Coordinated Value Chains as a Strategy for Faster Economic Growth

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Can a developing country ***accelerate*** its ***economic development*** and improve its ***standard of living*** at the same time?

Present Situation

- Stage of economic development
- Stage of technological development
- Quality and pervasiveness of infrastructure
- Literacy and education levels
- Available natural resources
- Entry and Access barriers

Macroeconomic Policies

- Fiscal and monetary
- Taxes
- Investment
- Forex availability
- Local **vs.** Foreign content

(Geo)political Environment

- Location and Geography
- Internal and external threats
- Policy towards neighbors
- Interests of incumbents
- Pressure from opposition

Market economy

"We will achieve better results in due time, given efficiency priorities".

Resource allocation by market

LESS CONTROL IS BETTER

Planned economy

"We will achieve better and faster results through the political selection of priorities."

Resource allocation by fiat

MORE CONTROL IS BETTER

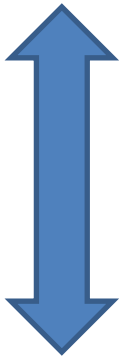
Market or Planned Economy?

- In market economies, ***politics interferes with markets***

- In planned economies, ***markets interfere with plans***

Reality is More Complex

Purer market economies



Differential taxation

Tariffs and trade barriers

Off-limits industries or sectors

Selective centralized planning

Centralized planning with markets

Purer centrally-planned economies

Issues in Market vs. Planning

- Property rights
- Capital and Labor markets
- Freedom of movement of people and goods
- Transparency of rules
- A level dispute-resolution system
- Political legitimacy

Movement requires major changes

An Alternative Mindset

A PRAGMATIC APPROACH

HIGH-IMPACT, ACCELERATED ECONOMIC AND SOCIAL DEVELOPMENT

FROM: Market vs. Central Planning

TO: Market vs. Internal Organization

A Pragmatic Orientation

Countries can accelerate their ***economic development*** and ***standard of living*** by picking ***favorite value chains*** and giving them relentless and ***dedicated focus***.

Value Chains

- **Compounded growth rate of created wealth**
  - Political economy: creation, appropriation, distribution
- **Contracts vs. Internal Organization**
  - Technological separability
  - Transactional complexity
  - Information impactedness
  - Political economy: control requirements
- Shorter or Longer
- Simpler or More Complex
- Lower or Higher degrees of integration

Dedicated Focus

- Capabilities to develop a value chain
- Power to control a value chain
- Clear goals and results orientation
- Governance principles and method
- Focus on stability and growth
- Relentless pursuit of set objectives

Favorite Value Chains

- Take full advantage of **available resources**
- Produce a **superior** ratio of **output value** to input value
- Produce **superior economic impact** in the overall economy
- Cover **multiple industries**,improving income, productivity, technology and level of innovation
- Create **job opportunities** throughout

Government Structure

- Typical functional organization
  - Agriculture
  - Energy
  - Environment
  - Industry
  - Trade...
- Initiatives normally “chimney” based
- **Cross-functional orientation**
- **Thinking “backwards”**

Value Chain Requirements

- Clear **sponsorship**
  - Government
  - Public - private partnership (PPP)
  - Private company
- Value chain **captain**
- **"Shared fate"** of members
- **Synergy** among members
- Member performance **evaluation**
- **Stability** of rules and regulations

Coordinated Value Chains: The Role of Government

- Indication of **interest and support**
- **Rule design** and **legislation** approval
- **Investment**, **financing** and **tax incentives**
- Creation of specific purpose company(ies)
- Shareholder **in part of** or in the **whole chain**
- Sole **ownership of part** or **whole**

Control via legislation, contract, ownership

A Coordinated Value Chain: Ethanol-as-Fuel in Brazil

Ethanol-as-Fuel in Brazil

- World's **2nd** largest ethanol producer
- **1st** in sugarcane ethanol
- **Zero** government subsidies
- Annual production: **23 billion liters** (15% exp)
- Value at pump: **US$ 20 billion**
- Dedicated planted area: **4.6 million ha**
- Energy yield: **9x** (corn @1.4x)
- **33,000** fuel stations (100% of retail market)

