



INTERNATIONAL FOOD
POLICY RESEARCH INSTITUTE
sustainable solutions for ending hunger and poverty

Food and Agricultural Trade: Implications for Food Security

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**WBI Course on Agricultural Trade and
Export**

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Overview

- Definitions
- Stylized facts
 - Protection
 - Hunger
- Trade and Trade liberalization: Which implications for the food security objective?
 - Theories
 - Illustrations
- The role of regional integration
 - The EU experience
 - Challenges in MENA

Definitions

- Differences between Agricultural and Food Trade
 - Using a HS6 nomenclature;
 - **WTO**: about 700 products over 5200. Does not include Fisheries but includes all raw agricultural commodities (wheat, cotton, hides...) but also processed foods. Ethanol but not biodiesel.
 - **FAO**: covers agriculture and fisheries, but some processed food are not covered by FAO statistics;
 - In EU trade agreements: own definition of agricultural products based on the coverage of the Common Agricultural Policies
 - **Not official definition of Food**. Should it be Agriculture minus non edible agricultural products.
 - What about tobacco and alcohol products?

Definitions (2)

- Food security:
 - Millennium development goals
 - Reduce Hunger
 - Implies *Food Safety*, too.
- Does not imply self sufficiency
- Can be achieved through increased imports and/or domestic production
- Understanding two different contexts:
 - The *business as usual* case. Targets: increased quantity available at a low price with good quality
 - The *Crisis* situation. Domestic and/or International. Protecting domestic consumers against these extreme risks.

STYLISTED FACTS

Applied protection 2004

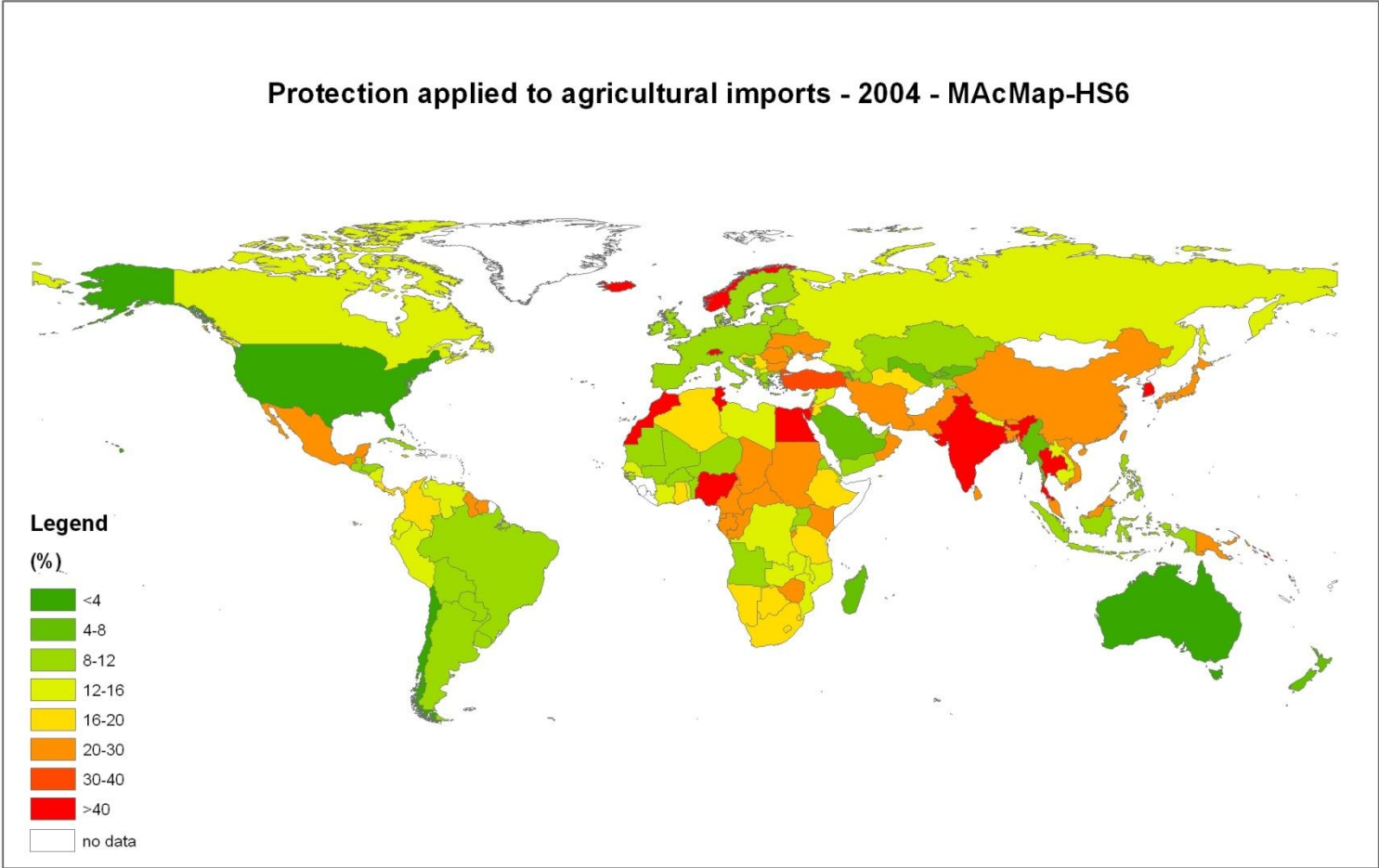
Goods	World	HIC	MIC	LDC
Agricultural goods	18.9	18.0	20.8	14.1
<i>of which:</i>				
<i>primary and semi-processed</i>	12.8	12.1	14.2	9.5
<i>final</i>	22.8	21.7	25.4	16.8
Industrial goods	4.4	2.7	8.9	11.7
<i>of which:</i>				
<i>primary and semi-processed</i>	2.8	1.2	6.2	10.9
<i>final</i>	5.0	2.9	9.9	11.9
Extraction and Energy	1.9	0.6	5.6	12.7
<i>of which:</i>				
<i>primary and semi-processed</i>	1.4	0.3	4.6	14.4
<i>final</i>	3.3	1.4	7.6	11.2
All products	5.1	3.3	9.6	12.2
<i>of which:</i>				
<i>primary and semi-processed</i>	3.3	1.8	6.8	11.4
<i>final</i>	6.0	3.9	11.0	12.4

Average protection faced and applied by developing countries on agricultural products.

	Protection faced by developing countries' exports				Protection applied on developing countries' imports			
<i>Partner</i>	Total	TRQ_MARG	PREF_MARG	AD_VAL comp.	Total	TRQ_MARG	PREF_MARG	AD_VAL comp.
World	19.84%	2.54%	2.35%	11.22%	20.32%	2.77%	1.83%	18.58%
HICs	17.98%	2.42%	3.35%	4.88%	18.42%	2.82%	2.62%	17.26%
MICs	23.02%	2.91%	0.97%	20.47%	22.64%	2.83%	0.96%	20.23%
LDCs	13.89%	0.00%	0.78%	13.78%	18.17%	0.57%	1.05%	16.29%

