

Rationale Behind MDG and SDG Hunger Targets – Evidence from ECO Region

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Objective of collaboration between ECO Secretariat and PIDE on Food Insecurity Issues

*Food
Insecurity*

*Policy
Evaluation*

- Identification of high and low food deficit countries
- Analysis by Dimensions of Food Insecurity
- What path country takes to meet its staple and non-staple food requirement
- How vulnerable a country is at risk to international Food and Non-Food Price Shocks

Face of Hunger



Face of Hunger



Face of Hunger

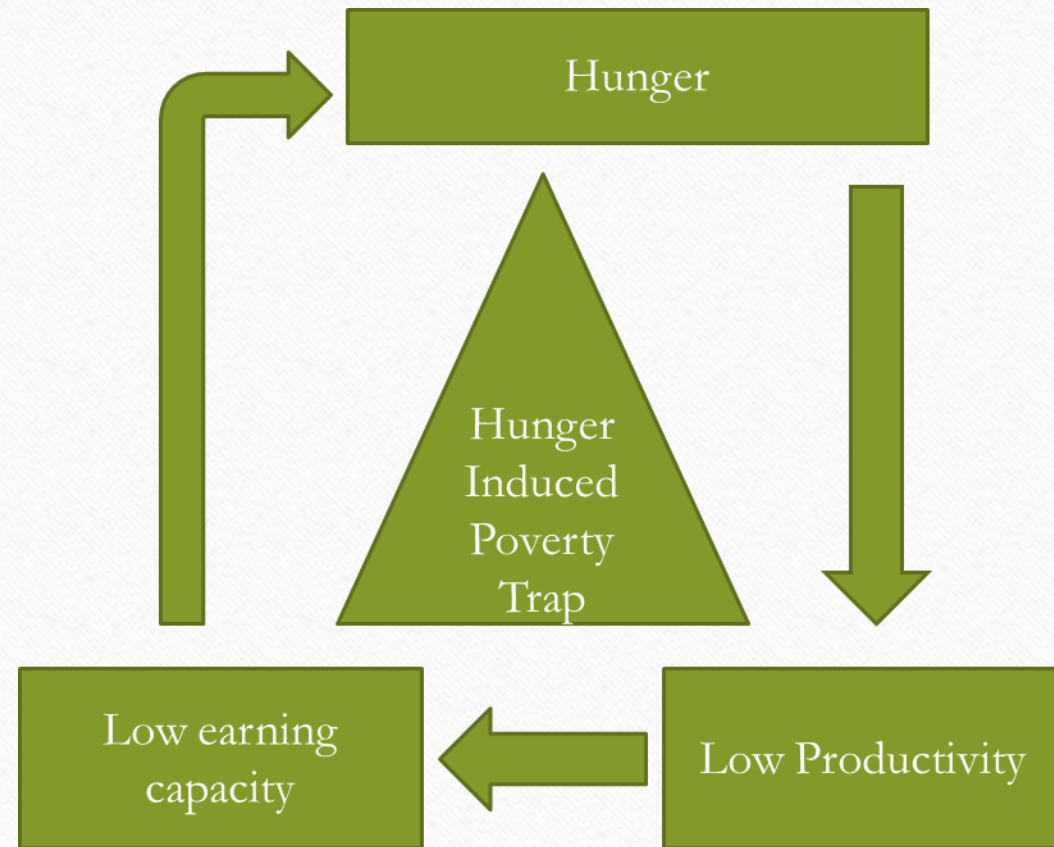


Face of Chronic Hunger



Relevance of Hunger Within MDGs and SDGs

- Sheer magnitude of the Problem
- Hunger Has Capacity to Create traps



MDGS – A Brief Overview

Goal 1: Eradication of Extreme Poverty and Hunger

The Millennium Development Goals

Eight Goals for 2015



1 Eradicate extreme poverty and hunger



2 Achieve universal primary education



3 Promote gender equality and empower women



4 Reduce child mortality



5 Improve maternal health



6 Combat HIV/AIDS, malaria and other diseases



7 Ensure environmental sustainability



8 Develop a global partnership for development

SDGS – A Brief Overview

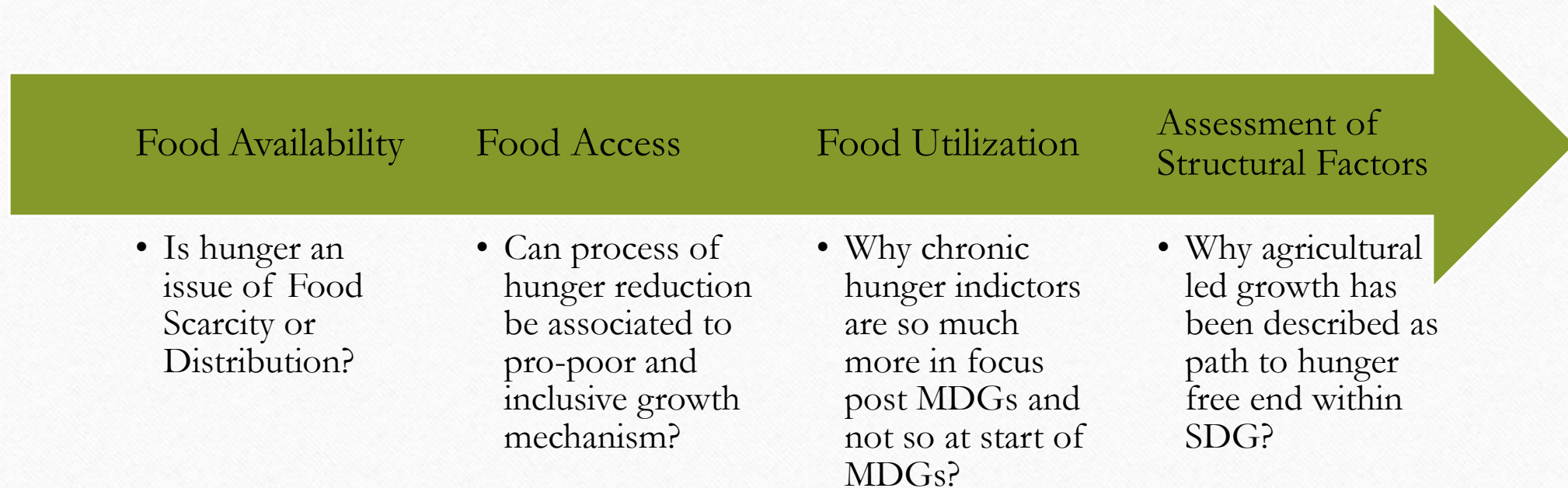
- Zero Hunger target has been fixed as independent goal than goal of zero poverty
- It focuses not on transient hunger indicators but target indicators more comprehensively cover indicators of chronic Hunger
- Agricultural led growth has been emphasized as path to hunger free end



Deeper Underlying Research Questions

- Is hunger an issue of Food Scarcity or Distribution?
- Can process of hunger reduction be associated to pro-poor and inclusive growth mechanism?
- Why chronic hunger indicators are so much more in focus post MDGs and not so at start of MDGs?
- Finally why agricultural led growth has been described as path to hunger free end within SDG?

