Reindustrialization of Tunisia:

Towards equitable and sustainable development, and further democracy

Conference at Tunis/Hammamet, 12-13 February 2016

Presentation by Professor Emeritus Dr. Karl Wohlmuth, University of Bremen, Faculty of Economics and Business Studies, Director of the Research Group on African Development Perspectives Bremen

Title of Presentation: **Deindustrialization, Reindustrialization and the Contribution of Coherent Industry and STI Policies: What are the Tasks ahead for Tunisia?**

Conference organized by Professor Jelel Ezzine, TAASTI and ENIT, Tunis

Reindustrialization of Tunisia:

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1. Towards A New Development Model for Tunisia
2. Managing the Trends of Deindustrialization in Tunisia
3. The Contribution of STI Policies in Tunisia
4. Scoping the Reindustrialization Processes in Tunisia
5. The Contribution of Coherent Industry and STI Policies
6. The Tasks Ahead: An Agenda for Action

Reindustrialization of Tunisia
Towards A New Development Model for Tunisia

Impressive researches and policy recommendations presented for a new development model for Tunisia: Early after the 2010/2011 events in Tunisia, the Government of Tunisia, Tunisian research institutions, regional and international organisations started to lay out frameworks for a new Tunisian development model**.**

Major Studies by: Tunisian Government/USAID/African Development Bank (2013), World Bank (2014), European Investment Bank (2015), European Bank for Reconstruction and Development (2014), and others…

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Towards A New Development Model for Tunisia

Approaches propagated for a New Tunisian Development Model:

Identifying and Overcoming the Binding Constraints to Growth

Eliminating the Rent-seeking Type of Economic Policies

Identifying the Competencies and Capabilities for Dynamic and Equitable Growth

New Industrial Policies for Structural Transformation

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Towards A New Development Model for Tunisia

Identifying Binding Constraints to Growth: The Results

Using the HRV methodology, focussing on private sector investment returns and on the financing of investments

Binding Constraint 1: Low Appropriability of Returns because of weak institutions and contradictory policies

Binding Constraint 2: Low Appropriability of Returns because of high fiscal and regulatory costs

Emerging Risk Factors: Other Binding Constraints

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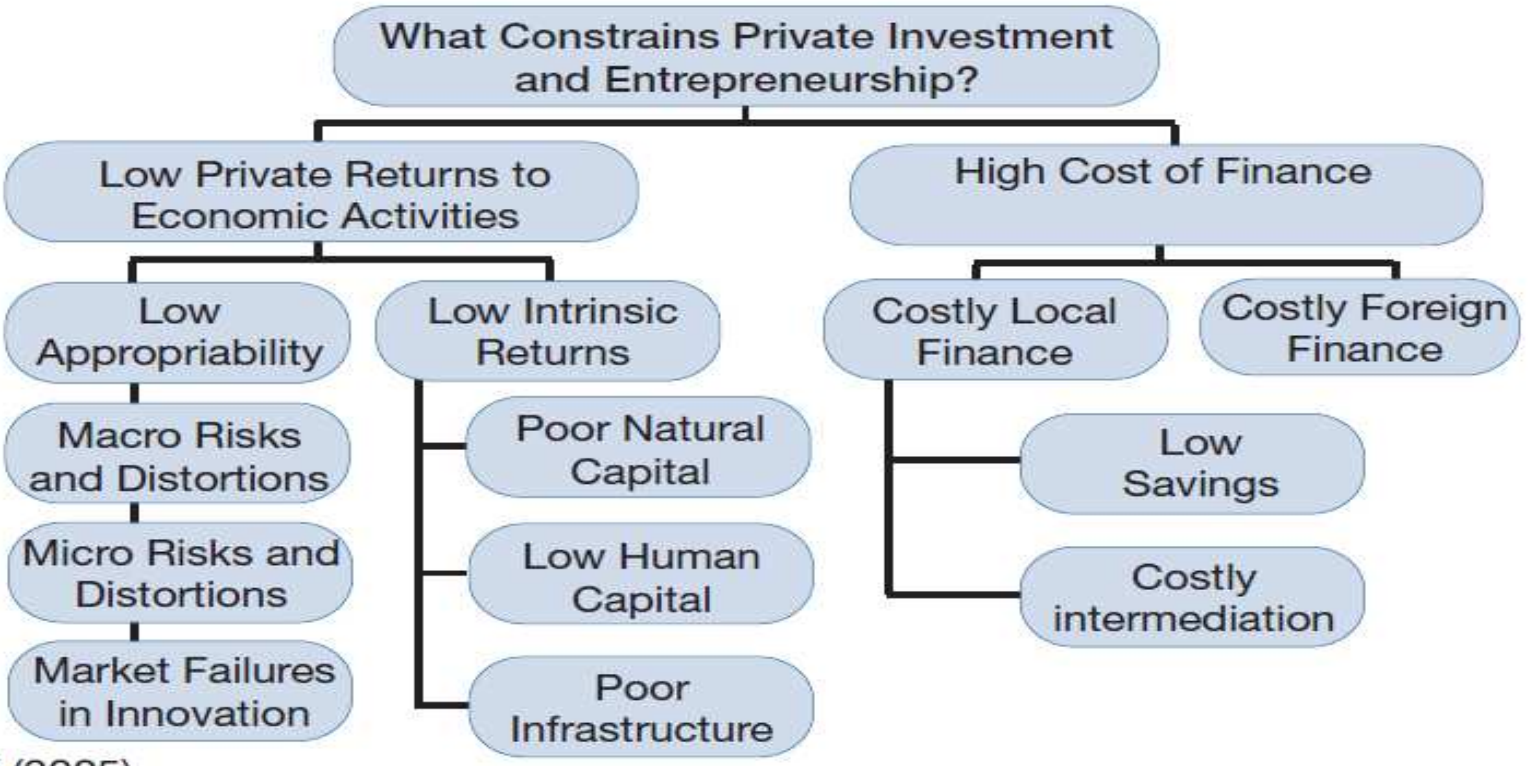
From: Tunisian Government/USAID/African Development Bank (2013), p. 11