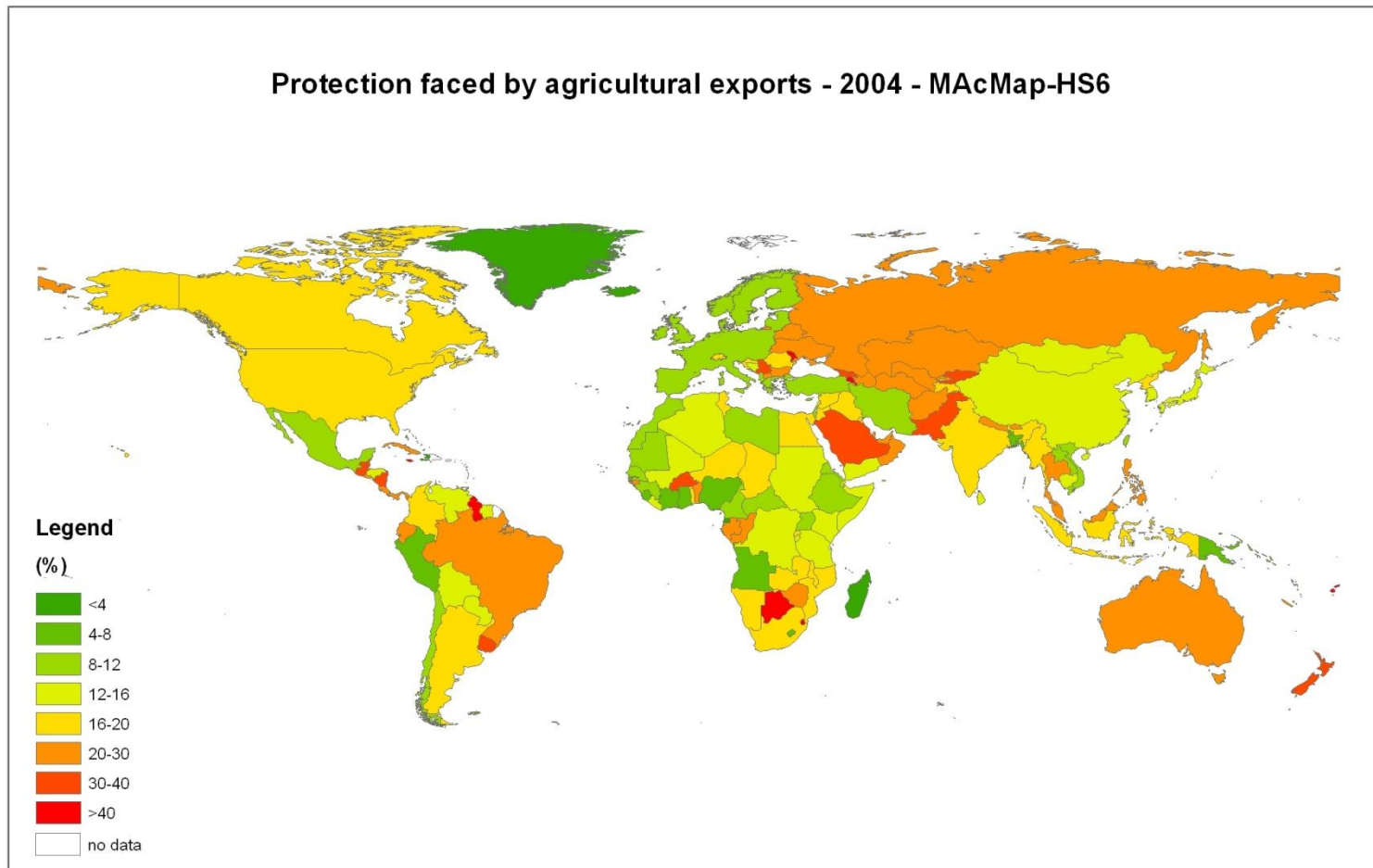
Source: Bouet & Laborde, 2009a

Protection applied on agricultural imports



Source: Bouet & Laborde, 2009a

Protection faced on agricultural exports



Source: Bouet & Laborde, 2009a

Agricultural vs Food protection

- World protection: agriculture=18.85%, non Food=13.21% , Food = 21.12%

HS2 chapter #	Sector description	World average ¹	Simple Average ²	>20 percent	>40 percent
		(in percent)			
1	Live animals	12.6	12.9	12.3	4.1
2	Meat and edible meat offal	38.5	27.7	41.8	13.7
3	Fish and crustaceans	6.7	15.8	30.8	4.8
4	Dairy, eggs, honey, & ed. products	37.4	23.2	30.1	15.1
5	Products of animal origin nsp.	4.6	10.2	17.8	2.1
6	Live trees and other plants	7.7	20	16.4	6.2
7	Edible vegetables and certain roots and tubers	13.6	20.2	28.8	7.5
8	Edible fruits & nuts, peel of citrus/melons	14.7	21	40.4	8.9
9	Coffee, tea, maté and spices	6.4	15.4	23.3	4.1
10	Cereals	25.4	13.9	15.1	6.8
11	Milling industry products	27.4	16.4	21.2	6.2
12	Oil seeds/misc. grains/med. plants/straw	5.6	7.5	8.2	1.4

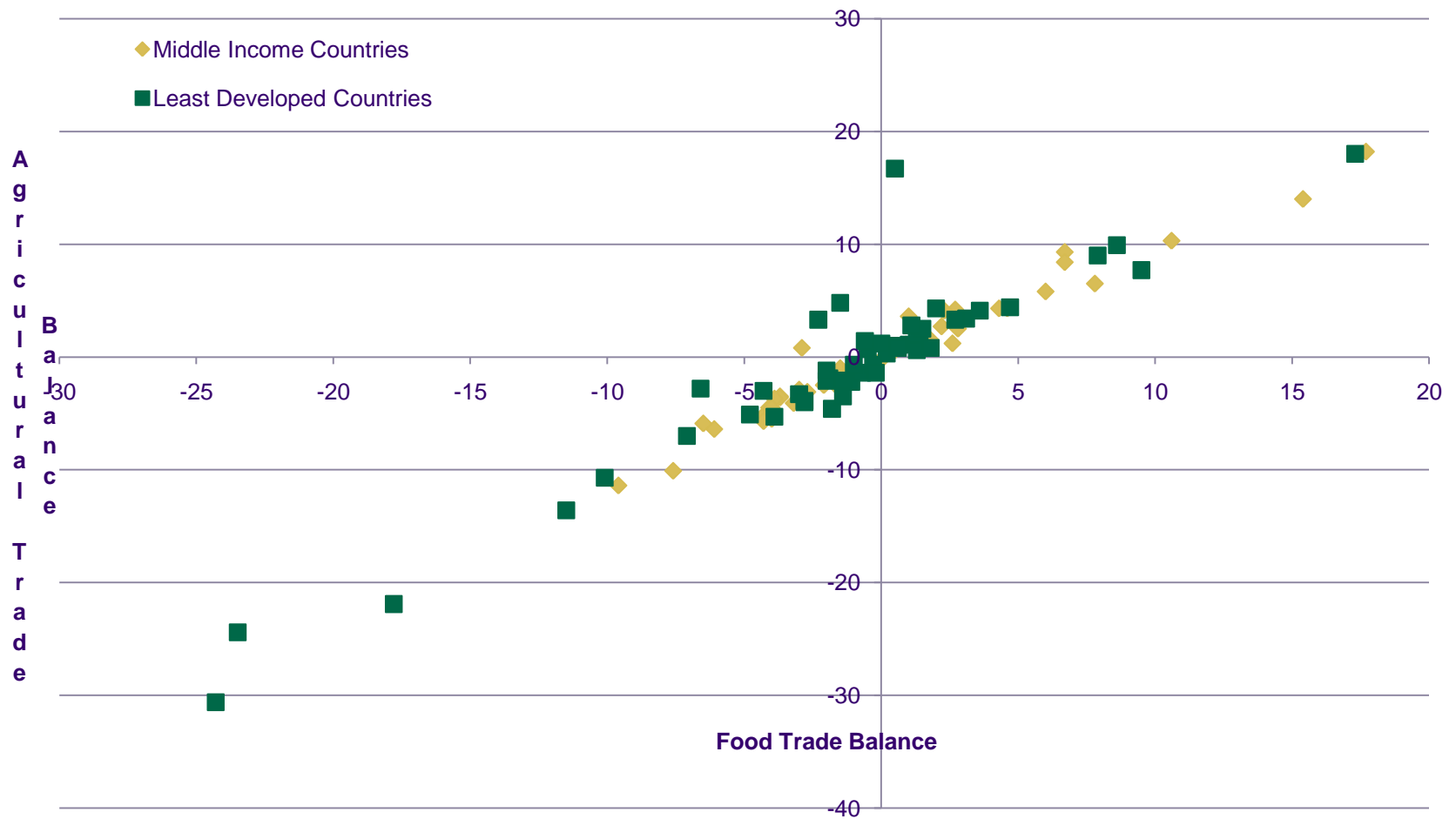
Source: Bouet & Laborde, 2009a

HS2 protection (2)

