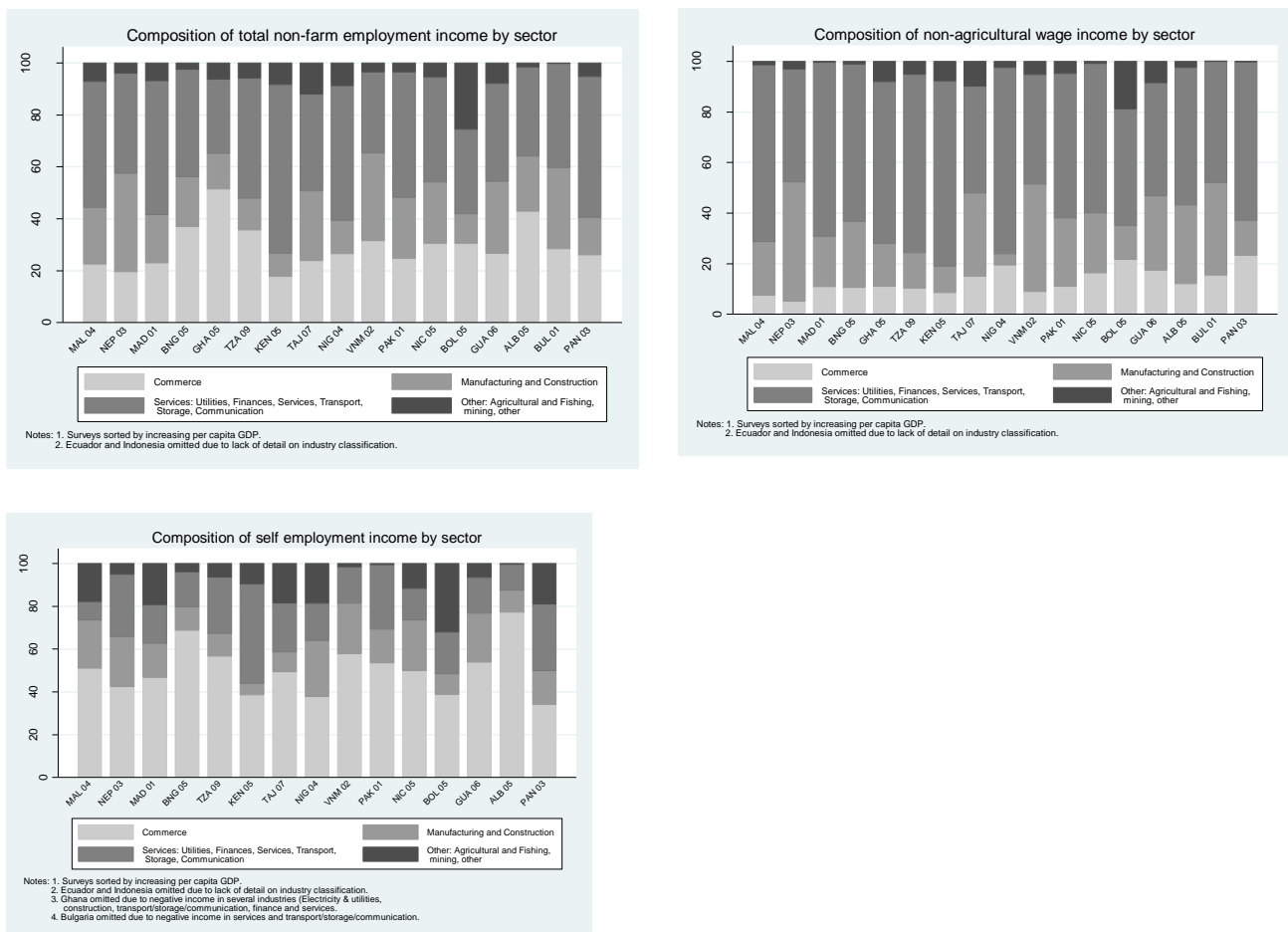**Figure 2 Composition of total non-farm, non-agricultural and self employment income, by sector**

Figure 2 shows the sector composition of nonfarm income, non-agricultural wage labor and self-employment. Services tend to represent the largest share of income from wage employment, followed by manufacturing and construction. With respect to self-employment, the share of income from commerce activities is far above the other three industry groups in most countries, regardless of the level of GDP per capita, reaching almost 68% of self-employment income in Bangladesh.

Figure 3 presents the percent of households participating in on-farm activities, nonfarm activities and agricultural wage activities, as well as fitted quadratic curves for the poorest, middle and richest expenditure quintiles. Looking at on-farm activities, we see that across countries, participation shares decrease with increasing GDP per capita. The trend is the same within countries, where poorer households tend to participate more in on-farm activities than their richer counterparts.