Figure 1: The HRV Growth Diagnostic Tree



Source: HRV (2005)

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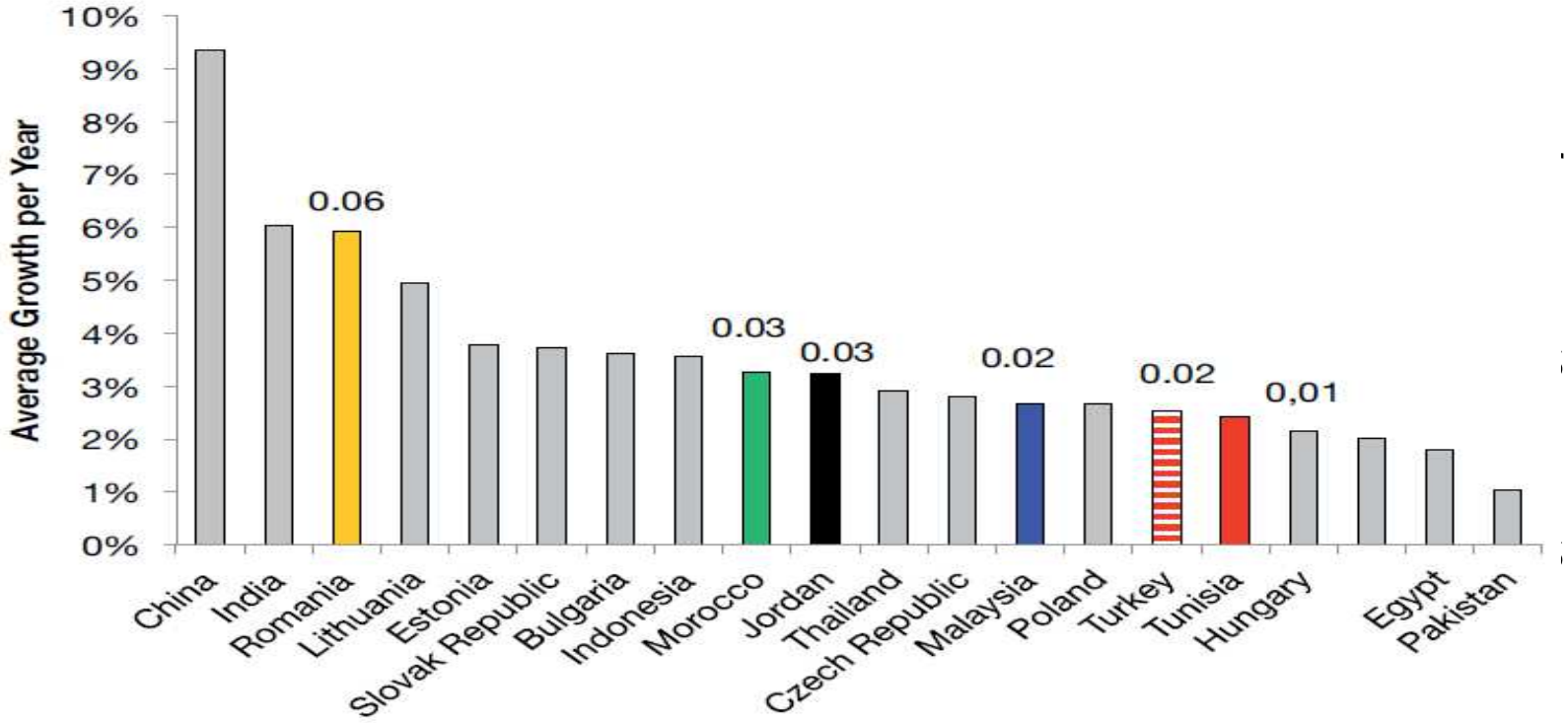
From: Tunisian Government/USAID/African Development Bank (2013), p. 39