HS2 chapter #	Sector description	World average ¹	Simple Average ²	>20 percent	>40 percent
				(in percent)	
13	Lac., gums, resins and other veg. saps and extracts	4.5	7.3	7.5	0.7
14	Vegetable plaiting materials	5.9	8.1	6.8	1.4
15	Animal or vegetable fats, oils & waxes	19.3	16	25.3	6.2
16	Edible preparation of meat, fish, crustaceans, etc.	14.4	22.9	39.7	8.9
17	Sugars and sugar confectionery	47.8	22.9	43.8	10.3
18	Cocoa and cocoa preparations	6.4	17.1	29.5	4.8
19	Preparations of cereals, flour, starch or milk	15.7	17.2	28.8	2.1
20	Preparations of vegetables, fruit, nuts etc.	16.5	22.9	41.8	8.9
21	Miscellaneous edible preparations	15	18.3	28.8	4.8
22	Beverages, spirits and vinegar	23.6	55.7	65.1	33.6
23	Residues from food industries, animal feed	10.4	8.7	8.2	0.7
24	Tobacco and manufactured tobacco substitutes	30.1	54.1	52.1	21.2

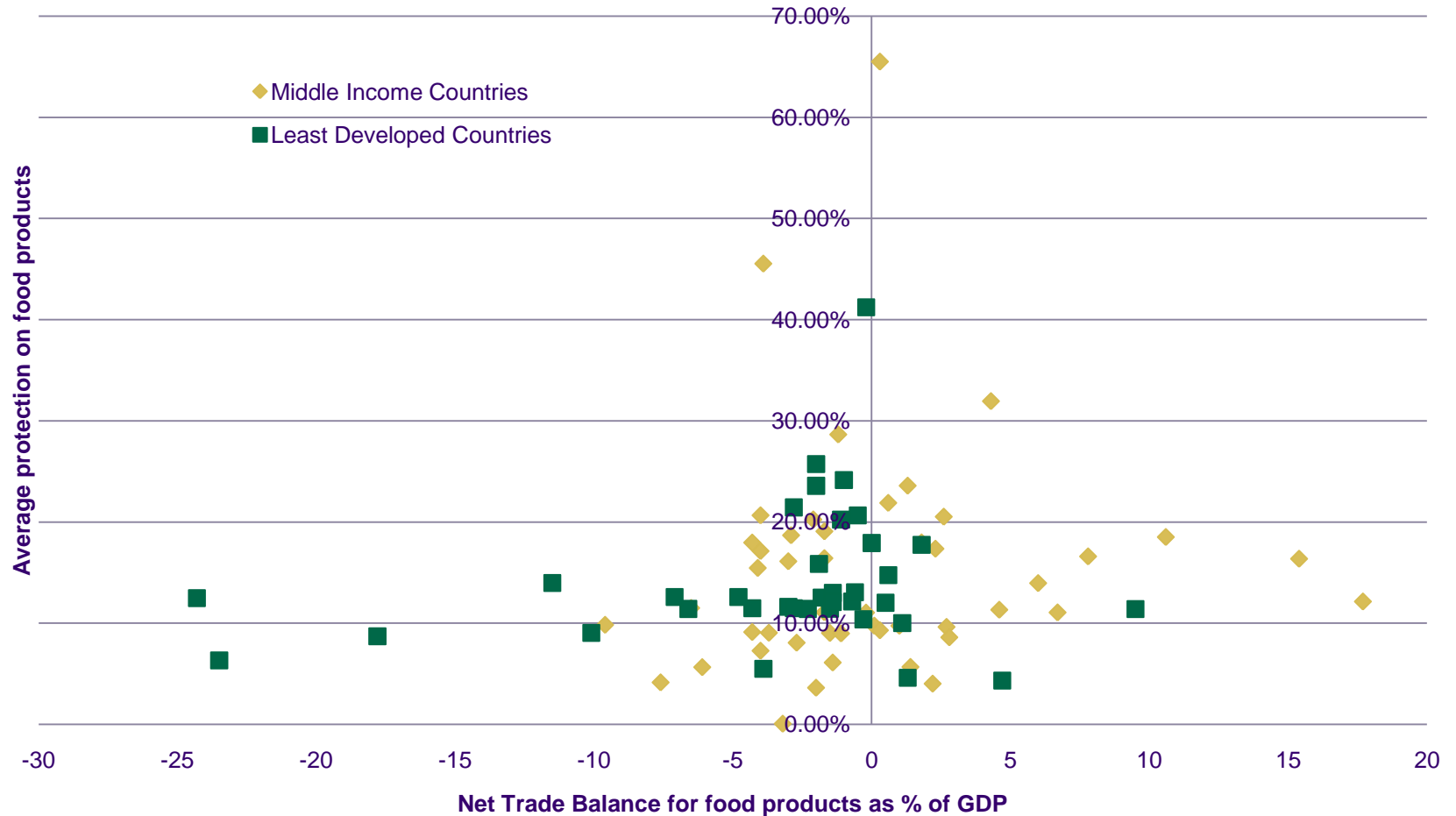
Source: Bouet & Laborde, 2009a

Net Trade Balance as a % of GDP



Source: Bouet & Laborde, 2009a

Protection and Trade Position



Food Security Indicator

- The Global Hunger Indicator
- IFPRI
- Composite Index

THE GLOBAL HUNGER INDEX IS CALCULATED AS FOLLOWS:

$$\text{GHI} = (\text{PUN} + \text{CUW} + \text{CM})/3$$

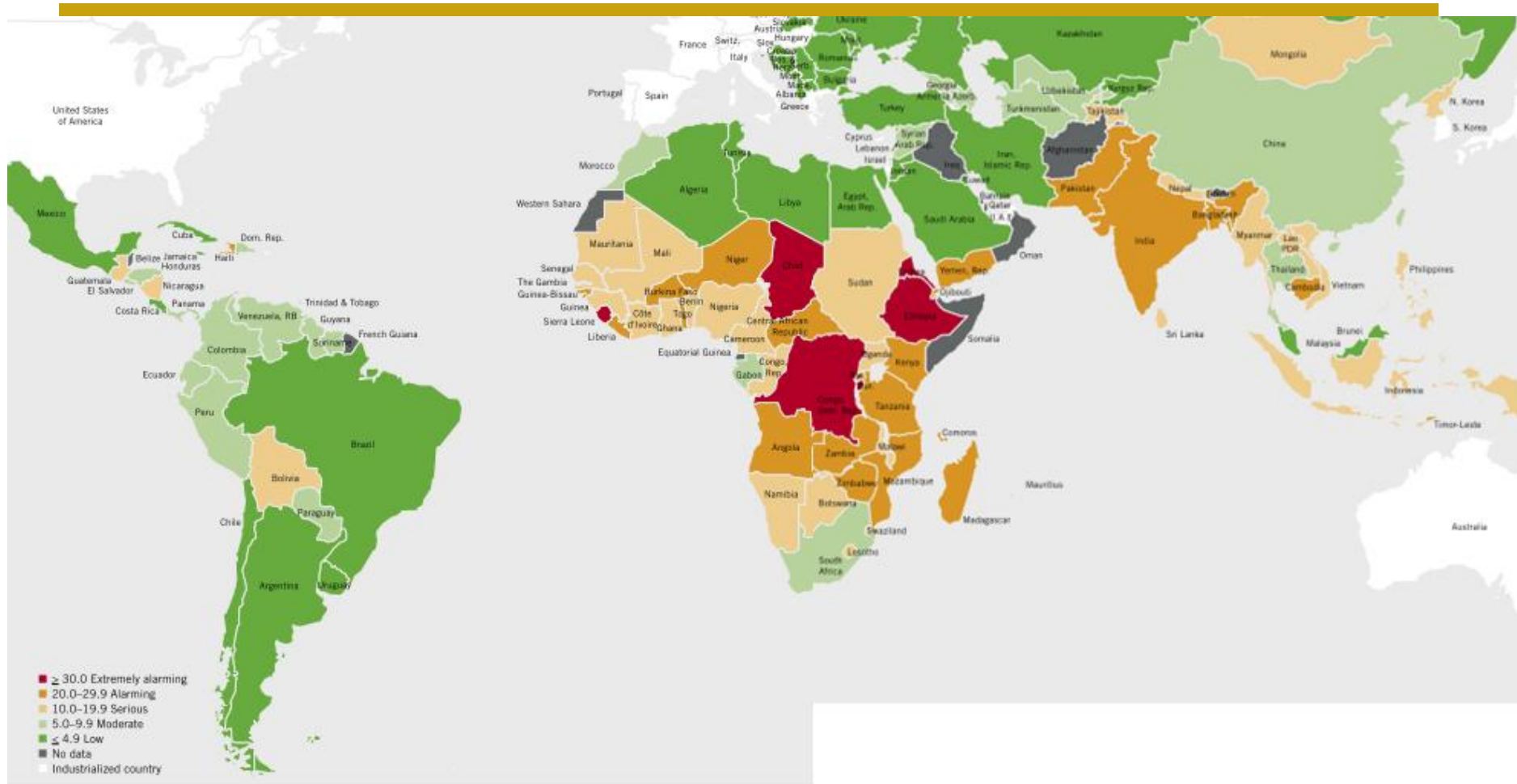
with **GHI:** Global Hunger Index

PUN: proportion of the population that is undernourished (in %)

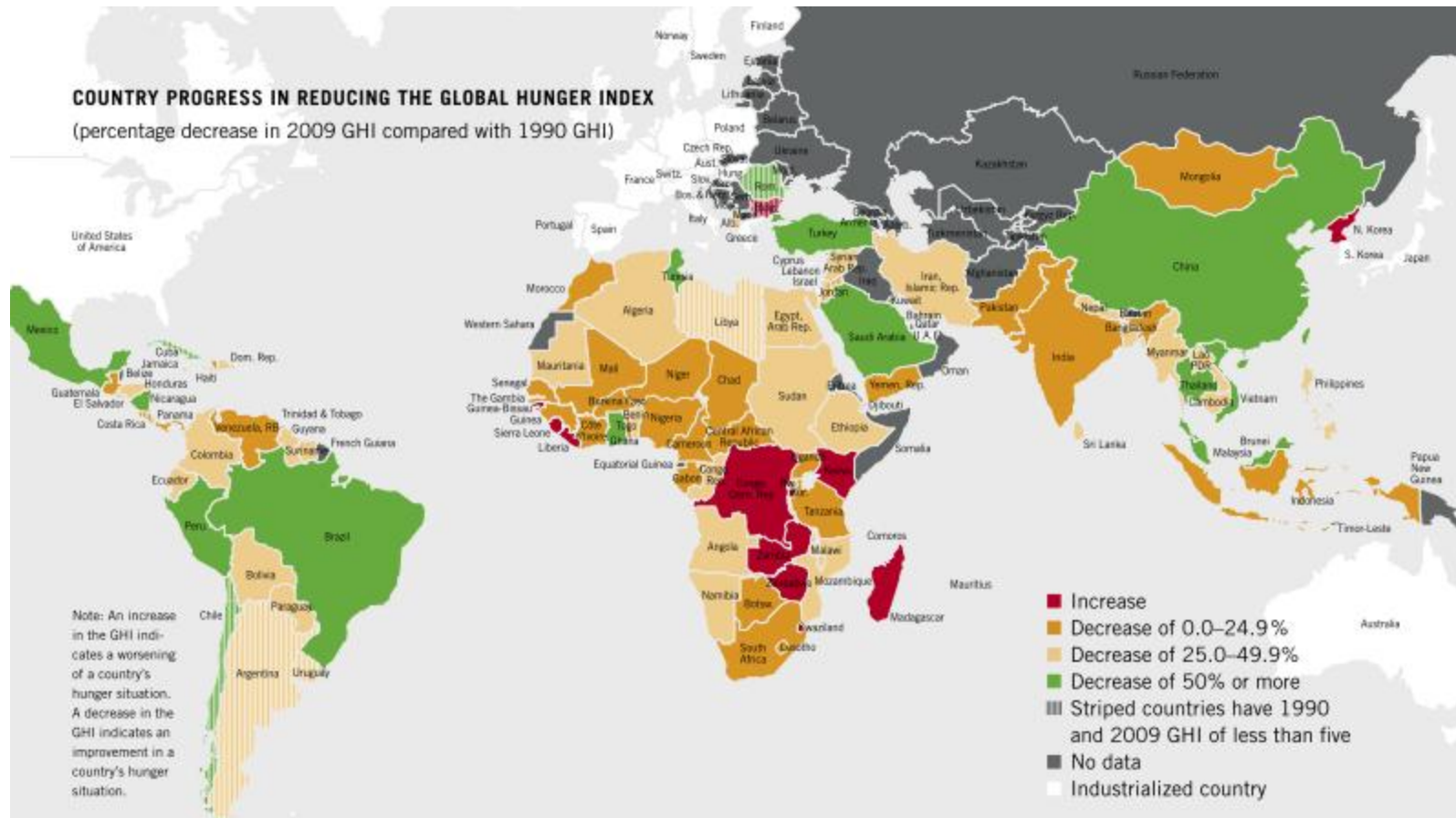
CUW: prevalence of underweight in children under five (in %)

CM: proportion of children dying before the age of five (in %)

Global Hunger Index (2009)

