

Table 1 Household Geovariables IHPSY3

Theme	Source	Dataset Title	Variable Name	Variable Type	Reference Period	Resolution	Description	Web
Distance	NRA	IHPS GPS Coordinates and Malawi Roads	dist_road	Continuous	N/A	N/A	Household distance to nearest major road (primary and secondary network)	
Distance	World Gazetteer Towns	IHPS GPS Coordinates and Towns	dist_popcenter	Continuous	N/A	N/A	Household distance to nearest town of > 20,000 pop	
Distance	MoAFS Tech Sec	IHPS GPS Coordinates and ADMARC Location	dist_admarc	Continuous	N/A	N/A	Household distance to nearest ADMARC location	
Distance	World Gazetteer Towns	IHPS GPS Coordinates and Tobacco Auction Floors	dist_auction	Continuous	N/A	N/A	Household distance to nearest tobacco auction	
Distance	IFPRI	IHPS GPS Coordinates and Border Posts	dist_borderpost	Continuous	N/A	N/A	Household distance to nearest border post	
Distance	World Gazetteer Towns	IHPS GPS Coordinates and Towns	dist_boma	Continuous	N/A	N/A	Household distance to the boma of the district of residence	
Distance	FEWSNET	IHPS GPS Coordinates and Major Agricultural Markets	dist_agmrkt	Continuous	N/A	N/A	HH Distance to nearest agricultural market	
Climatology	UC Berkeley	WorldClim Bioclimatic Variables	af_bio_1	Continuous	1960-1990	0.008333 dd	Average annual temperature calculated from monthly climatology, multiplied by 10 (°C)	http://www.worldclim.org/bioclim

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Climatology	UC Berkeley	WorldClim Bioclimatic Variables	af_bio_8	Continuous	1960-1990	0.008333 dd	Average temperature of the wettest quarter, from monthly climatology, multiplied by 10. (°C)	http://www.worldclim.org/bioclimate
Climatology	UC Berkeley	WorldClim Bioclimatic Variables	af_bio_12	Continuous	1960-1990	0.008333 dd	Total annual precipitation, from monthly climatology (mm)	http://www.worldclim.org/bioclimate
Climatology	UC Berkeley	WorldClim Bioclimatic Variables	af_bio_13	Continuous	1960-1990	0.008333 dd	Precipitation of wettest month, from monthly climatology (mm)	http://www.worldclim.org/bioclimate
Climatology	UC Berkeley	WorldClim Bioclimatic Variables	af_bio_16	Continuous	1960-1990	0.008333 dd	Precipitation of wettest quarter, from monthly climatology (mm)	http://www.worldclim.org/bioclimate
Landscape Typology	ESA and UC Louvain	GlobCover v 2.3	fsrad3_agpct	Continuous	2009	0.002778 dd	Percent under agriculture within approx 1 km buffer	http://ionia1.esrin.esa.int/
Landscape Typology	ESA and UC Louvain	GlobCover v 2.3	fsrad3_lcmaj	Categorical	2009	0.002778 dd	Majority landcover class within approximately 1km buffer	http://ionia1.esrin.esa.int/
Landscape Typology	WorldPop	Africa 2010 Demography (v ap10_180313)	popdensity	string	2010	0.00833 dd	2010 Population Density Range (people per km ²), with national totals adjusted to match UN population division estimates, 2012 revision	http://www.worldpop.org.uk/

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Landscape Typology	IFPRI	IFPRI standardized AEZ based on elevation, climatology	ssa_aez09	Categorical		0.008333 dd	Agro-ecological zones created using WorldClim climate data and 0.0833dd resolution LGP data from IIASA.	http://harvestchoice.org/production/biophysical/agroecology
Soil & Terrain	NASA, USGS	SRTM 90m	srtm_1k	Continuous		0.00833 dd	Average elevation (m) within 1 km block	ftp://xftp.jrc.it/pub/srtmV4/arcasci/
Soil & Terrain	AfSIS	Topographic Wetness Index	twi_mwi	Continuous		0.000833 dd	Local upslope contributing area and slope are combined to determine the potential wetness index (see documentation for detail)	http://www.ciesin.columbia.edu/afsis/bafsis_fullmap.htm#
Soil & Terrain	LSMS-ISA	Terrain Roughness	srtm_mwi_5_15	Categorical		0.000833 dd	Derived from 90m SRTM using Meybeck relief classes and 5x5 pixel neighborhood	
Soil & Terrain	FAO	Harmonized World Soil Database	sq1	Categorical		0.083333 dd	Nutrient availability	http://www.iiasa.ac.at/Research/LUC/External-World-soildatabase/HTML/
Soil & Terrain	FAO	Harmonized World Soil Database	sq2	Categorical		0.083333 dd	Nutrient retention capacity	http://www.iiasa.ac.at/Research/LUC/External-World-soildatabase/HTML/
Soil & Terrain	FAO	Harmonized World Soil Database	sq3	Categorical		0.083333 dd	Rooting conditions	http://www.iiasa.ac.at/Research/LUC/External-World-soildatabase/HTML/
Soil & Terrain	FAO	Harmonized World Soil Database	sq4	Categorical		0.083333 dd	Oxygen availability to roots	http://www.iiasa.ac.at/Research/LUC/External-World-soildatabase/HTML/
Soil & Terrain	FAO	Harmonized World Soil Database	sq5	Categorical		0.083333 dd	Excess salts	http://www.iiasa.ac.at/Research/LUC/External-World-soildatabase/HTML/