How have we answered these questions



Indicators Utilized as Per FAO Methodology

Food
Availability

- Average dietary energy supply adequacy

Food
Access

- Gross domestic product per capita, PPP (constant 2011 international \$)
- Poverty headcount ratio at \$3.10 a day (2011 PPP) (% of population)

Indicators Utilized as Per FAO and IFPRI Methodology

Food
Utilization

- Percentage of Children under age 5 with underweight, overweight, stunted and wasted growth

Structural
Heterogeneities

- Analysis of indicators related to structural factors of growth across different sector of economy

Figure 1: Number of Undernourished Population (Millions)– by Regional Divisions

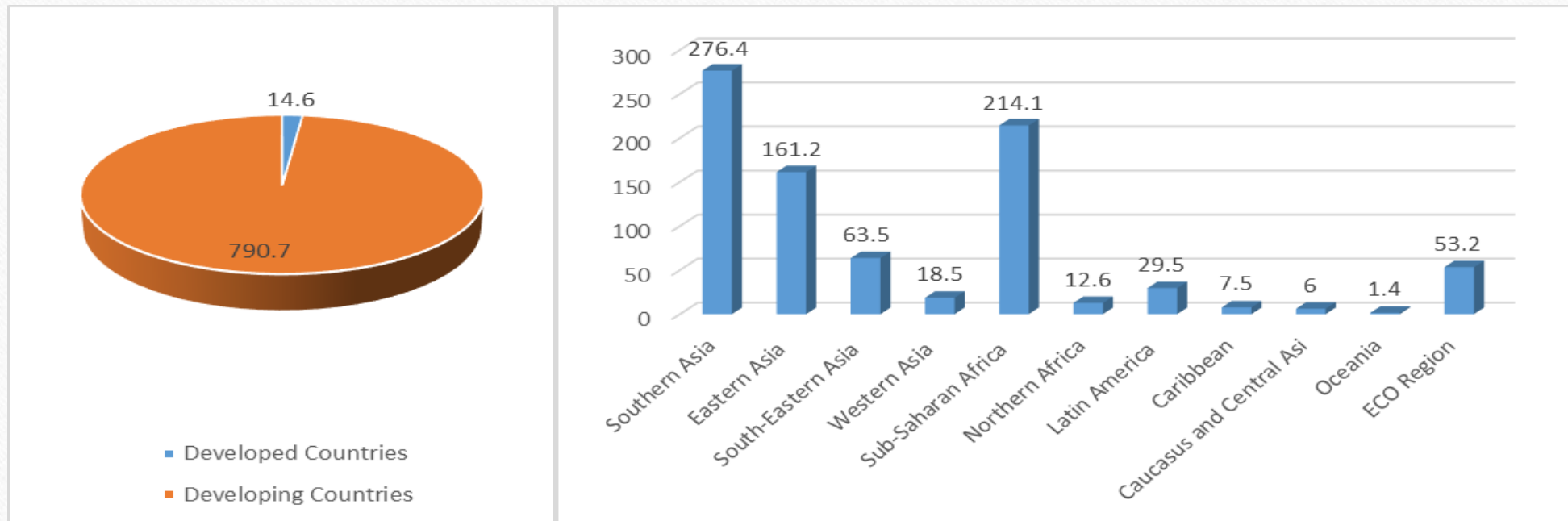
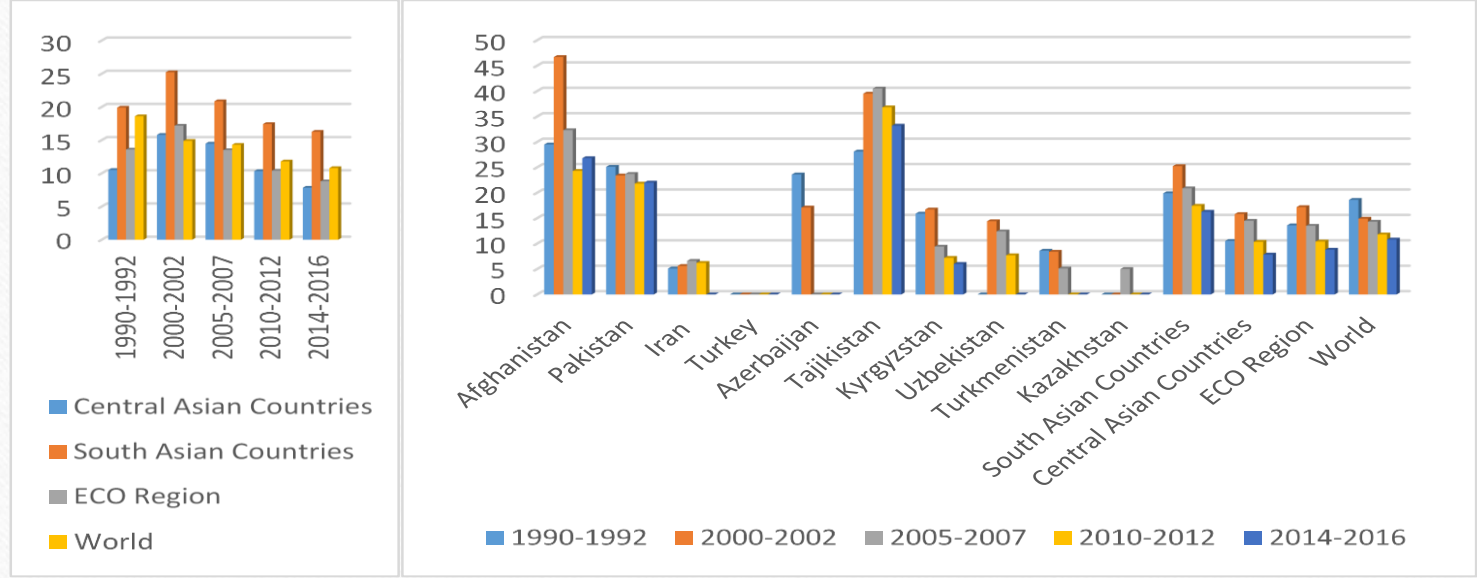


Figure 2: Prevalence of undernourishment by ECO and its Sub-Regions (South Asian ECO countries and Central Asian ECO countries), by Country 1990/92-2014/16 (%)