As for participation in agricultural wages, a negative correlation with the level of development is observed. The same is also true amongst households where the poorer are more involved in agricultural wage activities than the richest quintile. However the level of agricultural wage participation among households in the bottom quintile diverges from the negative trend of the other quintiles, increasing at the highest levels of PCGDP. Could this be due to the presence of larger, commercial farms that rely more on hired labor?

Figure 3 Percent of households participating in main income generating activities, by first, third and fifth expenditure quintiles
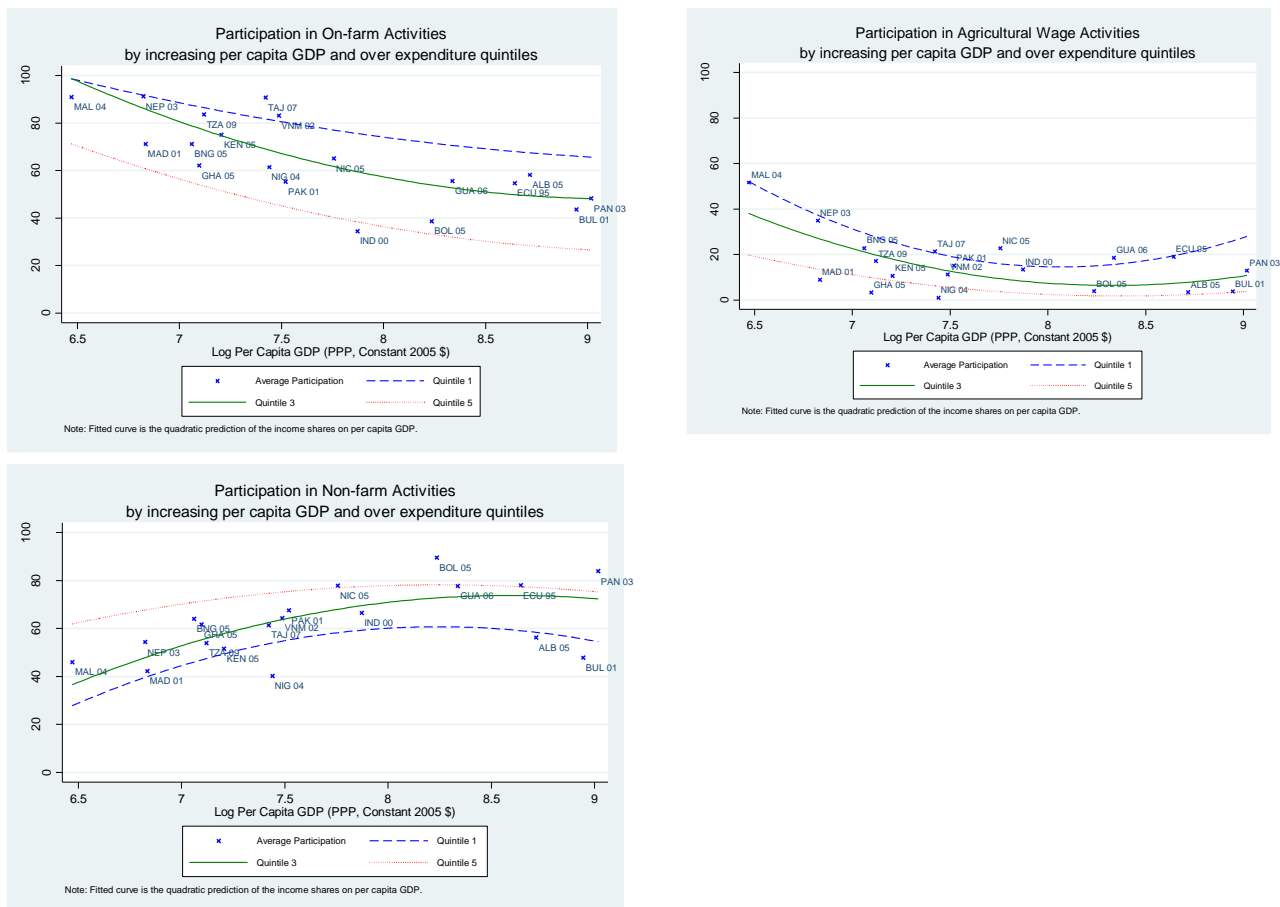
The positive relationship between participation in nonfarm activities and PCGDP observed in Table 2 is reconfirmed in Figure 3 across household expenditure quintiles, though the non-linearity of the trend is revealed under this breakdown. Whereas the middle/third quintile increases considerable with PCGDP, the top/fifth quintile tends to make a smaller increase and decreases slightly at the top of the PCGDP distribution. The quadratic curve also demonstrates that the middle and top quintiles tend to converge at high GDP levels. Conversely, although participation among the bottom quintile increases, halfway through the PCGDP distribution participation in nonfarm activities levels off and declines at the highest levels of PCGDP.