Gas Station Fuel Menu

Brazil´s Ethanol Project

- Ethanol-as-fuel **not a new idea**
- Economics related to the **price of oil**
- **Oil crises** in the 1970s sparked interest
- Large **sugarcane-for-sugar** industry in place
- **“Proálcool”** ethanol program of 1975 signalled government support and subsidies
- Value chain developed slowly, due to **tech limitations** and **oil price fluctuations**

Brazil´s Ethanol Project

- However, **critical factors remained present**
  - Local dependence on oil and gasoline imports
  - Technological developments in car engines and parts by local auto industry
  - Qualified local distillery manufacturers
  - Guaranteed availability at pump
  - Favorable tax rates for ethanol-powered vehicles

Ethanol Value Chain in Brazil

- **1978**
  - First ethanol-powered **Fiat *147***s produced in Brazil – **ran on E100 only**
  - **Either-gas-or-ethanol** new cars available

- **1986**
  - **96%** of new cars sold were **E100-only**
  - Continued technological developments

Ethanol Value Chain in Brazil

- **1990s**
  - **Ethanol loses ground** due to oil price stability and issues with automotive technology
  - Continued tech development

- **2003**
  - **Volkswagen** introduces its ***Gol 1.6 Total Flex*** car
  - Whole industry follows with their **FFFV**s **(full flexible-fuel vehicles)**: gasoline @ E20; E100; both

Ethanol Value Chain in Brazil

- **2006**
  - Ethanol represents **18%** of car and LDV fuel matrix
  - ***Flex*** cars and LDVs come of age

- **2009**
  - **Honda** introduces **only in Brazil** its first ***flex*** motorcycle - the ***CG 150 Titan Mix***

Ethanol Value Chain in Brazil

- **2012**
  - **Yamaha** introduces in Brazil its ***Fazer 250 Blue Flex***, with Yamaha´s most powerful ***flex*** engine
  - **Honda** offers 4 ***flex*** motorcycle models, and reaches the **2 million-unit production mark** of ***flex*** motorbikes in Brazil
  - **85%** of Brazilian car fleet is ***flex***
  - Ethanol content of gasoline maxed at **25%**

Flex Car Makes Made in Brazil

American: Ford, GM

French: Citroën, Peugeot, Renault

German: Volkswagen

Italian: Fiat

Japanese: Honda, Nissan, Mitsubishi, Toyota

Korean: Hyundai, Kia

2015/16: Audi, BMW, Mercedes-Benz

Honda Civic 2.0 Flex

Hyundai HB20 1.6 Flex

Economic Impact

- Overall **sugarcane** value chain (2013-14)

– **Ethanol**	**US$ 24.1 billion**
– Sugar	18.0 billion
– Other	1.2 billion
– **TOTAL:**	**US$ 43.3 billion**

Economic Impact

- **Total sales** generated by the **sugarcane chain**

	US$ billion	**%**
– **Before the farm**	9.3	8.6
– **At the farm**	18.0	16.7
– **After the farm**	69.9	**65.0**
– **Other**	10.5	9.7
– **TOTAL**	**107.7**	

Comparative Outputs

- **Production value per hectare in Brazil**

  - **Sugarcane** US$ 4,000
  - **Soybean** US$ 1,000
  - **Cattle** (grazing) US$ 200

Sugarcane Numbers

- Annual production of **590 million tons**
- **401** corporate players
- **70,000** independent growers
- Revenues of **US$ 36 billion** (ethanol + sugar)
- **US$ 16 billion in exports** per year
- Share in Brazilian energy matrix: **15.7%**
- **17.9** million ***flex*** vehicles

Social Impact

- 1.15 million direct jobs
- Work opportunities for unskilled labor
- Increase in income in rural areas
- Lower migration to urban areas
- Skills improvement with mechanized harvest

DIRECT IMPACT ON RURAL DEVELOPMENT

Other Benefits

- Reduction in **CO2** (-90%) and **GHG emissions**
- Reduction in **urban pollution**
- Development of **local automotive R&D**
- **2nd Gen ethanol** from bagasse and straw
- Control of **distillery R&D and manufacturing**
- New source of **exports**
- Reduction in **oil dependence**
- **Renewable** fuel source, more energy security

Concluding Remarks

- Value chains are powerful economic and social development tools
- Value chains positively affect productivity, innovation, and industrial synergy
- Value chains focus on wealth creation, helping determine resource allocation
- Value chains help guide further growth by indicating their own future direction