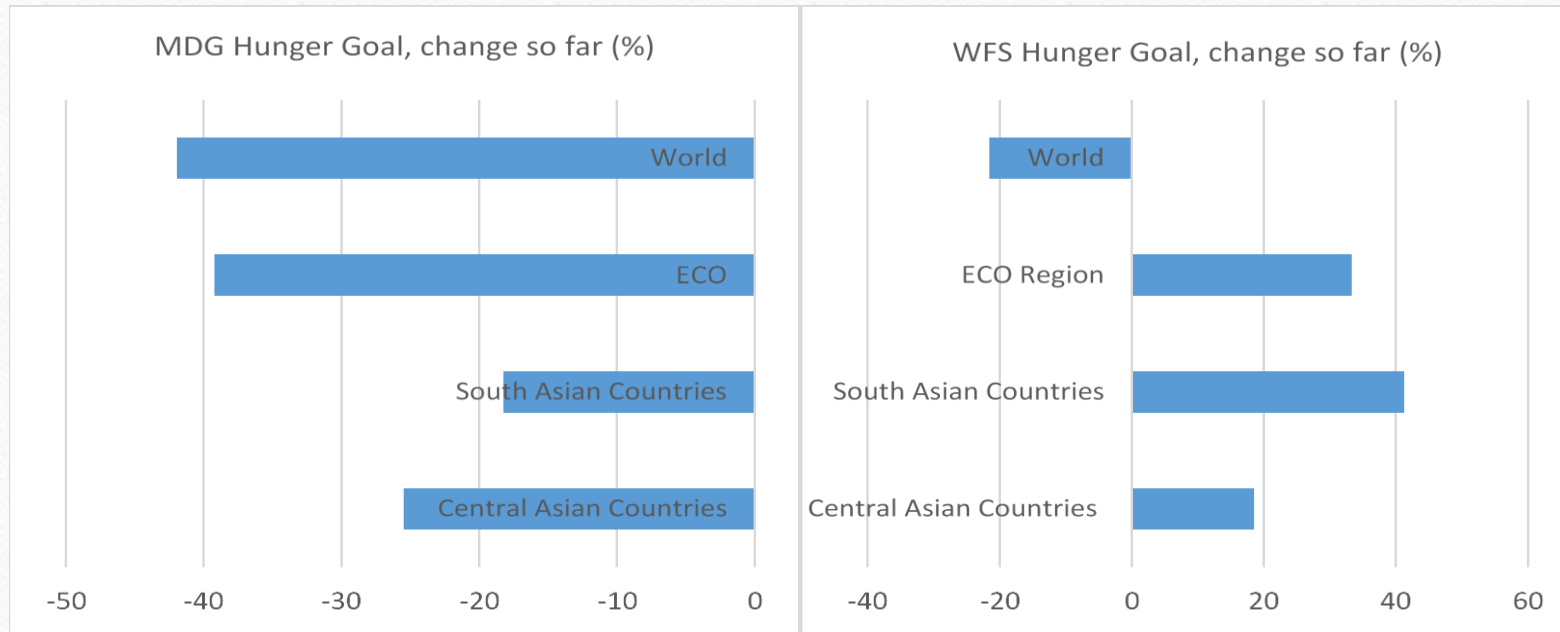


Data Source: FAOSTAT

Methodology For Identification of low and high food deficit regions

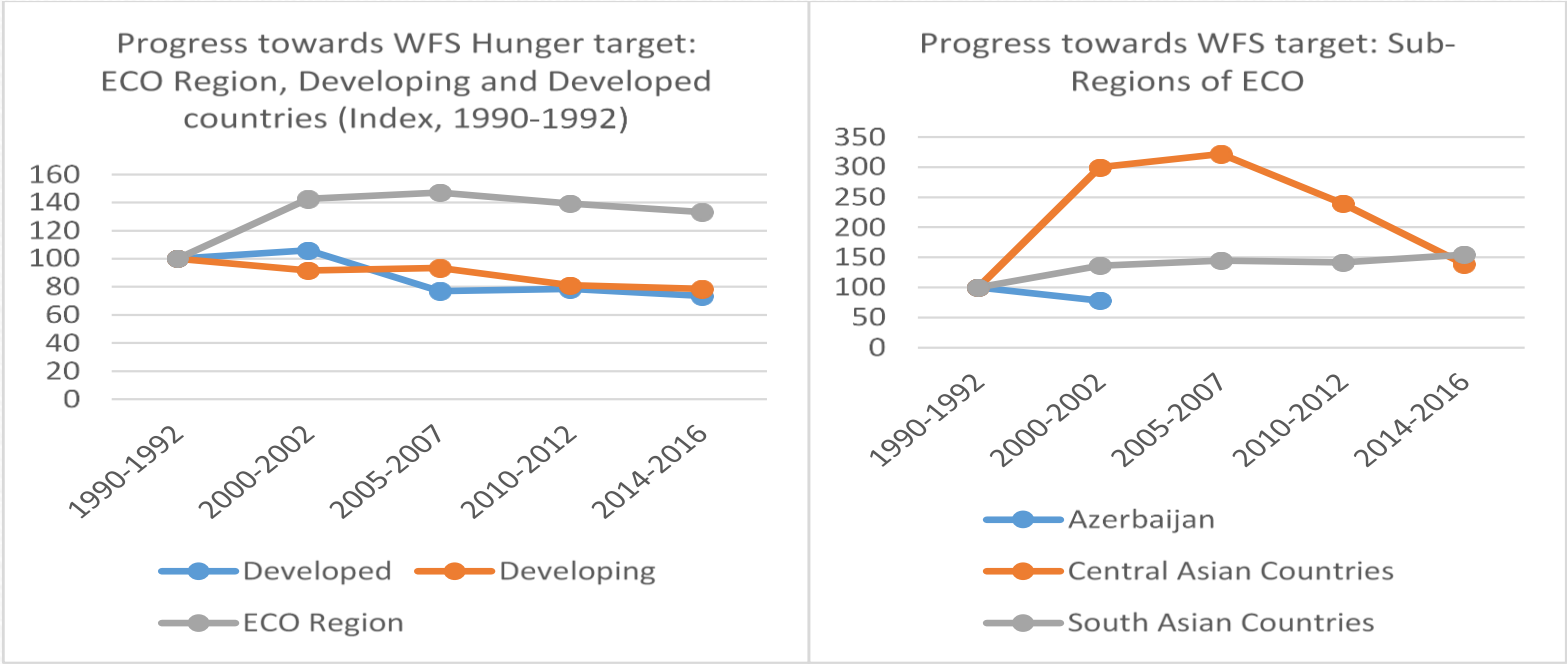
- The threshold that will be used will be Fulfillment and non-fulfillment Criterion of MDG Target on Hunger By 2015
- However this has loopholes that we shall address firstly by adapting criterion from World Food Summit and secondly through adapting idea from Foster–Greer–Thorbecke Poverty indices

**Figure 3: Progress towards achievement of the MDG and WFS hunger goals for ECO and its Sub-Regions
(South Asian ECO countries and Central Asian ECO countries)**



Data Source: FAOSTAT

Figure 4: Progress toward the WFS hunger target: ECO and its Sub-Regions (South Asian ECO countries and Central Asian ECO countries) (index, 1990/92=100)



Data Source: FAOSTAT

We will adapt from Foster–Greer–Thorbecke (FGT) Poverty indices

- $F_\alpha = I(y_i < T) \left[\frac{T-y}{T} \right]^\alpha$
- $F_0 = I(y_i < T)$ implies failure
- $F_1 = I(y_i < T) \left[\frac{T-y}{T} \right]$ measure severity of failure
- $F_2 = I(y_i < T) \left[\frac{T-y}{T} \right]^2$ gives more weight to those who have failed with higher depth

We will adapt from Foster–Greer–Thorbecke Poverty indices

- $S_\alpha = I(y_i > T) \left[\frac{T-y}{T} \right]^\beta$
- $S_0 = I(y_i > T)$ implies success
- $S_1 = I(y_i > T) \left[\frac{T-y}{T} \right]$ measure severity of success
- $S_2 = I(y_i > T) \left[\frac{T-y}{T} \right]^2$ gives more weight to those who have passed with higher depth