Figure 4 presents share of total income from the four main income generating activities by expenditure quintile. In most of the countries, the share of income from on-farm activities decreases while share of non-farm activities increases with increasing household wealth. Moreover, the relative importance of agriculture and the on-farm sector for poorer countries is also witnessed. At the bottom of the PCGDP distribution, little to moderate differences are observed between the bottom and top quintiles in the share of on-farm income. These differences are greater among wealthier countries. By comparison, the importance of nonfarm income sources across quintiles reveals that large differences exist in the share earned from nonfarm sources between the poorest and wealthiest households within countries, regardless of a country's PCGDP level.

Figure 4 Percent of total income from main income generating activities, by expenditure quintile
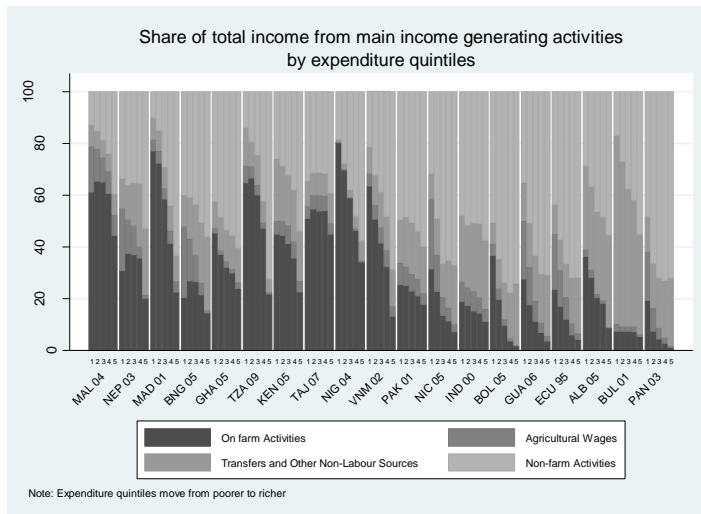
Household diversification of income sources is frequent across countries in the sample as shown in Table 4 which presents the share of households with specialized versus diversified income portfolios. Specialization is defined as earning 75 percent of total income from one income activity. Households are classified as diversified if no single income activity earns them 75 percent of total household income. Table 4 reveals that diversification is an important income strategy across most countries regardless of the level of development, with a majority of households falling under this category instead of being specialized in any given income activity. Specialization is not unimportant, however, with significant shares of households earning at least 75 percent of total income from on-farm sources and non-agricultural wages. Specialization in the on-farm sector is more common among the bottom half of the PCGDP distribution.