Figure 2.13: Growth Rate of Output per Worker 2000-2010



Source: World Development Indicators

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From: Tunisian Government/USAID/African Development Bank (2013), p. 104

Table 5.5: Percentage of Firms Citing Unfair Competition and Anti-Competitive Practices as a Major or Severe Obstacle, 2010

	Unfair competition	Anti-competitive practices
Totally exporting companies	28.25	23.29
Partially exporting companies	52.16	47.84
Producers for domestic market only	50.33	43.44

Source: 2010 ITCEQ Enterprise Survey

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From: Tunisian Government/USAID/African Development Bank (2013), p. 105

Table 5.6: Post-Revolution Views on Market Practices, 2011

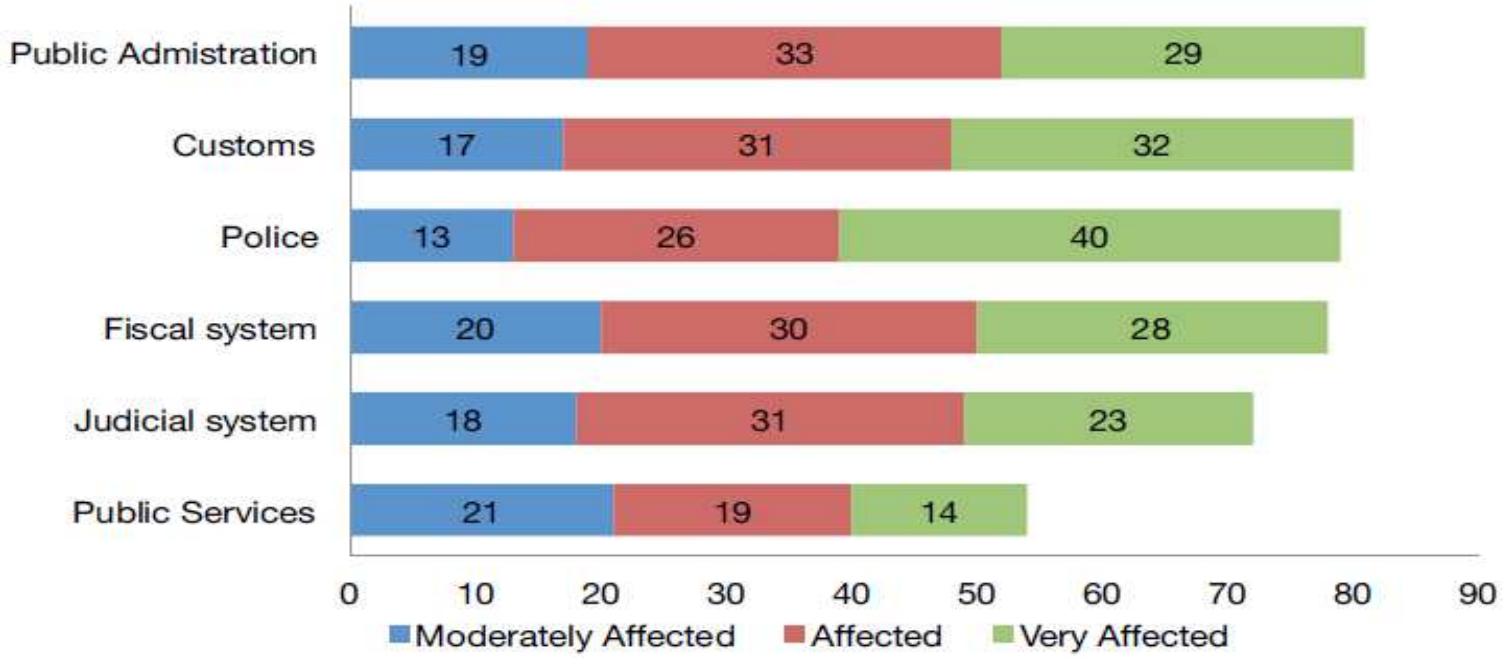
Responses to Question: What Factors Compromise your Competitiveness Today? (More than one response possible)	Totally Exporting Firms	Partially exporting	Local Market
Insecurity	60%	49%	51%
Unfair competition	23%	49%	60%
Anti-competitive practices	26%	41%	36%
The parallel market	12%	22%	12%
Other	13%	7%	5%

Source: ITCEQ Survey on Competitiveness 2011
Note: Due to small samples, subsample comparisons may not be accurate

Towards A New Development Model for Tunisia

From: Tunisian Government/USAID/African Development Bank (2013), p. 107

Figure 5.4: Perception of Degree of Corruption of Public Authorities by Enterprises[67]



Source: ITCEQ Enterprise Survey 2011

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From: Tunisian Government/USAID/African Development Bank (2013), p. 123

Table 5.13: Percentage of Workers by Contract Type
Tunisia, Algeria, and Morocco (Non-Microenterprises)