Table 1: Progress by MDG Target

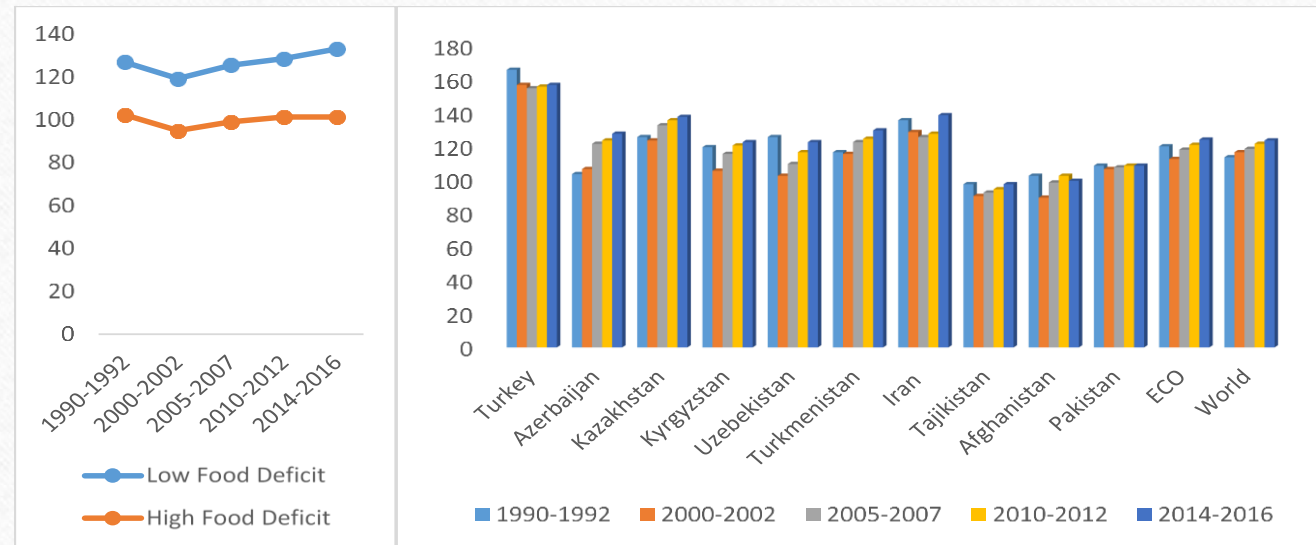
	1990- 1992	2014- 2016	Growth Rate 1991-2015	Progress towards MDG target	F1/S1 in percentage terms	F2/S2 in percentage terms
Pakistan	25.1	22	-12.350	Fail	75.3	56.7009
Afghanistan	29.5	26.8	-9.15	Fail	81.69492	66.74059954
Tajikistan	28.1	33.2	18.14	Fail	136.29894	185.7740105
Kyrgyzstan	15.9	6	-62.26	pass	-24.5284	6.016424066
Iran	5.1	<5	-100	pass	-100	100
Azerbaijan	23.6	<5	-100	pass	-100	100
Turkmenistan	8.6	<5	-100	pass	-100	100
Uzbekistan	<5	<5	NA	NA	NA	NA
Kazakhstan	<5	<5	NA	NA	NA	NA
Turkey	<5	<5	NA	NA	NA	NA

Table 2: Progress by WFS Target

	1990-1992	2014-2016	Growth Rate 1991-2015	Progress towards WFS target	F1/S1 in percentage terms	F2/S2 in percentage terms
Pakistan	28.7	41.4	44.25	Fail	188.5	355.32
Afghanistan	3.8	8.6	126.3	Fail	352.6	1243.26
Tajikistan	1.6	2.9	81.2	Fail	262.5	689.06
Kyrgyzstan	0.7	0.3	-57.14	pass	-14.28	2.04
Iran	2.9	NS	-100	pass	-100	100
Azerbaijan	1.8	NS	-100	pass	-100	100
Turkmenistan	0.4	NS	-100	pass	-100	100
Uzbekistan	Missing	NS	NA	NA	NA	NA
Kazakhstan	NS	NS	NA	NA	NA	NA
Turkey	NS	NS	NA	NA	NA	NA

Is hunger an issue of Food Scarcity or Distribution?

Figure 5: Average dietary energy supply adequacy 1990/92-2014/16 (%)



Data Source: FAOSTAT

Hunger is not a an issue of inadequate food availability on average rather probably issue of food distribution

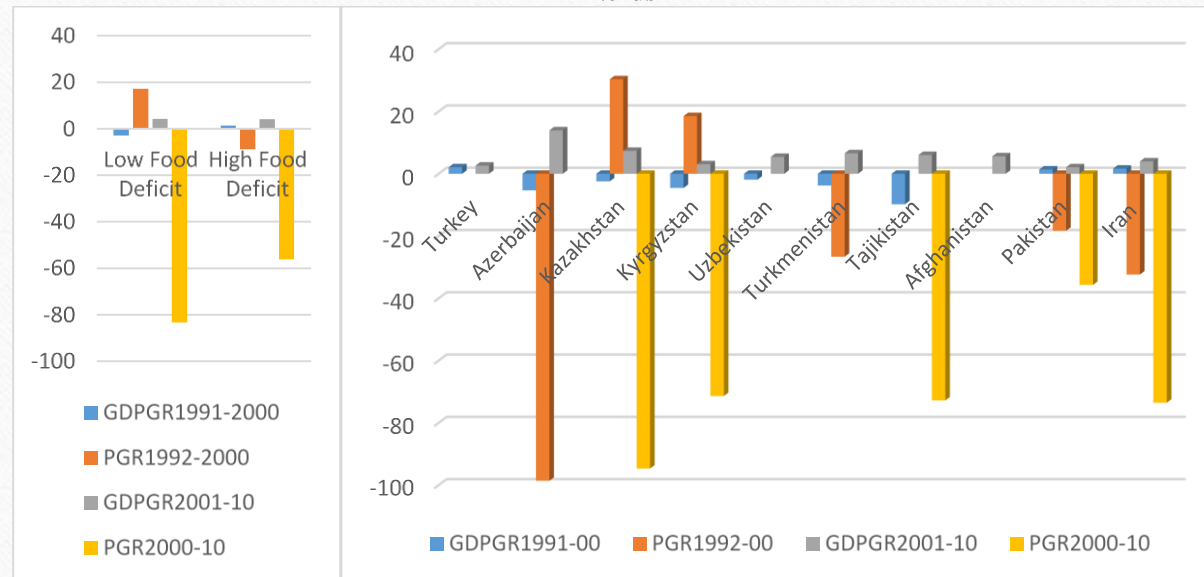
Table 3: Average dietary energy supply adequacy (%) (3-year average)

Year	Turkey	Azerbaijan	Kazakhstan	Kyrgyzstan	Uzbekistan	Turkmenistan	Tajikistan	Afghanistan	Pakistan	Iran
1990-1992	165	103	125	119	125	116	97	102	108	135
2000-2002	156	106	123	105	102	115	90	89	106	128
2005-2007	154	121	132	115	109	122	92	98	107	125
2010-2012	155	123	135	120	116	124	94	102	108	127
2014-2016	156	127	137	122	122	129	97	99	108	138

Data Source: FAOSTAT

Can process of hunger reduction be associated to pro-poor and inclusive growth mechanism?