Meanwhile specialization in non-agricultural wages is more prevalent among the top half of the PCGDP distribution.
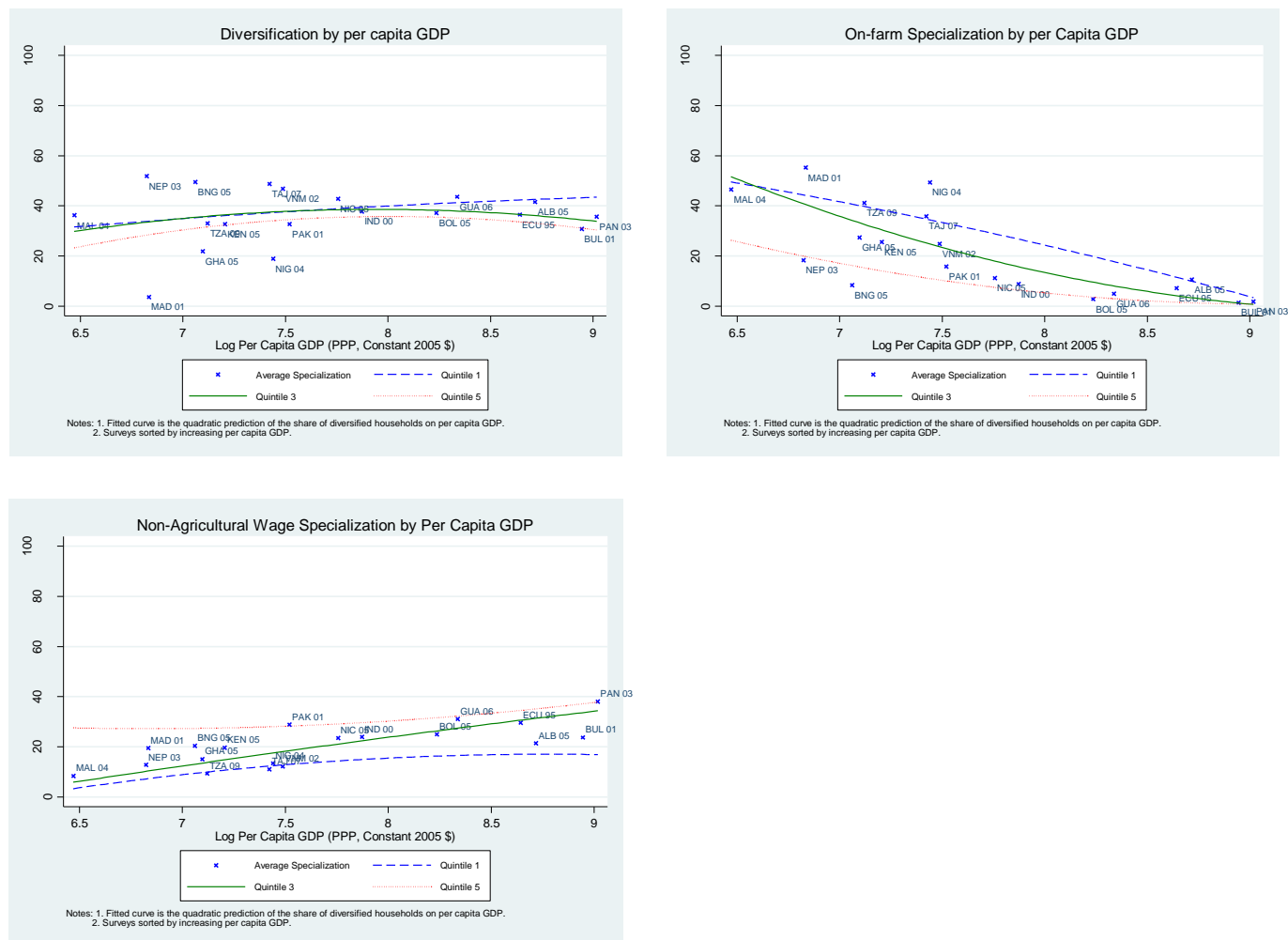
Table 4 Percent of households with diversified and specialized income generating activities

	Per Capita GDP, PPP 2005 USD	Diverse Income Portfolio	Principal Household Income Source (>=75% of Total Income)					
			Ag Wage	Nonag Wage	Self Emp	Transfers	Other	Farm
Malawi 2004	646	36,2%	3,1%	8,3%	4,7%	1,1%	0,1%	46,5%
Nepal 2003	919	49,4%	3,7%	15,0%	7,1%	7,1%	0,5%	17,2%
Madagascar 2001	929	3,6%	4,2%	19,4%	12,3%	4,3%	1,0%	55,2%
Bangladesh 2005	1 165	49,4%	6,5%	20,3%	11,0%	2,8%	1,5%	8,4%
Ghana 2005	1 208	21,6%	1,4%	15,0%	27,0%	7,4%	0,1%	27,6%
Tanzania 2009	1 237	32,9%	0,8%	9,3%	12,1%	3,7%	0,0%	41,2%
Kenya 2005	1 346	33,0%	3,6%	18,7%	8,2%	8,0%	1,0%	27,6%
Tajikistan 2007	1 674	48,9%	0,5%	11,0%	0,6%	2,9%	0,3%	35,8%
Nigeria 2004	1 702	18,8%	0,4%	13,4%	16,1%	1,7%	0,3%	49,3%
Vietnam 2002	1 784	48,1%	2,4%	11,8%	10,1%	1,8%	0,3%	25,5%
Pakistan 2001	1 843	32,7%	4,0%	28,1%	9,5%	7,9%	1,6%	16,1%
Nicaragua 2005	2 336	42,8%	6,6%	23,5%	10,2%	5,6%	0,2%	11,1%
Indonesia 2000	2 623	37,5%	4,0%	23,8%	12,7%	12,0%	1,1%	9,0%
Bolivia 2005	3 772	37,2%	2,0%	25,0%	24,7%	7,4%	1,1%	2,8%
Guatemala 2006	4 176	43,6%	5,3%	31,1%	7,5%	6,8%	0,7%	5,0%
Ecuador 1995	5 664	36,5%	6,1%	29,6%	14,9%	4,3%	1,5%	7,1%
Albania 2005	6 107	42,1%	0,9%	21,0%	10,1%	14,7%	0,5%	10,7%
Bulgaria 2001	7 664	30,7%	0,8%	23,7%	2,5%	40,7%	0,2%	1,4%
Panama 2003	8 240	35,6%	4,2%	38,0%	10,2%	9,8%	0,4%	1,8%