Percent of workers	Tunisia	Algeria	Morocco
Permanent (indefinite contract)	38.9	67.8	82.1
Definite/fixed term contract	44.7	29.5	14.9
Trainees and apprentices	8.2	1.2	2.7
Sub-contractors	8.2	1.5	0.3
Total	100	100	100
Full time	81.5	98.9	95.1
Part time	18.5	1.1	4.9

Source: ROSES (2005)

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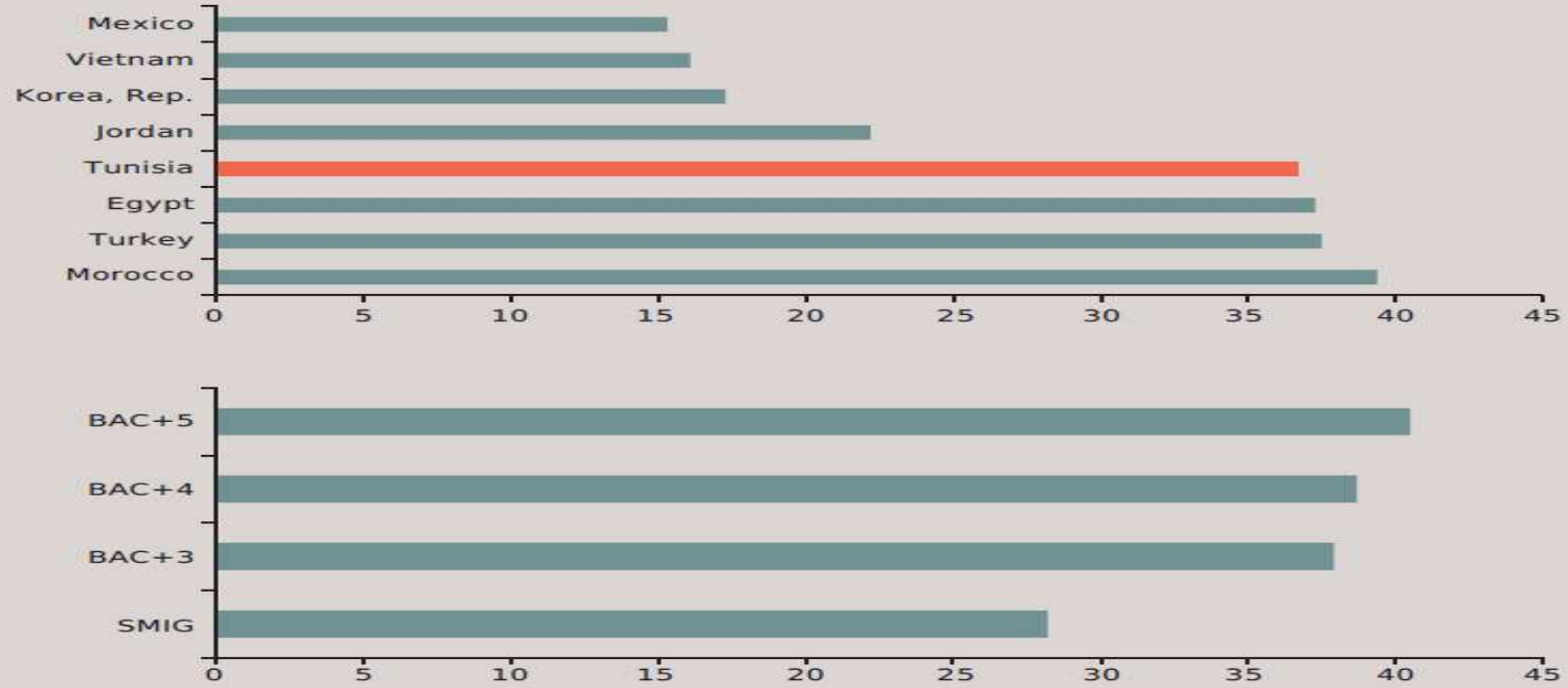
From: World Bank, Synthesis, 2014, page 09

Figure 1.5: Tax Wedge in Selected Countries and By Education Level in Tunisia



Source: Processed from World Bank (2013a) (top) and Belghazi (2012) (bottom).