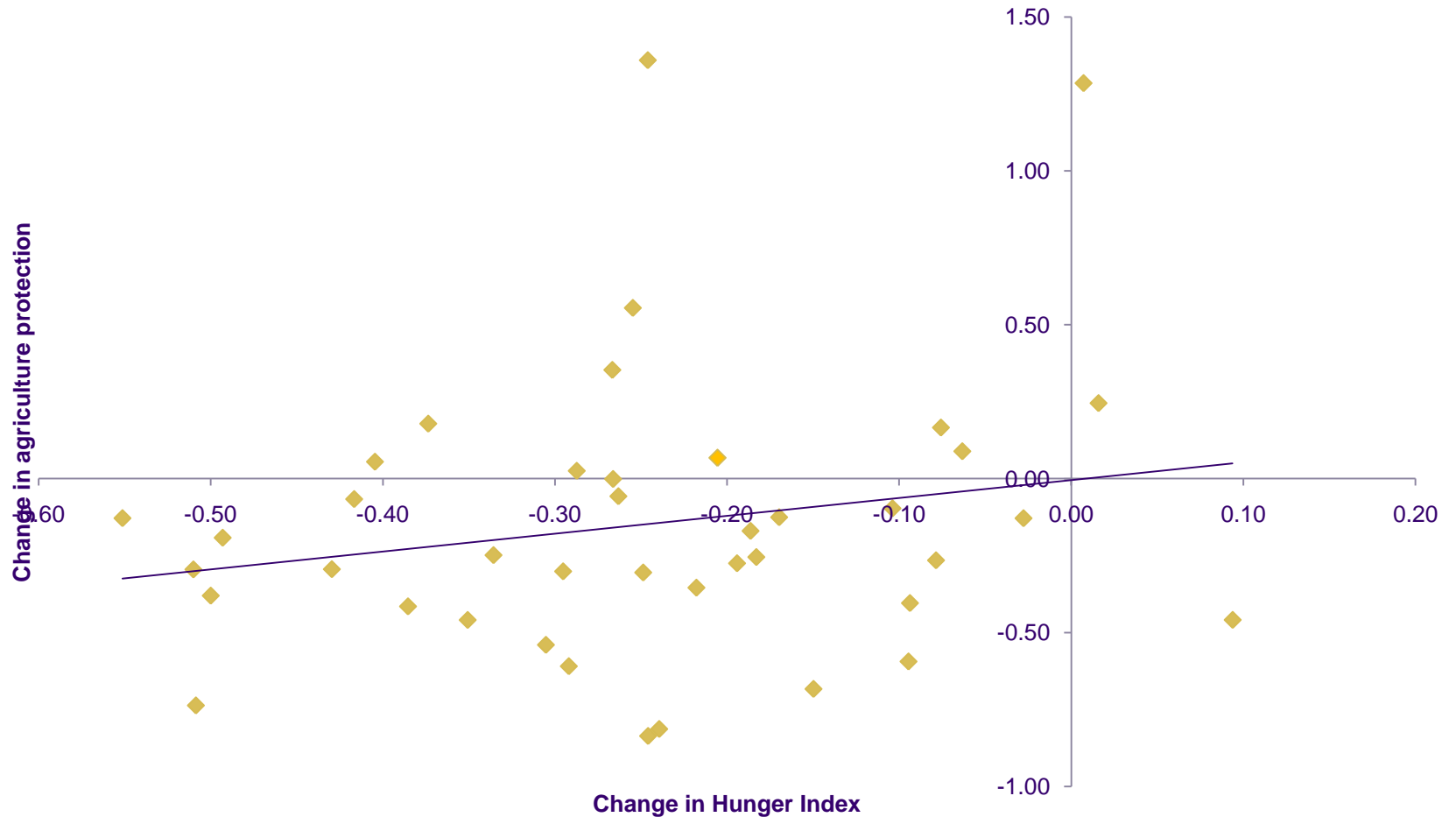


Global Hunger Index (changes 90's → 00's)



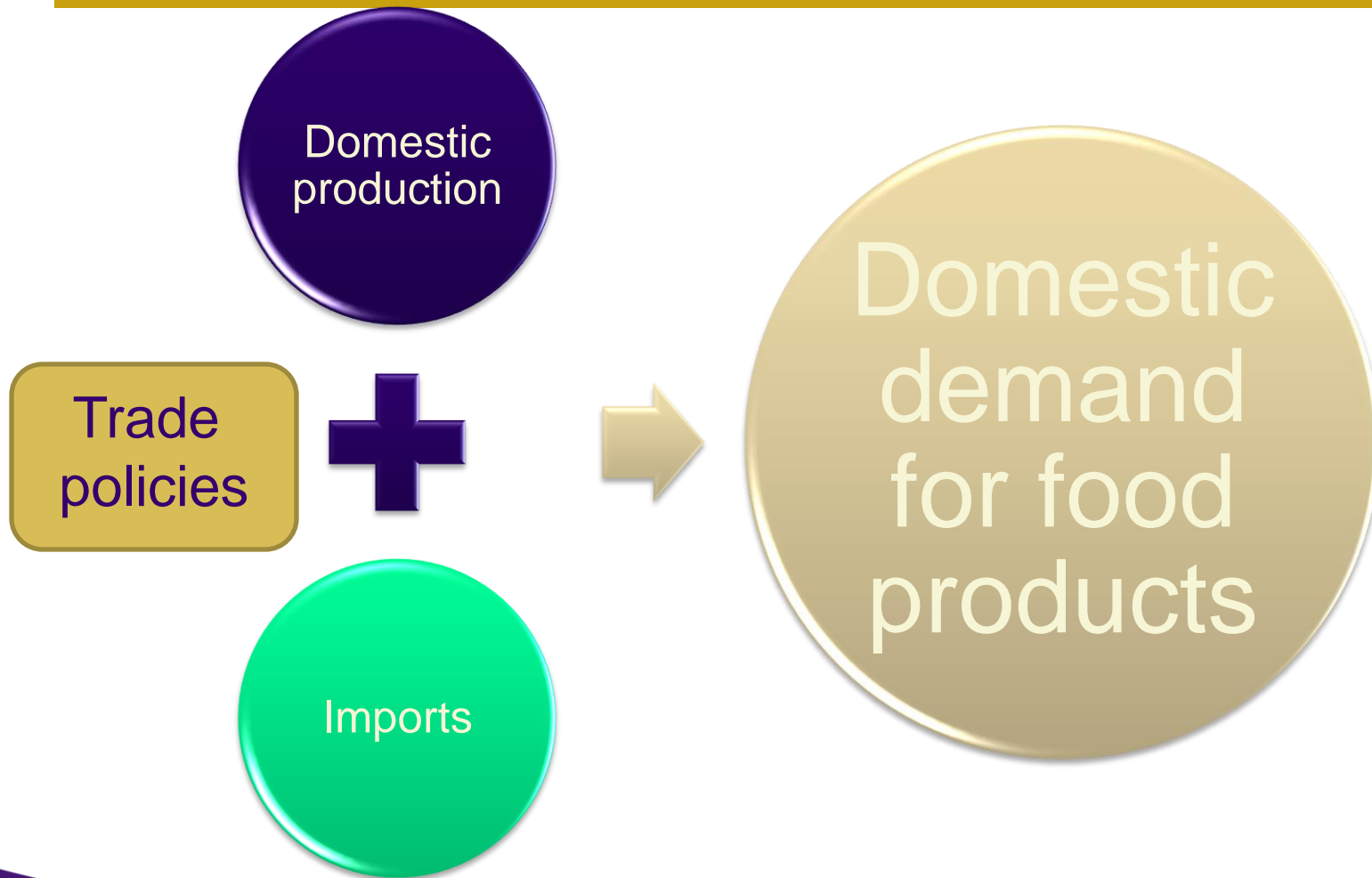
Source: GHI 2009, IFPRI

Changes in protection and hunger



LINKS BETWEEN TRADE AND FOOD SECURITY

Achieving food security



How to achieve food security through trade

- Trade:
 - Increased specialization
 - Increased production in some countries, decreased production in others
 - More interdependency
- Agricultural trade liberalization:
 - Tariff elimination = Boost Demand
 - Elimination of subsidies = Limit Supply
 - Increase world prices
 - Higher prices for producers in exporting countries
 - Stimulate supply and investments, Higher incomes for poor producers
 - Reduction of tariffs allows price reduction for consumers in importing countries (but reduced production in these countries)

Objectives for a food importing country:

- Availability of food products (**quantity**)
 - Trade allows to rely on world supply (large and stable)
- At a low **price**
 - By definition, for importing countries : world price < domestic price
 - In “real” terms: increasing **income** of households → trade liberalization
- Of good **quality**
 - More or less constraints/technology on foreign producers?
 - Role of SPS, can boost or reduce trade.
- **Constraints**, in particular in terms of crisis (domestic or international)
 - Balance of payments for importing countries
 - Income constraints for household

Objectives for a food/agricultural exporting country:

- Trade increases income for domestic producers but will raise price for domestic consumers since domestic production is exported;
- If non food products are exported, the Food balance is not affected and can become positive;
- But due to supply constraint, careful analysis is needed:
 - Substitution for the producer between cash crops and food products: e.g. more tobacco → less corn.
 - Complementarity between agricultural production: e.g. more cotton → more maize.
 - Positive externalities: investment, fertilizers

Public intervention (small country)

Policy Instrument	Domestic production	Domestic consumption (→ Hunger?)	Trade	Self Sufficiency
Import duties	+	-	-	+
Import subsidy	-	+	+	-
Production subsidy	+	0	-	+
Consumption subsidy	0	+	+	-
Export Tax	-	+	-	+
Export Subsidy	+	-	+	-

- But... Global externalities. E.g. Export taxes by main exporters → Higher costs for importing countries

→ Role of global discipline

Trade and Volatility

- When do we need protection?
 - Role of Tariff rate quotas
 - Role of contingent protection: Safeguards mechanisms
- Supporting domestic production:
 - Gains in productivity → Private Investment in agriculture → Requires Price stability?
 - Achieved through public policy or without public policy
- Food security during crisis
 - World market less reliable than domestic producers?
 - Depends on the source of volatility:
 - Endogenous (behaviour), Can the government limit it?
 - Exogenous (rainfall), Risk analysis (as in finance theory)
 - Fixed cost to trade and trust relations
- As before, non cooperative trade policies → Increase in global instability
- The role of safety net