Figure 5 plots the average level of diversification and specialization in on-farm and non-agricultural wages, including fitted quadratic curves for the bottom, middle and top expenditure quintiles. The relatively-flat curves in the first graph reveal that diversification does not depend either on the level of development nor on household wealth. As for on-farm specialization, the share of participating households decreases when GDP per capita increases and is more frequent among poorer households. In this figure, we observe yet again a convergence of the middle quintile towards the level of on-farm specialization among top quintile households. However, unlike the trend of the bottom quintile in figure 3c, the trend of the poorest quintile is also towards that of the middle and top quintiles at the highest levels of PCGDP. As for non-agricultural wage employment, a slight positive correlation is observed across all three quintiles showing participation to this category increases with level of economic development. In this figure, convergence of the middle and top quintiles is also observed, suggesting that at high levels of national income, the non-agricultural sector offers the possibility for specialization for the top 60 percent of households. However, the trend for the bottom quintile is relatively flat from the

middle to high levels of PCGDP, indicating that widespread specialization in non-agricultural activities is not a possibility for the poorest segments of the population.

Figure 5 Share of diversified, on-farm, and non-agricultural wage specializing households, by per capital GDP

To better understand the correlation between wealth and diversification, Figure 6 shows the share of households with diversified or on-farm specialized income portfolio by expenditure quintile. Yet again, there is no clear pattern linking household wealth to diversification. For instance, in countries like Malawi diversification decreases with more wealth; while in others like Nigeria, diversification increases with wealth, and yet in others there is no correlation between wealth and diversification, with the latter case being the most usual. The positive relationship between non-farm specialization and wealth is evident, though with higher quintiles more often specializing in wage or self employment activities.

Figure 6. Percent of households with diversified or specialized income portfolio, by expenditure quintile
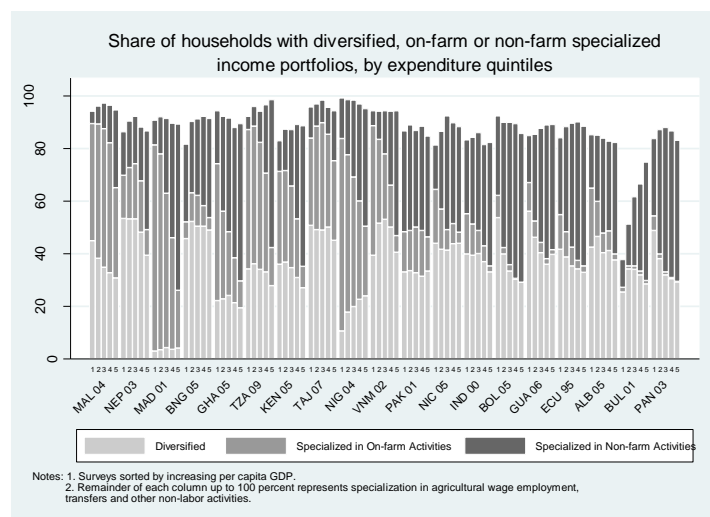

Despite high levels of diversification across our sample of countries, households continue to be involved in agricultural activities and produce a high share of the overall total agricultural production as shown on Figure 7a. Although a clear relationship with PCGDP is not observed, countries at higher levels of development attribute a greater share of the value of total agricultural production to diversified households; on-farm specialized households in those countries generate only a marginal share of the total value of production. At lower levels of PCGDP, a larger share of the value of production can be attributed to on-farm specializers, although diversified households still generate a non-negligible share of production. In two cases, namely Madagascar and Nigeria, agricultural production is almost entirely produced by on-farm specializers as such breaking from observed trends. This could be due to the low level of diversification in those countries at 3.6 and 18.8 percent, the lowest among countries in this study.

Figure 7b shows a similar graph with the total value of marketed agricultural production to diversified versus on-farm specialized households. The trends are largely similar to Figure 7a, whereby diversified households at higher levels of PCGDP are responsible for a greater share of marketed output while on-farm specialized households generating a greater value of marketed output for households at the bottom of the PCGDP distribution. In Nigeria, diversified households appear to not market any production; on-farm specializers can be attributed for nearly the entire value of marketed agricultural production. In Madagascar, although diversified households did not generate a significant share of agricultural production in Figure 7a, a more notable share can be attributed to this group with respect to marketed output.