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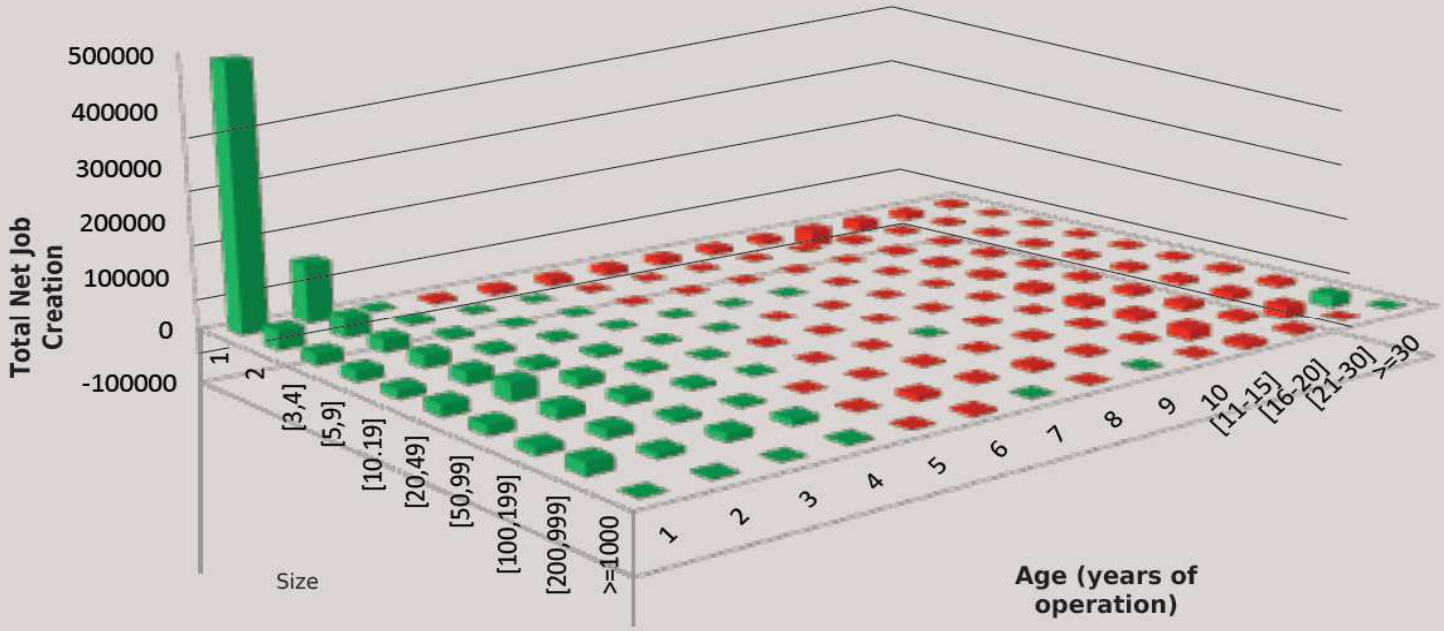
From: World Bank, Synthesis, 2014, p. 13

Figure 1.7: An Economic Desert: Net Job Creation in Tunisia by Firm Size and Age, 1997-2010 (Green=positive, Red=negative)



Source: Authors' calculations using RNE.

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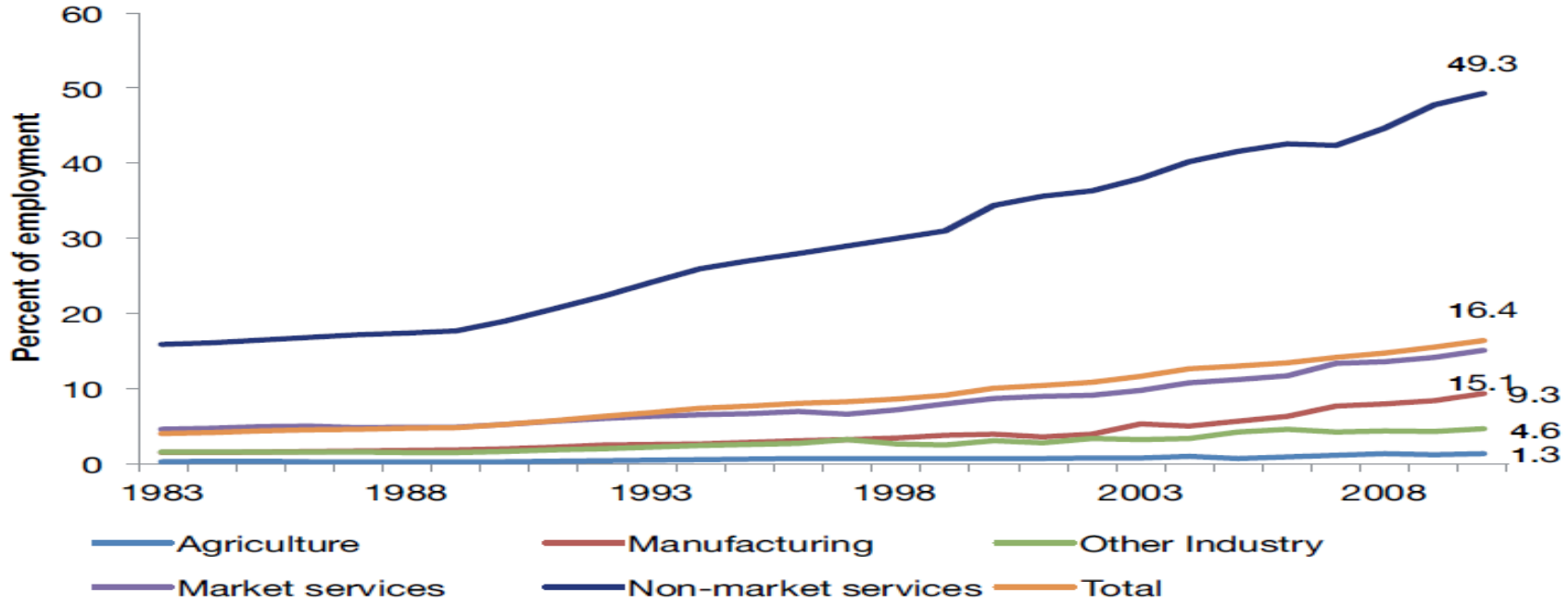
From: Tunisian Government/USAID/African Development Bank (2013), p. 184