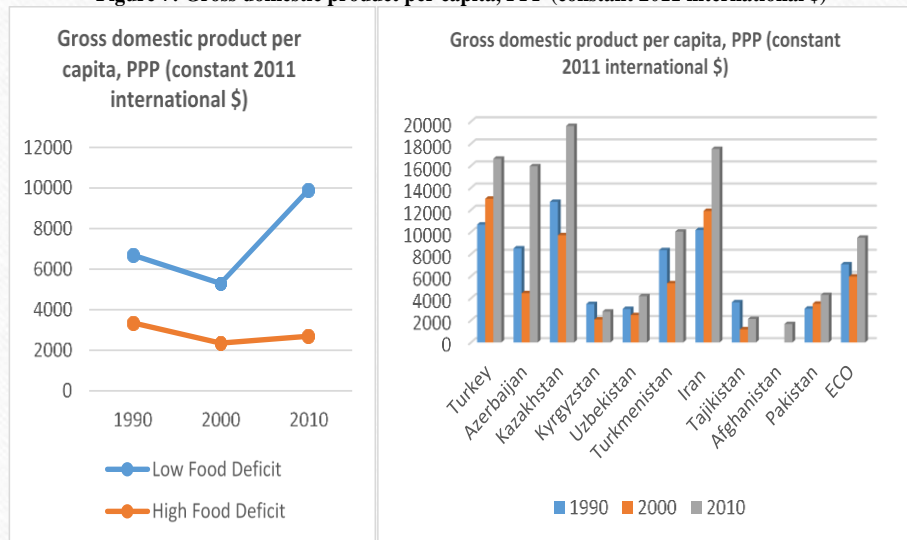
Figure 6: Growth in per capita GDP and Growth in poverty headcount ratio at \$3.10 a day (2011 PPP)
Nexus



Data Source: WDI

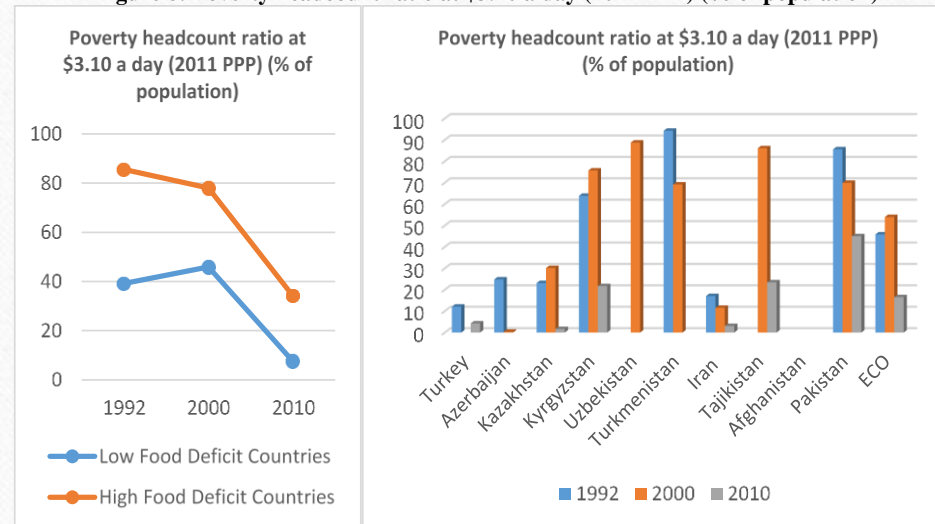
High food deficit countries have much higher concentration of poverty and low food deficit region except Kyrgyzstan has almost eliminated poverty

Figure 7: Gross domestic product per capita, PPP (constant 2011 international \$)



Data Source: WDI

Figure 8: Poverty headcount ratio at \$3.10 a day (2011 PPP) (% of population)



Data Source: WDI; Based on available values close to 2000 and 2010

Hunger reduction faster in low than high food deficit countries

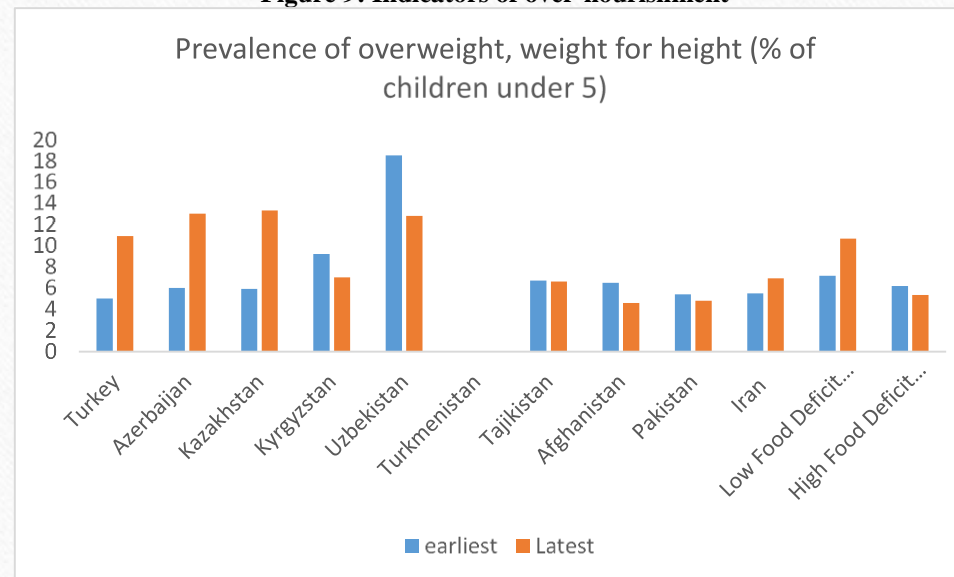
Table 4: Link of extreme poverty and hunger reduction process within low and high food deficit countries

		Kyrgyzstan	Tajikistan	Afghanistan	Pakistan
Growth in Prevalence Rate of Undernourishment	2000-2010	-48.02	-3.60	-45.35	-3.12
Growth in extreme Poverty \$1.90 a day	2000-2010	-90.61	-91.27		-70.86

Data Source: WDI

Why chronic hunger indicators are so much more in focus post MDGs and not so at start of MDGs?