Figure 7a Percent value of total agricultural production, by diversified and on-farm specializing households
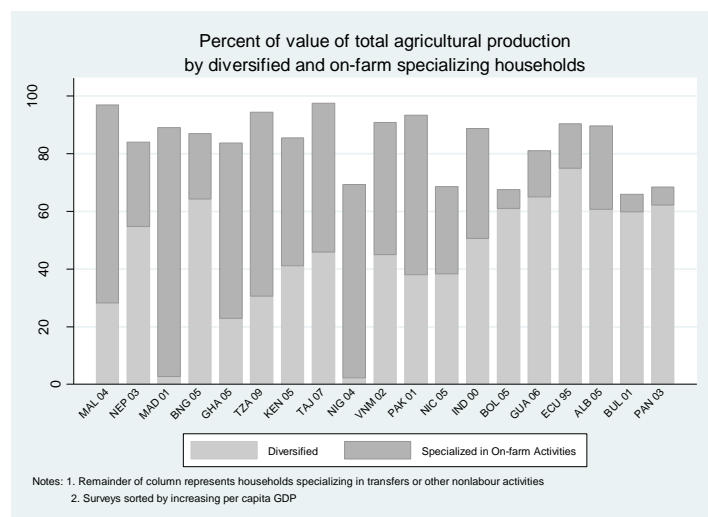
Figure 7b Percent value of total marketed agricultural production, by diversified and on-farm specializing households
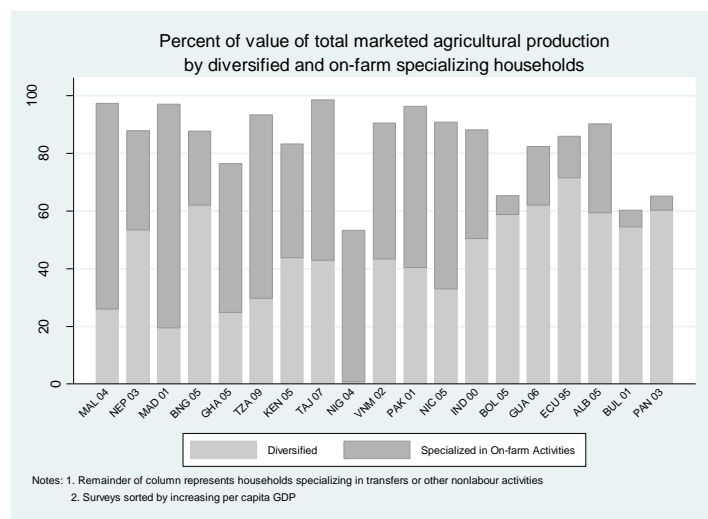
Section 3: Income dynamics

This section takes advantage of the earlier survey rounds for several of the surveys in the URIGA database to illustrate the shifts in income portfolios over time. At the moment 10 countries are presented in Tables 5 and 6. Additionally, Albania, Nicaragua, Nepal and Vietnam will be added to the analysis of this section. Surveys are ordered by GDP growth rate[4] to show results in the context of the dynamism of the overall economy.

Table 5 presents the share of income earned across the range of activities considered in the URIGA income aggregates, as in Table 2 in Section 2. In 7 of the 10 countries, the importance of crop income to total household income falls over time. Bulgaria observes a significant drop of about 25 percent in the share of agricultural income in the second year (2001) with respect to the base year (1995). Similarly in 6 of the 10 countries, livestock income shares fall over time; however, this is not necessarily in the same countries with a decline incrop income shares. On the whole, the results of Table 5 suggest that on-farm activities become less important to the household income portfolio over time.

The fall in income shares over time appears to be offset by a corresponding increase in income earned from non-farm income which comes through in 7 of the 10 countries to varying degrees. In countries like Panama and Tajikistan the increase in nonfarm income is just a few percentage points, while in others the change is more important, reaching nearly 11 percentage points in Madagascar. This income increase from non-farm sources can be attributed to income growth in the non-agricultural wage sector for some countries (Bangladesh, Bulgaria, Madagascar, Guatemala, Indonesia and Tajikistan), while in others such as Ghana, Ecuador, and Panama to independent income sources such as nonfarm self employment.

In terms of the household typology of diversification/specialization in income activities, Table 6 presents the share of households by categorization in each survey year. The diminishing importance of crop activities observed in Table 5 is reconfirmed with the share of households classified as on-farm specialized declining in 7 of the 10 surveys. In Ecuador, Bangladesh and Tajikistan, the share of households specialized in on-farm activities rises, which corresponds with the increase in the share of on-farm income earned relative to other sources, reported in Table 5. At the same time, diversification falls in 6 countries, while specialization in non-agricultural wage activities rises for 6 countries, although not in the same set of countries.