Input-Output relations in Agriculture

- Complex IO relations: few countries can be “self-sufficient” in everything:
 - Cereals and Cattle
 - Fertilizers and Crops
- What does it mean to be food secure in this situation?
- Role of regional integration

ILLUSTRATION: THE EFFECTS OF FULL TRADE LIBERALIZATION

A CGE assessment

Export volume – Changes %

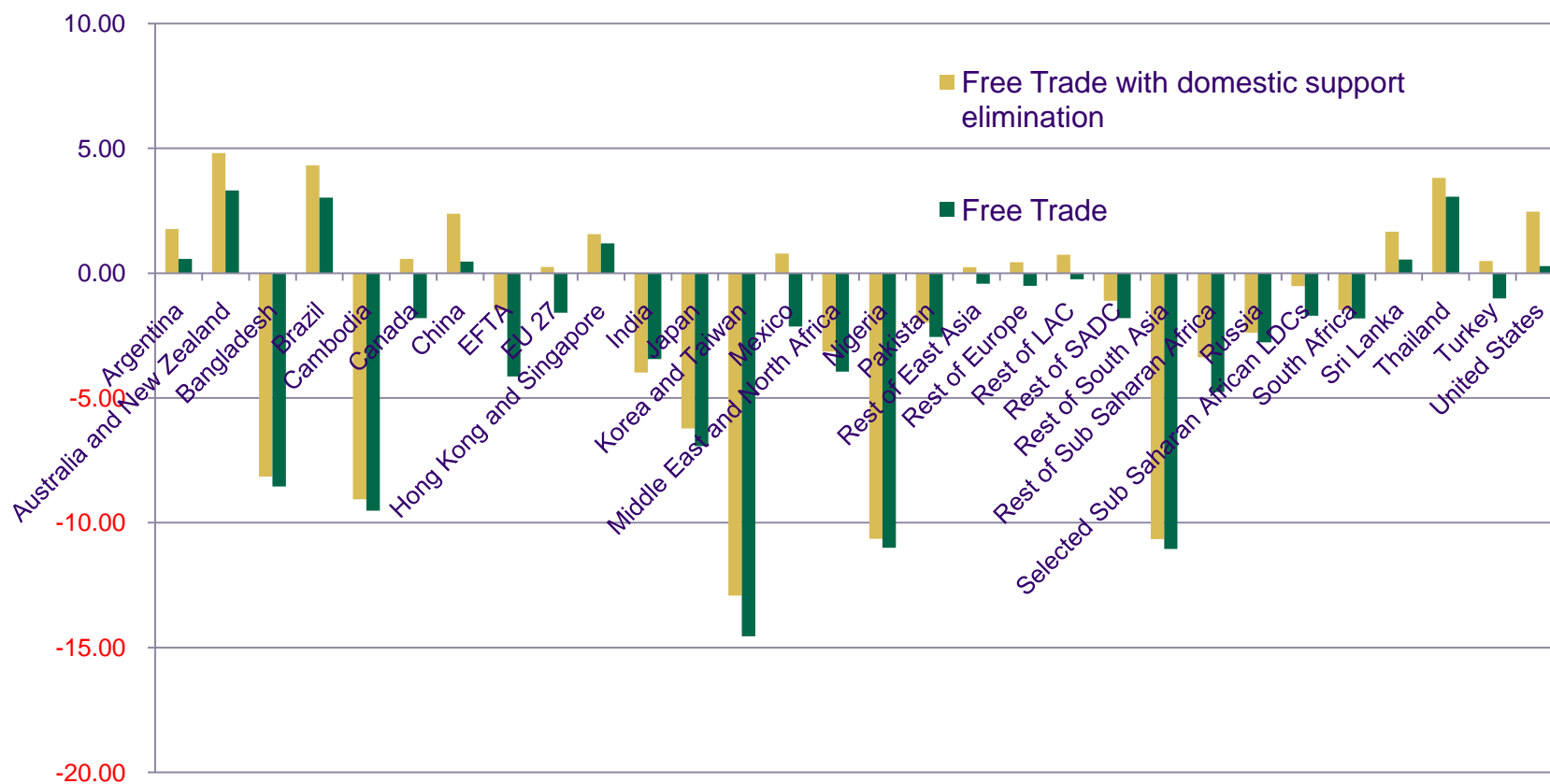


Source: Bouet & Laborde, 2009a

Study design

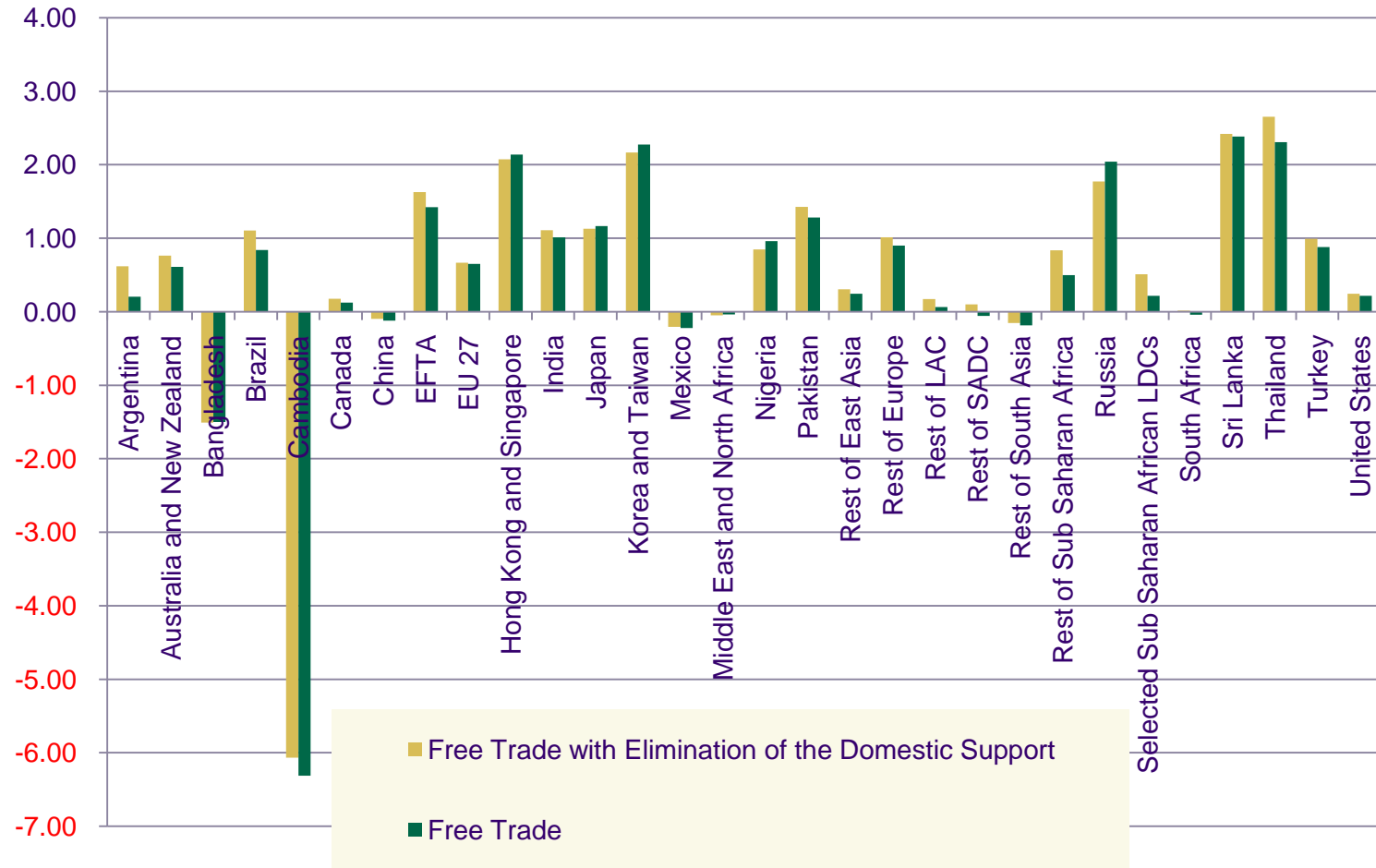
- Bouet & Laborde, 2009a
- MIRAGE CGE model: multi sector, multi country, dynamic
- Full trade liberalization: all sectors