Figure 9: Indicators of over-nourishment

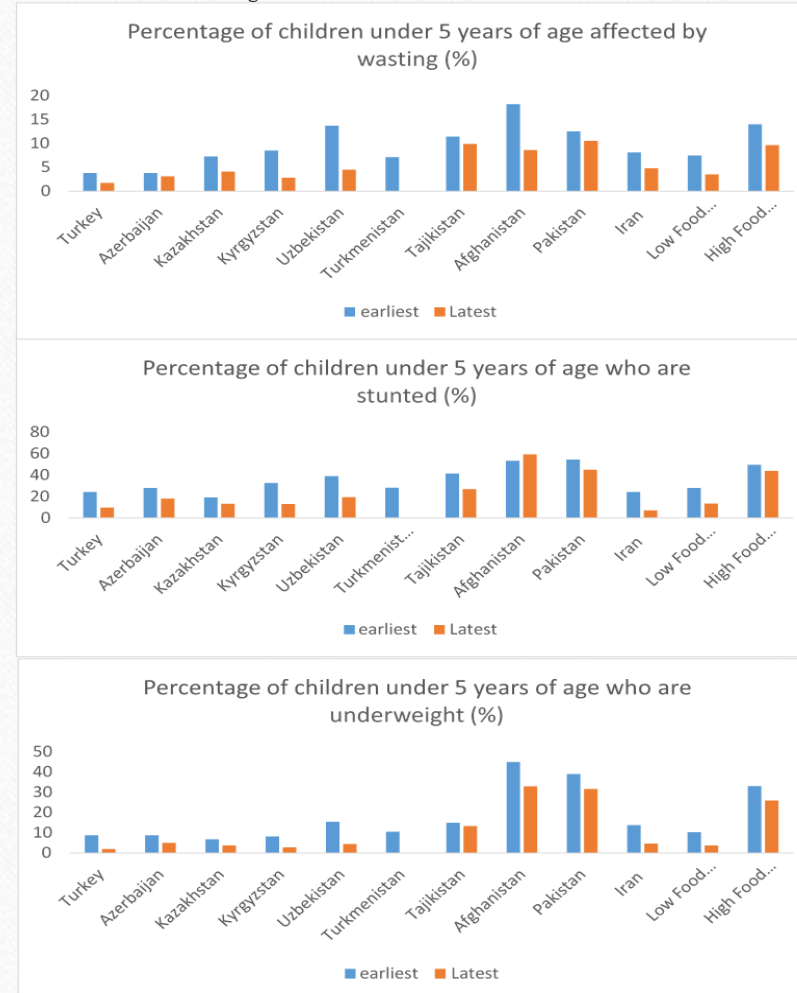


Data Source: WDI

Structure of Chronic hunger is different in low and high Food Deficit Region

- Prevalence of Anemia is much less in children and women in low than high food deficit region
- In terms of preventive care we find much higher incidence of vaccination in low than high food deficit region, however use of such practices is growing at much higher rate in high food deficit region

Figure 10: Indicators of malnourishment

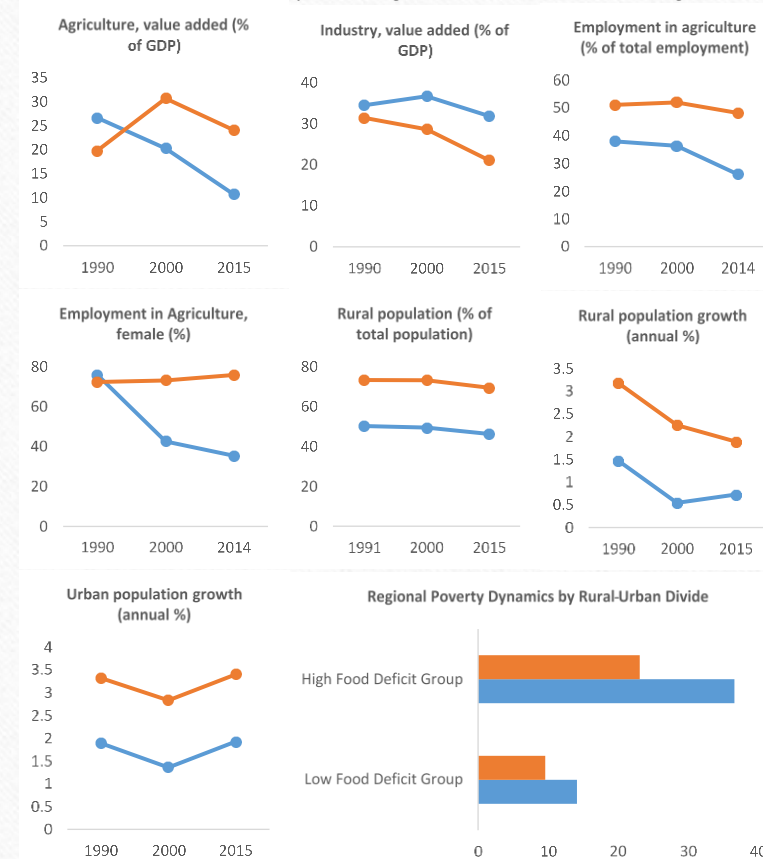


Data Source: FAOSTAT

Why agricultural led growth has been described as path to hunger free end within SDG?

- High food deficit ECO countries have substantially more agricultural dependent societies than low food deficit countries.

Figure 11: Extent of Agricultural Dependence and Profile of Region Poverty and Demographic Dynamics – Aggregated Patterns by Low and High Food Deficit Division within ECO Region

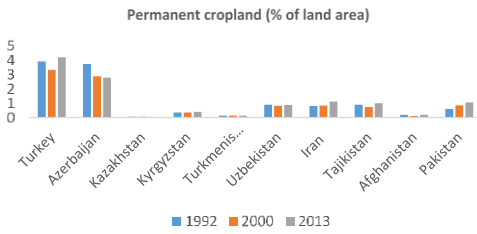
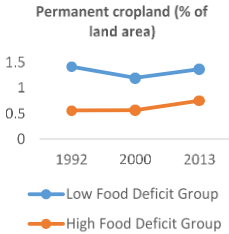
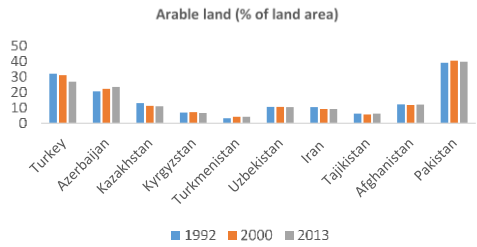
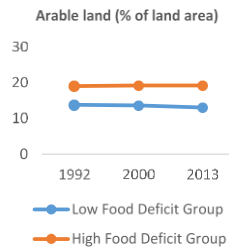
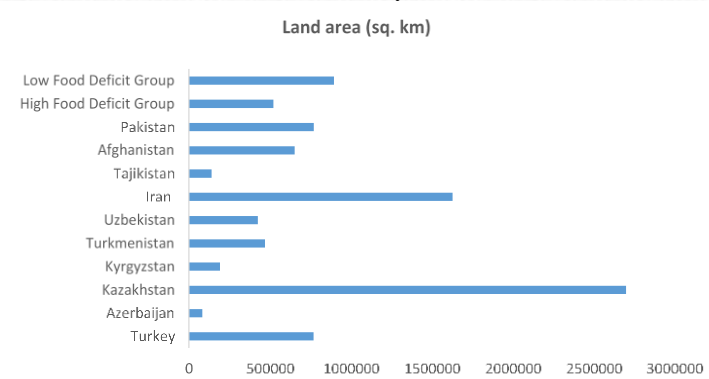


Note: In line chart blue and red line represents average values for low and high food deficit groups and in bar chart blue and red boxes represent average estimated percentage values for low and high food deficit groups within ECO region (as per availability of latest estimates closest to year 2014) for rural poverty headcount ratio at national poverty lines (% of rural population) and urban poverty headcount ratio at national poverty lines (% of urban population).