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[4] For Ghana, the average growth rate from 1992 to 2005 was used.

Table 5

		Number of observations	Per Capita GDP, PPP 2005 USD	GDP growth rate	Income-generating activity						
					Group I						
					(1)	(2)	(3)	(4)	(5)	(6)	(7)
					Agriculture-Crops	Agriculture - Livestock	Agricultural wage employment	Non-farm wage employment	Non-farm self-employment	Transfers	Other
Madagascar	1993	4,467	917		38.91%	9.00%	4.72%	20.49%	16.05%	8.77%	2.05%
	2001	5,047	929	1.31%	32.82%	4.99%	4.68%	30.38%	16.70%	7.62%	2.82%
Ecuador	1995	5,732	5,568		9.92%	4.01%	10.92%	36.86%	23.13%	8.64%	6.52%
	1998	5,801	5,766	3.56%	9.56%	5.68%	11.27%	34.42%	25.92%	5.73%	7.43%
Guatemala	2000	7,266	3,960		18.54%	1.72%	13.23%	33.60%	15.88%	15.78%	1.26%
	2006	13,682	4,176	5.45%	13.62%	1.84%	12.32%	38.42%	15.86%	16.68%	1.27%
Panama	1997	4,938	7,528		9.23%	4.29%	7.18%	44.76%	14.39%	18.15%	1.99%
	2003	6,348	8,240	9.46%	8.13%	1.14%	10.23%	41.20%	20.83%	16.83%	1.64%
Indonesia	1993	7,168	2,396		23.51%	4.54%	4.45%	18.83%	24.51%	18.23%	5.94%
	2000	10,407	2,623	9.48%	14.30%	1.43%	6.39%	31.46%	20.31%	22.41%	3.70%
Pakistan	1991	4,799	1,656		10.82%	11.78%	4.08%	40.15%	28.03%	4.29%	0.85%
	2001	15,788	1,843	11.30%	13.25%	8.19%	6.33%	38.91%	14.00%	13.86%	5.46%
Bulgaria	1995	2,466	6,851		13.02%	8.34%	13.21%	24.32%	2.34%	37.05%	1.72%
	2001	2,624	7,664	11.87%	1.77%	5.13%	1.95%	33.05%	2.79%	54.22%	1.09%
Ghana	1992	4,552	937		48.13%	1.83%	2.04%	16.14%	23.35%	7.91%	0.59%
	1998	5,998	1,033	13.59%	43.95%	3.73%	1.46%	13.74%	24.94%	11.62%	0.57%
	2005	8,564	1,208		35.05%	2.04%	1.83%	17.17%	32.45%	11.12%	0.33%
Bangladesh	2000	7,440	970		10.78%	1.72%	14.44%	27.92%	19.56%	12.42%	13.17%
	2005	10,069	1,165	20.06%	13.48%	6.48%	12.03%	30.13%	17.04%	8.07%	12.76%
Tajikistan	2003	4,148	1,250		25.66%	13.79%	11.35%	23.48%	1.61%	23.73%	0.38%
	2007	4,855	1,674	33.89%	49.04%	8.72%	4.09%	25.60%	1.83%	9.85%	0.87%

Table 5 (continued)