Figure 7.11: Share of tertiary-educated workers by sector



Source: ITCEQ

Reindustrialization of Tunisia
Towards A New Development Model for Tunisia

Severe Risks in the Transition Period towards a New Development Model: All these appropriability problems are still prevalent, and new risks emerge, such as macro risks, micro risks, market failures, further imbalances in human development and in infrastructure supplies, environmental problems, and banking intermediation problems. “Ben Ali sector protection” is still alive and used!!

Industrial Strategy Horizon 2016: Ambitious programmes, but not acknowledging the appropriability problems. Label: ***Tunisia, the Euromedvalley for Industry & Technology***

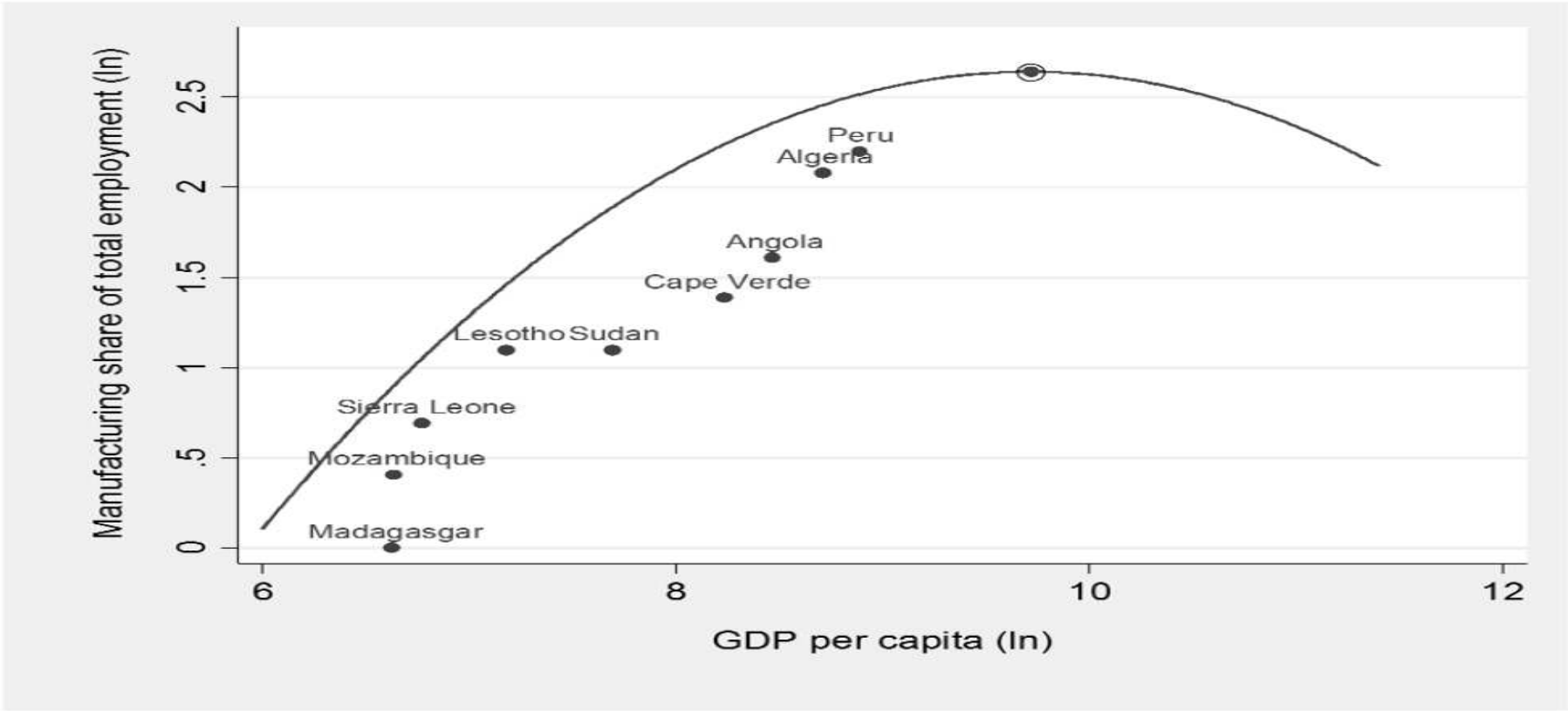
Reindustrialization of Tunisia
Managing the Trends of Deindustrialization in Tunisia

Industrialization: Challenges for manufacturing from global competition, global value chains, technological developments, but promising routes of development, like in services; but manufacturing is still seen as a base for cumulative productivity increases.