Why agricultural led growth has been described as path to hunger free end within SDG?

Low food deficit have much higher agricultural productivity irrespective of their quality of agricultural endowments

Figure 12: Comparison of Agricultural Land Endowment and Agricultural Productivity

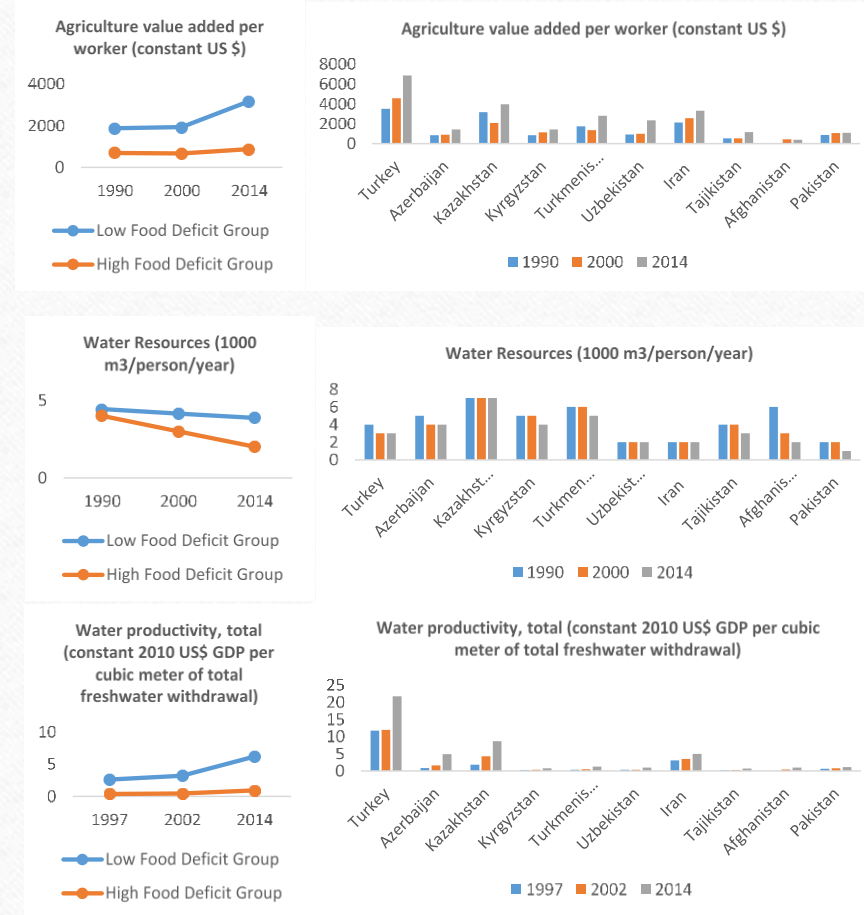


Source: WDI and FAOSTAT

Why agricultural led growth has been described as path to hunger free end within SDG?

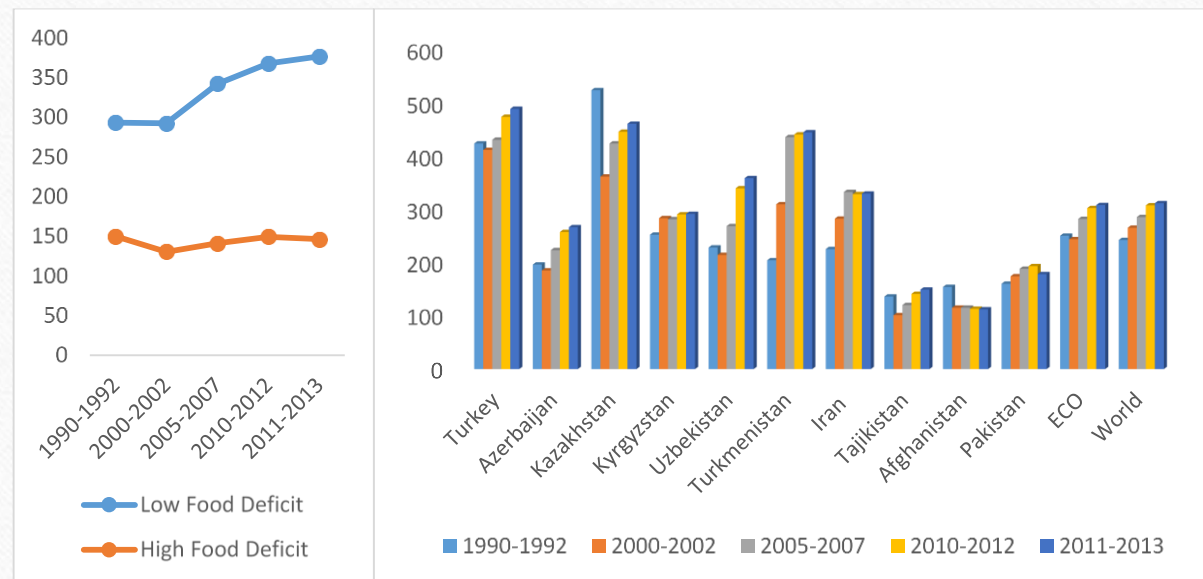
More productive agricultural sector in low than high food deficit region irrespective of what sort of agricultural endowment these countries have point to importance of agricultural led growth

Figure 12: Comparison of Agricultural Land Endowment and Agricultural Productivity (continued)



Source: WDI and FOSTAT

**Figure 12: Average value of food production in ECO Region, by country, 1990/92-2011/13
(constant I\$ per person) (Continued)**

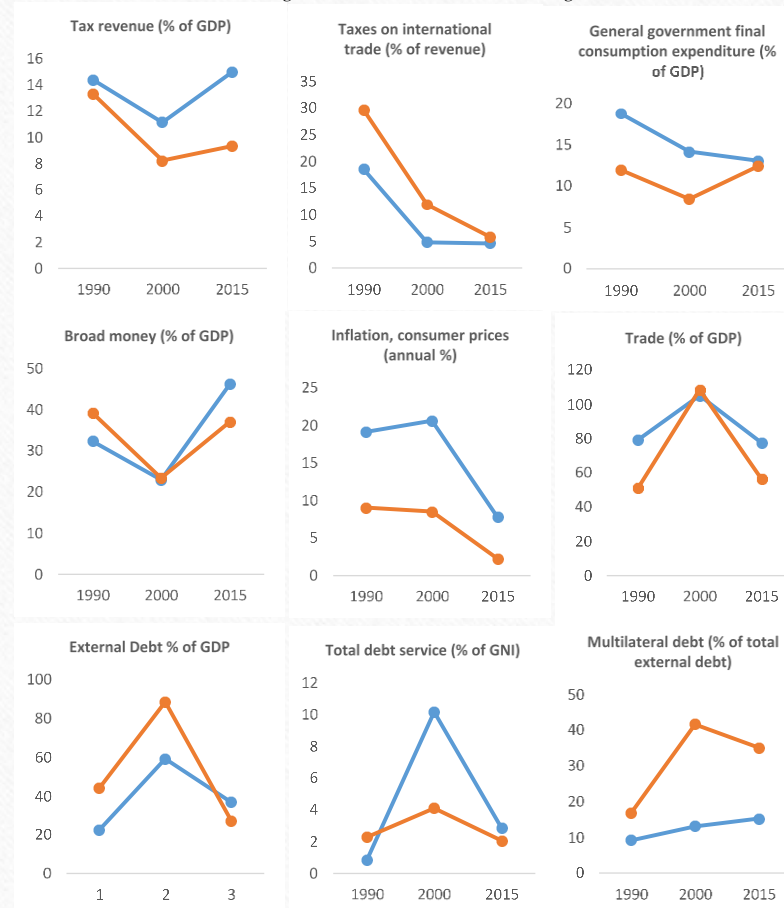


Data Source: FAOSTAT

Analysis of structural factors

Low food deficit region is structurally more resilient whether it is their agricultural sector, whether it is issue of pro-poor and inclusive growth, its over macroeconomic and political stability or issue of social divisions