Agricultural and Agro food production by region



Source: Bouet & Laborde, 2009a

Real Income by region



Source: Bouet & Laborde, 2009a

Food consumption evolution



THE EFFECTS OF EXPORT TAXES

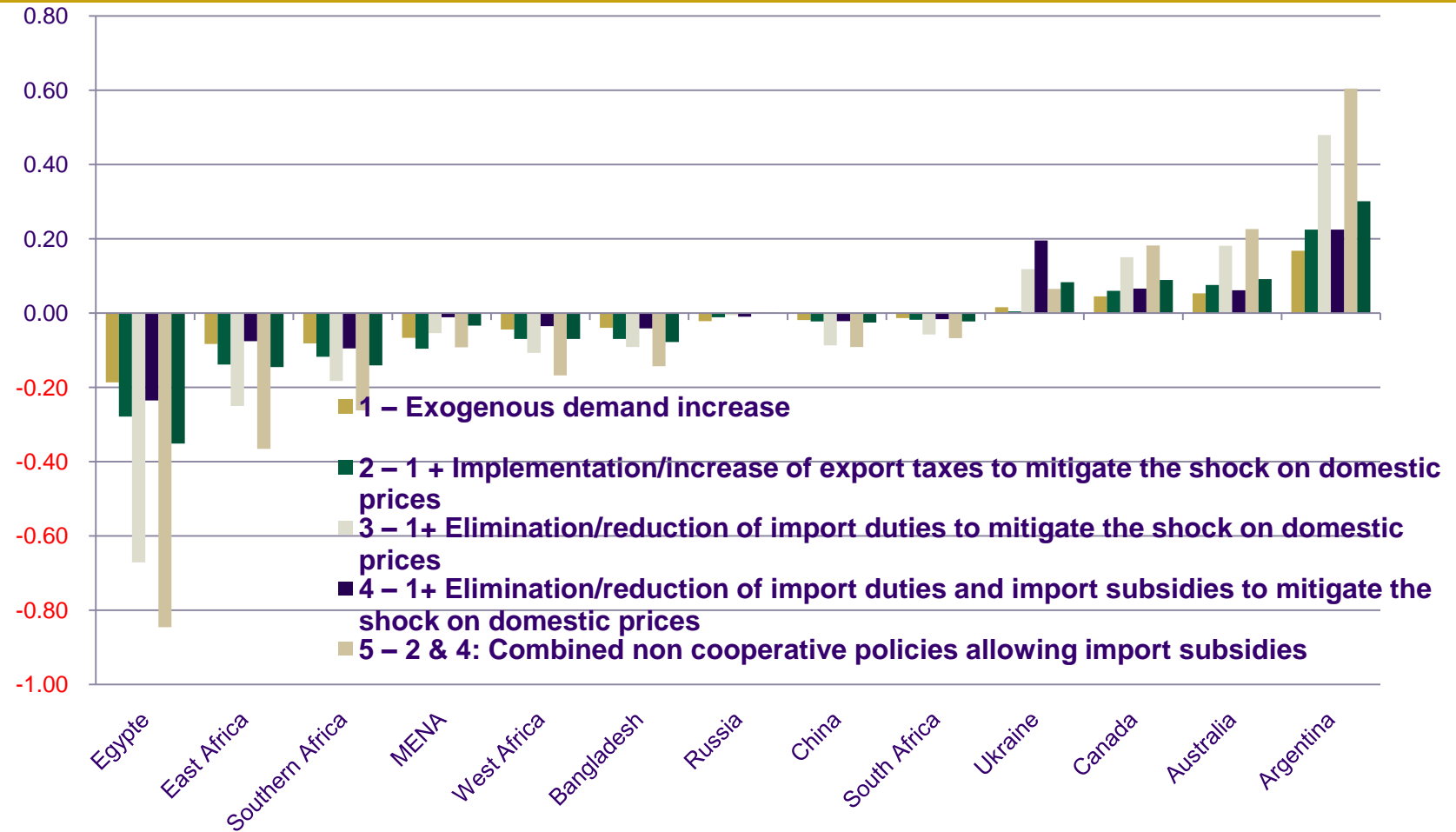
Experiment design

- Bouet & Laborde, 2009b
- Demand shock on the world market for one commodity. E.g. wheat
- How different countries can react?
 - Exporters → Export tax to neutralize effects on domestic prices
 - Importers → Reduction in tariffs and, import subsidies?
 - Interaction between exporters and importers policies

Results on average prices

Wheat	<i>Average production price</i>	<i>Average trade price</i>
1 – Exogenous demand increase	9.10%	10.8%
2 – 1 + Implementation/increase of export taxes to mitigate the shock on domestic prices	1.52%	16.76%
3 – 1+ Elimination/reduction of import duties to mitigate the shock on domestic prices	9.05%	12.62%
4 – 1+ Elimination/reduction of import duties and import <u>subsidies</u> to mitigate the shock on domestic prices	20.12%	27.31%
5 – 2 & 4: Combined non cooperative policies allowing import subsidies	16.00%	41.10%
6 – 2 & 3: Combined non cooperative policies without import subsidies	7.05%	20.58%

Results on real income (welfare, %)



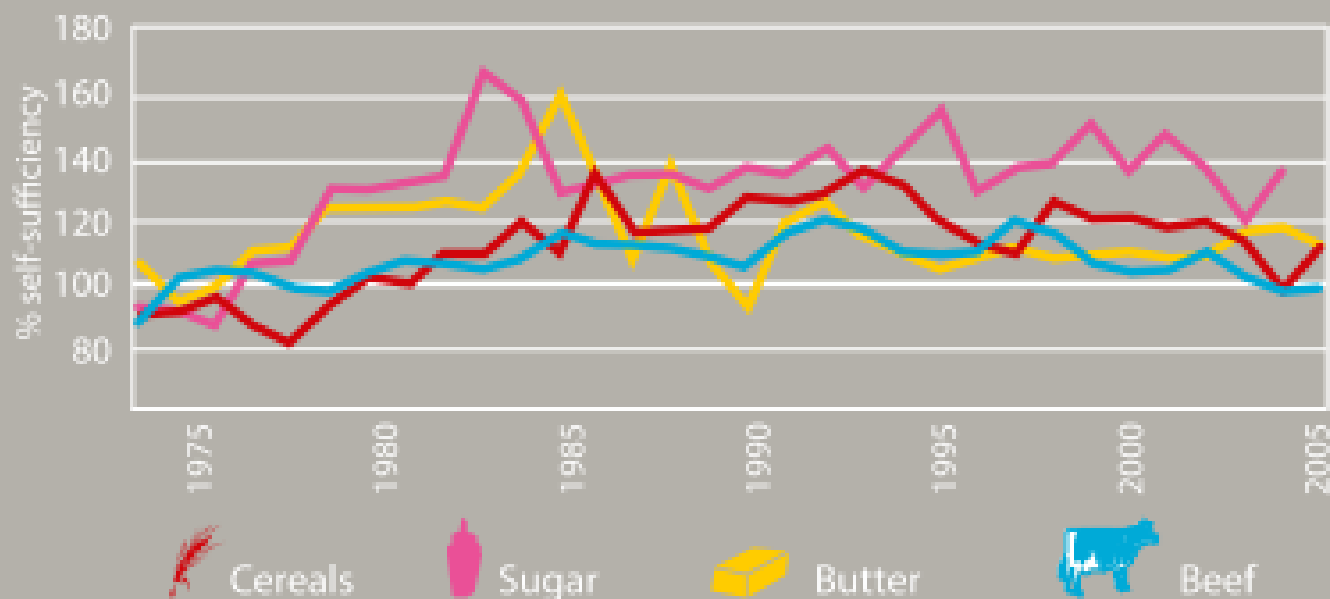
THE EC EXAMPLE

The Common Agricultural Policy

- Treaty of Rome, 1957. The CAP (article 39):
 - to increase productivity, by promoting technical progress and ensuring the optimal use of factors of production, in particular labour;
 - to ensure a fair standard of living for the agricultural Community;
 - to stabilise markets;
 - to secure availability of supplies;
 - to provide consumers with food at reasonable prices.
- CAP and Agricultural Trade policies:
 - Subsidies, tariffs, tariff rate quotas and public intervention (target price)
 - Developing a regional market: “Fortress Europe”
 - The role of monetary integration