Deindustrialization: Defined as a decline in the share of manufacturing employment in the overall employment of a country, or as a sustained decline in the share of manufacturing in GDP and overall employment.

Managing the Trends of Deindustrialization in Tunisia, Source: UNIDO/Tregenna 2015, p. 12

Figure 1: Inverted-U curve showing some possible premature deindustrialisers, 2009



Data sources: Own calculations, employment data from ILO, income data from Penn World Tables[3]

Reindustrialization of Tunisia
Managing the Trends of Deindustrialization in Tunisia

Various Causes of Deindustrialization: Rising income per capita, as the classical source of deindustrialization, with moves from secondary to tertiary sectors; there are also shifts of the inverted U-curve itself, because of a statistical illusion effect via sectoral outsourcing, falling income elasticity of manufactured goods, higher productivity growth in the manufacturing sector, and the new international division of labour with intensified global competition and technology transfers; between 1980 and 1990 the income per capita at the turning point has halved.

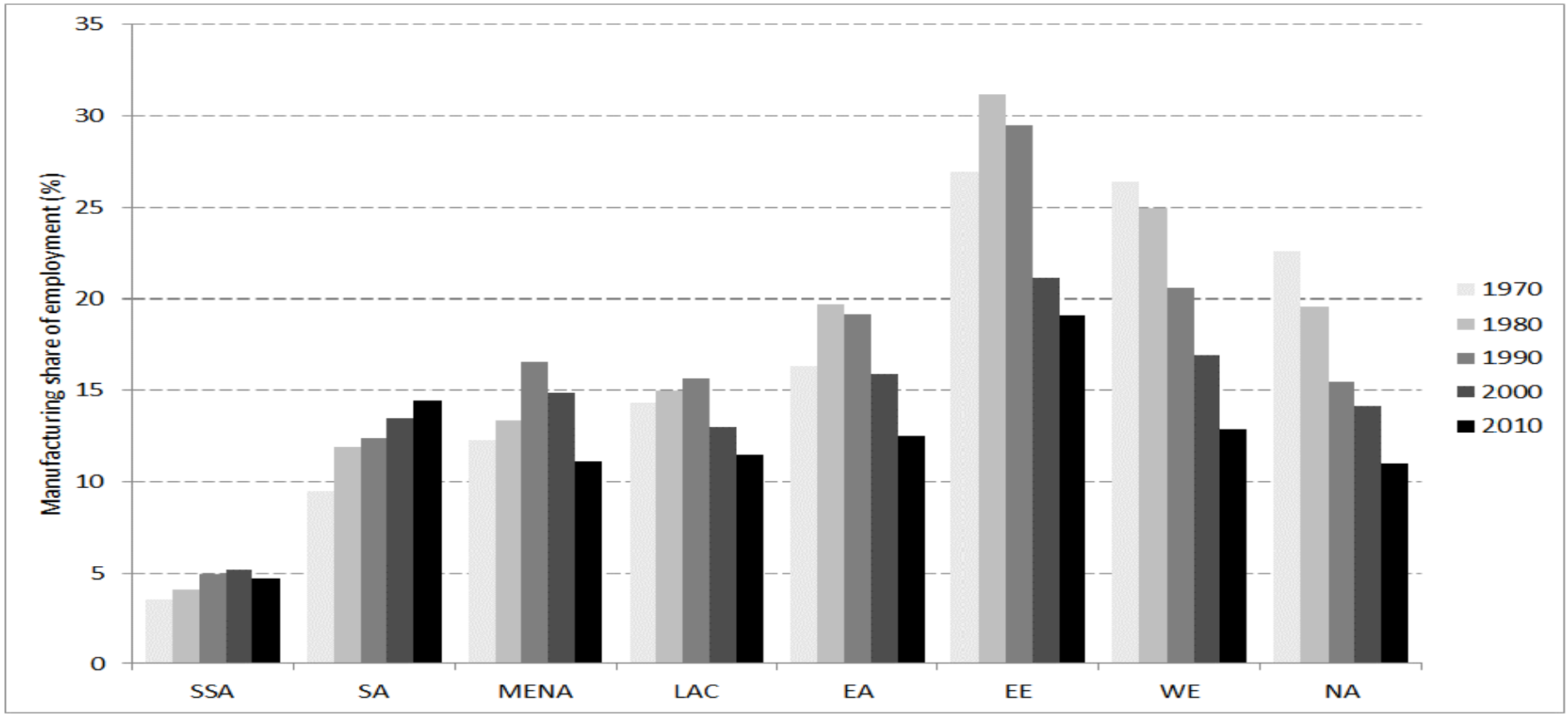
Reindustrialization of Tunisia
Managing the Trends of Deindustrialization in Tunisia

Different Forms of Decentralization: Advanced country (or classical) deindustrialization, premature deindustrialization of developing countries, and pre-industrialization deindustrialization of least developed countries; within each concept of deindustrialization there are relatively shrinking or relatively expanding manufacturing activities; considerable scope for managing.