		Number of observations	Per Capita GDP, PPP 2005 USD	GDP growth rate	Group II		Group III			
					(1) + (2) + (3)	(4) + (5) + (6) + (7)	(1) + (2)	(4) + (5)	(6) + (7)	(3) + (4) + (5) + (6) + (7)
					Agricultural total	Non-Agricultural Total	On-Farm Total	Non-farm total	Transfers & Other	Off-farm Total
Madagascar	1993	4,467	917		52.6%	47.37%	47.92%	36.55%	10.82%	52.08%
	2001	5,047	929	1.31%	42.5%	57.5%	37.8%	47.1%	10.44%	62.19%
Ecuador	1995	5,732	5,568		24.9%	75.15%	13.94%	59.99%	15.15%	86.06%
	1998	5,801	5,766	3.56%	26.5%	73.5%	15.2%	60.3%	13.15%	84.76%
Guatemala	2000	7,266	3,960		33.5%	66.51%	20.26%	49.48%	17.03%	79.74%
	2006	13,682	4,176	5.45%	27.8%	72.2%	15.5%	54.3%	17.95%	84.54%
Panama	1997	4,938	7,528		20.7%	79.29%	13.52%	59.15%	20.14%	86.48%
	2003	6,348	8,240	9.46%	19.5%	80.5%	9.3%	62.0%	18.47%	90.72%
Indonesia	1993	7,168	2,396		32.5%	67.50%	28.05%	43.34%	24.17%	71.95%
	2000	10,407	2,623	9.48%	22.1%	77.9%	15.7%	51.8%	26.11%	84.27%
Pakistan	1991	4,799	1,656		26.7%	73.32%	22.60%	68.18%	5.14%	77.40%
	2001	15,788	1,843	11.30%	27.8%	72.2%	21.4%	52.9%	19.32%	78.57%
Bulgaria	1995	2,466	6,851		34.6%	65.43%	21.36%	26.66%	38.77%	78.64%
	2001	2,624	7,664	11.87%	8.9%	91.1%	6.9%	35.8%	55.31%	93.10%
Ghana	1992	4,552	937		52.0%	48.0%	50.0%	39.5%	8.5%	50.0%
	1998	5,998	1,033		49.1%	50.9%	47.7%	38.7%	12.2%	52.3%
	2005	8,564	1,208	13.59%	38.9%	61.1%	37.1%	49.6%	11.5%	62.9%
Bangladesh	2000	7,440	970		26.9%	73.06%	12.49%	47.48%	25.59%	87.51%
	2005	10,069	1,165	20.06%	32.0%	68.0%	20.0%	47.2%	20.83%	80.04%
Tajikistan	2003	4,148	1,250		50.8%	49.20%	39.45%	25.09%	24.11%	60.55%
	2007	4,855	1,674	33.89%	61.9%	38.1%	57.8%	27.4%	10.72%	42.24%

Table 6

		Number of observations	Per Capita GDP, PPP 2005 USD	GDP Growth Rate	Diverse Income Portfolio	Principal Household Income Source (>=75% of Total Income)					
						Ag Wage	Nonag Wage	Self Emp	Transfers	Other	Farm
Madagascar	1993	4,467	917		31.01%	1.07%	14.06%	11.24%	2.96%	0.40%	39.27%
	2001	5,047	929	1.31%	3.27%	4.42%	31.33%	15.89%	6.00%	1.07%	38.02%
Ecuador	1995	5,732	5,568		37.19%	6.51%	27.48%	15.18%	4.05%	1.62%	7.97%
	1998	5,801	5,766	3.56%	28.51%	7.17%	26.21%	18.18%	2.65%	5.58%	11.69%
Guatemala	2000	7,266	3,960		46.94%	5.93%	24.04%	8.40%	5.44%	0.26%	8.99%
	2006	13,682	4,176	5.45%	45.72%	6.36%	27.41%	7.58%	6.92%	0.34%	5.67%
Panama	1997	4,938	7,528		38.14%	4.03%	37.63%	5.78%	8.55%	0.59%	5.29%
	2003	6,348	8,240	9.46%	38.26%	6.32%	32.61%	10.84%	8.98%	0.36%	2.63%
Indonesia	1993	7,168	2,396		22.34%	3.50%	15.40%	19.31%	13.31%	3.49%	22.66%
	2000	10,407	2,623	9.48%	37.70%	3.83%	23.59%	12.73%	11.68%	1.11%	9.35%
Pakistan	1991	4,799	1,656		19.62%	2.11%	32.89%	22.31%	1.75%	0.17%	21.15%
	2001	15,788	1,843	11.30%	30.70%	4.05%	29.75%	9.99%	8.55%	2.22%	14.73%
Bulgaria	1995	2,466	6,851		49.64%	6.65%	14.88%	1.87%	21.33%	0.20%	5.43%
	2001	2,624	7,664	11.87%	30.72%	0.84%	23.70%	2.52%	40.66%	0.15%	1.41%
Ghana	1992	4,552	937		22.33%	1.32%	11.96%	17.52%	4.45%	0.18%	42.24%
	1998	5,998	1,033		23.71%	0.81%	10.19%	19.10%	6.13%	0.17%	39.89%
	2005	8,564	1,208	13.59%	21.78%	1.24%	13.85%	25.68%	6.90%	0.06%	30.50%
Bangladesh	2000	7,440	970		48.49%	7.89%	19.08%	13.39%	4.76%	1.95%	4.45%
	2005	10,069	1,165	20.06%	46.66%	6.66%	22.20%	11.50%	3.34%	2.04%	7.61%
Tajikistan	2003	4,148	1,250		47.44%	6.32%	14.73%	0.96%	11.91%	0.12%	21.55%
	2007	4,855	1,674	33.89%	46.63%	0.43%	11.08%	0.64%	3.21%	0.27%	37.73%