Figure 13: Overall Profile of Macroeconomic Conditions and Policy Environment – Aggregated Patterns by Low and High Food Deficit Division within ECO Region



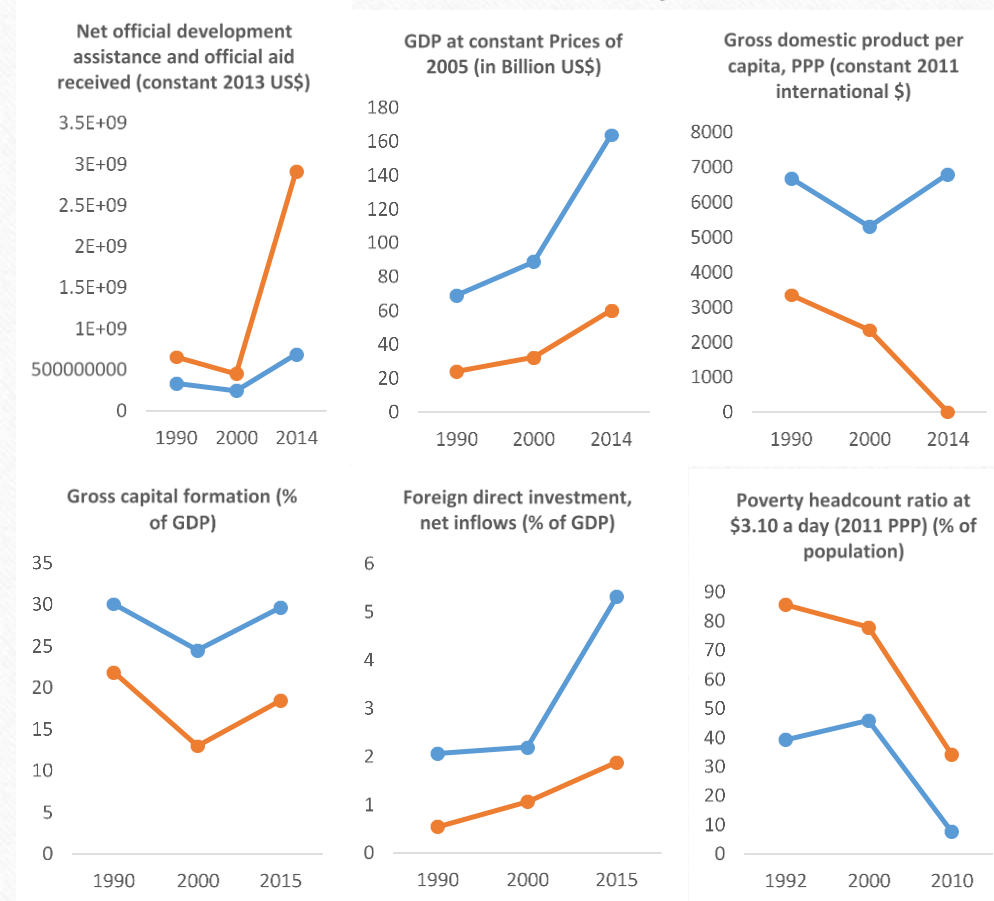
Note: Blue and red line represents average values for low and high food deficit groups

Source: WDI, PIDE ECO Project Macroeconomic Modelling

Analysis of structural factors

Within low food deficit region policies not only improved their overall internal economic stability but also created positive avenues of agricultural growth and positive feedback effects across agriculture and other sectors of the economy

Figure 13: Overall Profile of Macroeconomic Conditions and Policy Environment – Aggregated Patterns by Low and High Food Deficit Division within ECO Region (Continued)

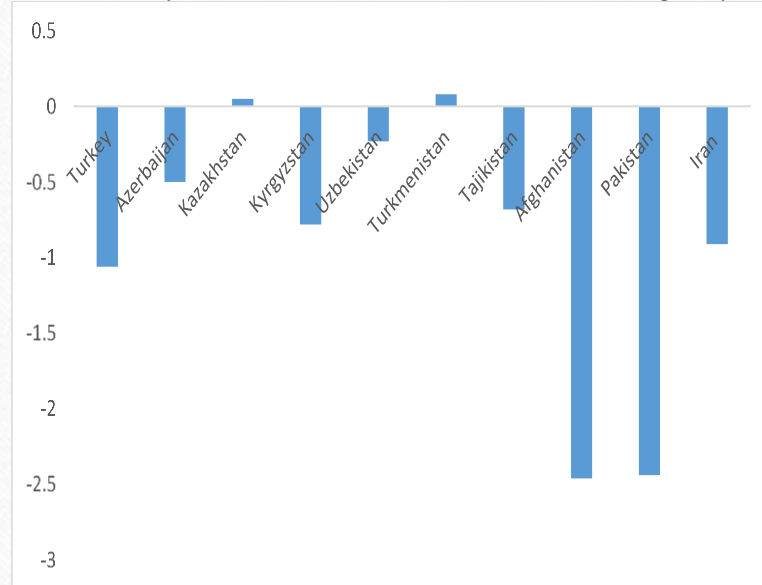


Note: Blue and Red line represents average values for low and high food deficit groups

Source: WDI

Analysis of structural factors

Figure 14: Political stability and absence of violence/terrorism (index) in ECO Region, by country, 2014



Data Source: FAOSTAT

Table : Labor and Educational Outcomes By Gender

	Low Food Deficit	High Food Deficit
Labor force participation rate, female (% of female population ages 15-64)	50.67	34.73
Literacy rate, adult female (% of females ages 15 and above)	95.4	53.45
Labor force participation rate, male (% of male population ages 15-64)	78.82	82.
Literacy rate, adult male (% of males ages 15 and above)	97.98	71.69

Conclusion:

- Findings from ECO region endorse link across MDG 1a and 1c given undernourishment found to be primarily an issue of lack of access to food than non-scarcity and through observation of strong link of pro-poor growth as initiation of faster hunger reduction processes within low than high food deficit regions
- Focus on chronic hunger within SDGs has evolved from appearance of different facets of hunger across low and high food deficit regions
- Finally path to hunger reduction has been found through agricultural led growth in high food deficit regions for multiple reasons again re-enforce SDG hunger targeting stance through promotion of agricultural and rural side of economy.