A clear success

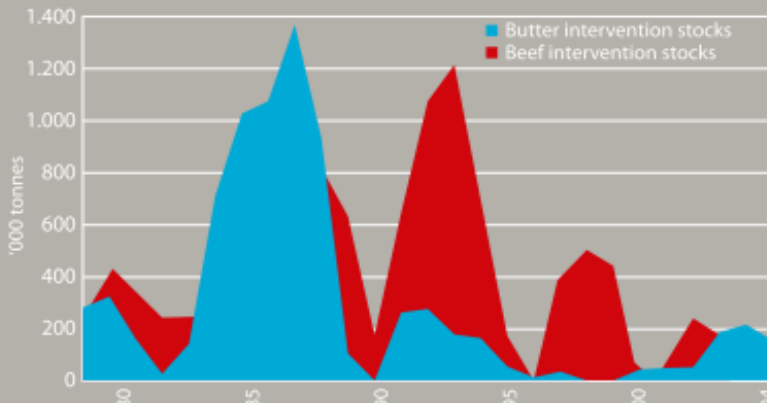
DEVELOPMENT OF SELF-SUFFICIENCY FOR CEREALS, SUGAR, BUTTER AND BEEF IN THE EU



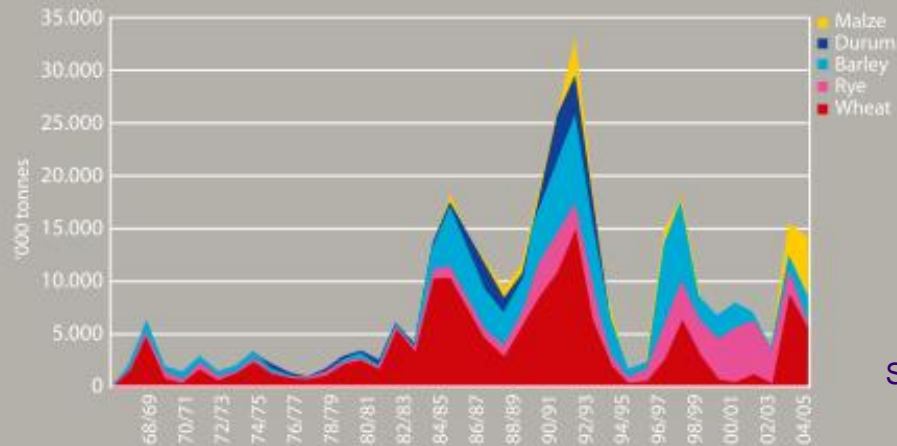
Source: European Commission, 2009

But too successful and too costly → Reforms

Development of public storage of beef and butter (intervention stocks)



"FOOD MOUNTAINS" NO LONGER EXIST
Development of public storage of cereals (intervention stocks)

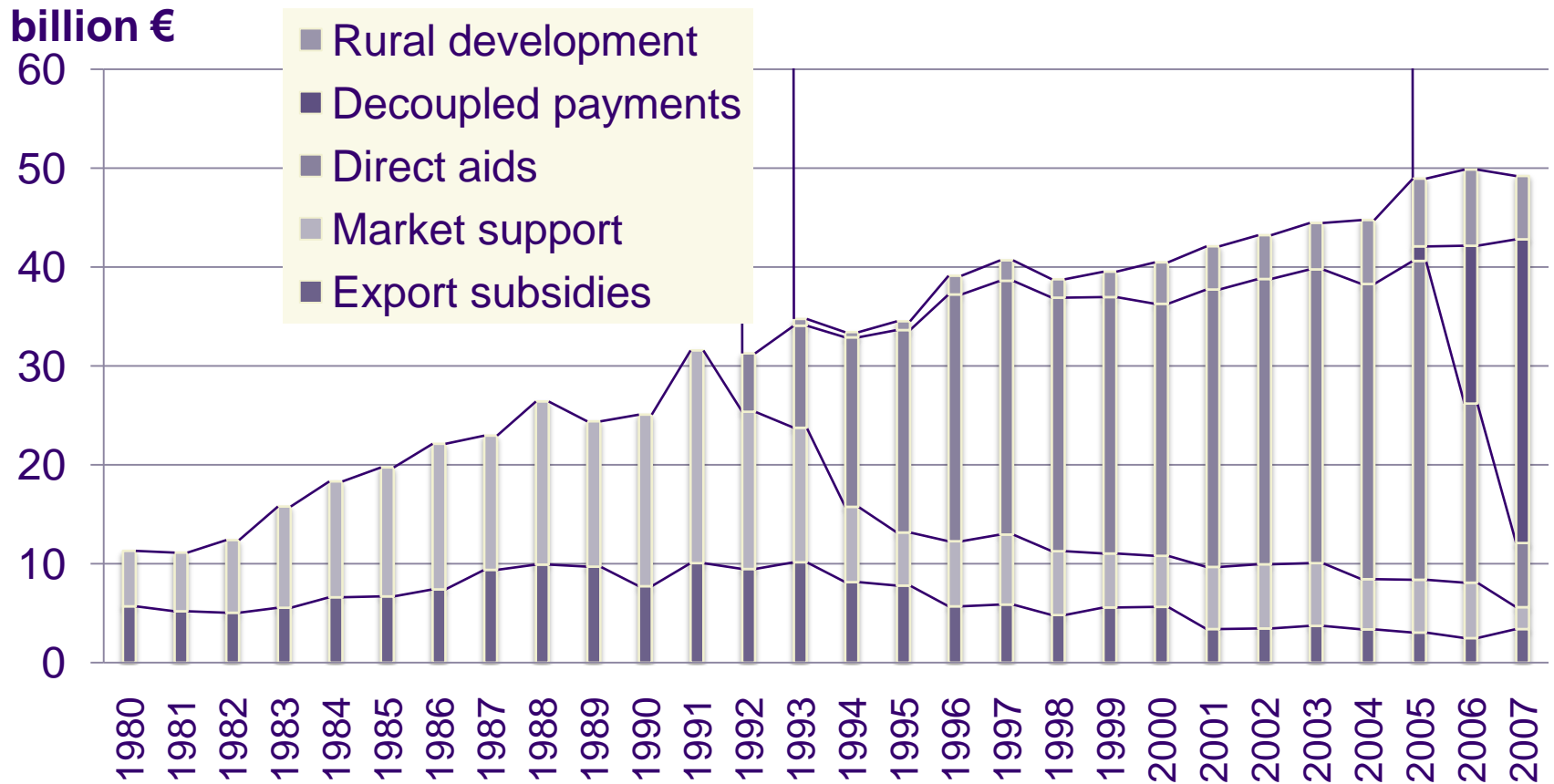


Source: European Commission, 2009

- Cost for EU Tax payers
 - Subsidies
 - Storage
 - Half of the EU budget. EUR46 billions + envirt (11 bios x 2/3).
- Cost for EU consumers
 - Final consumers
 - Intermediate consumers
- Cost for Trade partners
 - WTO led reform. Uruguay Round and the Blairhouse agreements

Source: European Commission, 2009

Evolution of CAP expenditures



Source: European Commission, 2009

INSIGHTS FOR MENA

-
- Configuration of trade liberalization:
 - Multilateral
 - Regional
 - Defining a regional market:
 - Larger as possible to have a stable supply
 - But:
 - Need transportation capacity and effective integration
 - Difficulty to define regional policies with too many countries (transfers problem)
 - Trade liberalization and:
 - Agricultural policies
 - Capital market integration and efficiency
 - Safety net