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Soil & Terrain	FAO	Harmonized World Soil Database	sq6	Categorical		0.083333 dd	Toxicity	http://www.iiasa.ac.at/Research/LUC/External-World-soildatabase/HTML/
Soil & Terrain	FAO	Harmonized World Soil Database	sq7	Categorical		0.083333 dd	Workability (constraining field management)	http://www.iiasa.ac.at/Research/LUC/External-World-soildatabase/HTML/
Crop Season Parameters	NOAA CPC	Rainfall Estimates (RFE)	anntot_avg	Continuous	2001-2016	0.1 dd	Average 12-month total rainfall (mm) for July-June	ftp://ftp.cpc.ncep.noaa.gov/fe ws/newalgo_est_dekad/
Crop Season Parameters	NOAA CPC	Rainfall Estimates (RFE)	wetQ_avg	Continuous	2001-2016	0.1 dd	Average total rainfall in wettest quarter (mm) within 12month periods from July-June	ftp://ftp.cpc.ncep.noaa.gov/fe ws/newalgo_est_dekad/
Crop Season Parameters	NOAA CPC	Rainfall Estimates (RFE)	wetQ_avgstart	Continuous	2001-2016	0.1 dd	Average start of wettest quarter in dekads 1 to 36, where first dekad of July =1	ftp://ftp.cpc.ncep.noaa.gov/fe ws/newalgo_est_dekad/
Crop Season Parameters	NOAA CPC	Rainfall Estimates (RFE)	h2015_tot	Continuous	2014-2015	0.1 dd	12-month total rainfall (mm) in JulyJune, starting July 2014	ftp://ftp.cpc.ncep.noaa.gov/fe ws/newalgo_est_dekad/
Crop Season Parameters	NOAA CPC	Rainfall Estimates (RFE)	h2015_wetQ	Continuous	2014-2015	0.1 dd	Total rainfall in wettest quarter (mm) within 12-month period starting July 2014	ftp://ftp.cpc.ncep.noaa.gov/fe ws/newalgo_est_dekad/
Crop Season Parameters	NOAA CPC	Rainfall Estimates (RFE)	h2015_wetQstart	Continuous	2014-2015	0.1 dd	Start of wettest quarter in dekads 1 to 36, where first dekad of July 2014 =1	ftp://ftp.cpc.ncep.noaa.gov/fe ws/newalgo_est_dekad/
Crop Season Parameters	NOAA CPC	Rainfall Estimates (RFE)	h2016_tot	Continuous	2015-2016	0.1 dd	12-month total rainfall (mm) in JulyJune, starting July 2015	ftp://ftp.cpc.ncep.noaa.gov/fe ws/newalgo_est_dekad/

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Crop Season Parameters	NOAA CPC	Rainfall Estimates (RFE)	h2016_wetQstart	Continuous	2015-2016	0.1 dd	Start of wettest quarter in dekads 1 to 36, where first dekad of July 2015 =1	ftp://ftp.cpc.ncep.noaa.gov/fe ws/newalgo_est_dekad/
Coordinates	LSMS-ISA	GPS Latitude Modified	LAT_DD_MOD	Continuous	2016		Coordinates of location, modified to preserve anonymity	
Coordinates	LSMS-ISA	GPS Longitude Modified	LON_DD_MOD	Continuous	2016		Coordinates of location, modified to preserve anonymity	
Coordinates	LSMS-ISA	IHPS GPS Coordinates	distY1Y3	Continuous	2016		Distance to baseline location (km)	

Table 2 PlotGeovariablesIHPSY3_16

Theme	Source	Dataset Title	Variable Name	Variable Type	Reference Period	Resolution	Description	Web
Plot Distance	LSMS-ISA	Plot Distance to household	dist_hh	Continuous		N/A	Plot distance to household in km	
Plot Soil & Terrain	USGS	Plot Slope (percent)	srtmslp_mwi	Continuous		0.000833 dd	Average slope, derived from 90m SRTM	http://pubs.usgs.gov/of/2007/1188/ , data provided by USGS upon request
Plot Soil & Terrain	USGS	Plot Elevation (m)	srtm_mwi	Continuous		0.000833 dd	Average elevation, derived from 90m SRTM	http://pubs.usgs.gov/of/2007/1188/ , data provided by USGS upon request
Plot Soil & Terrain	AfSIS	Plot Potential Wetness Index	twi_mwi	Continuous		0.000833 dd	Local upslope contributing area and slope are combined to determine the potential wetness index (see documentation for detail)	http://www.ciesin.columbia.edu/afsis/bafsis_fullmap.htm#