MENA country group deindustrialization and the case of Tunisia: Different trends for the manufacturing share in overall GDP and total Employment; Special Case Tunisia?

Managing the Trends of Deindustrialization in Tunisia, UNIDO/Tregenna 2015, p. 19

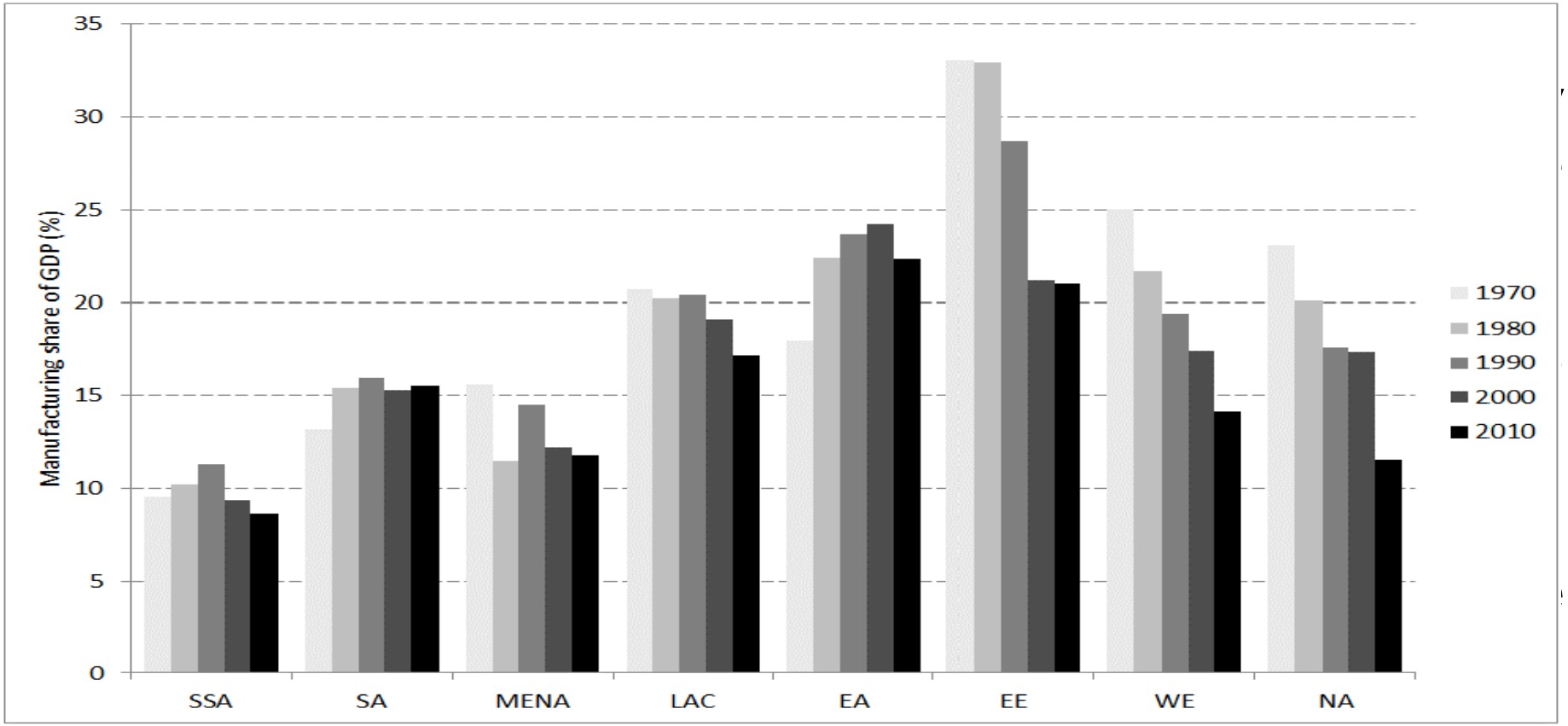
Figure 4: Share of manufacturing in total employment, countries by region, 1970-2010



Source: Employment data from ILO

Managing the Trends of Deindustrialization in Tunisia, UNIDO/Tregenna 2015, p. 20

Figure 5: Share of manufacturing in GDP, countries by region, 1970-2010



Source: Value added data from UN

Managing the Trends of Deindustrialization in Tunisia, Country Note Tunisia, AEO 2014, p. 4

Table 2. GDP by sector (percentage)

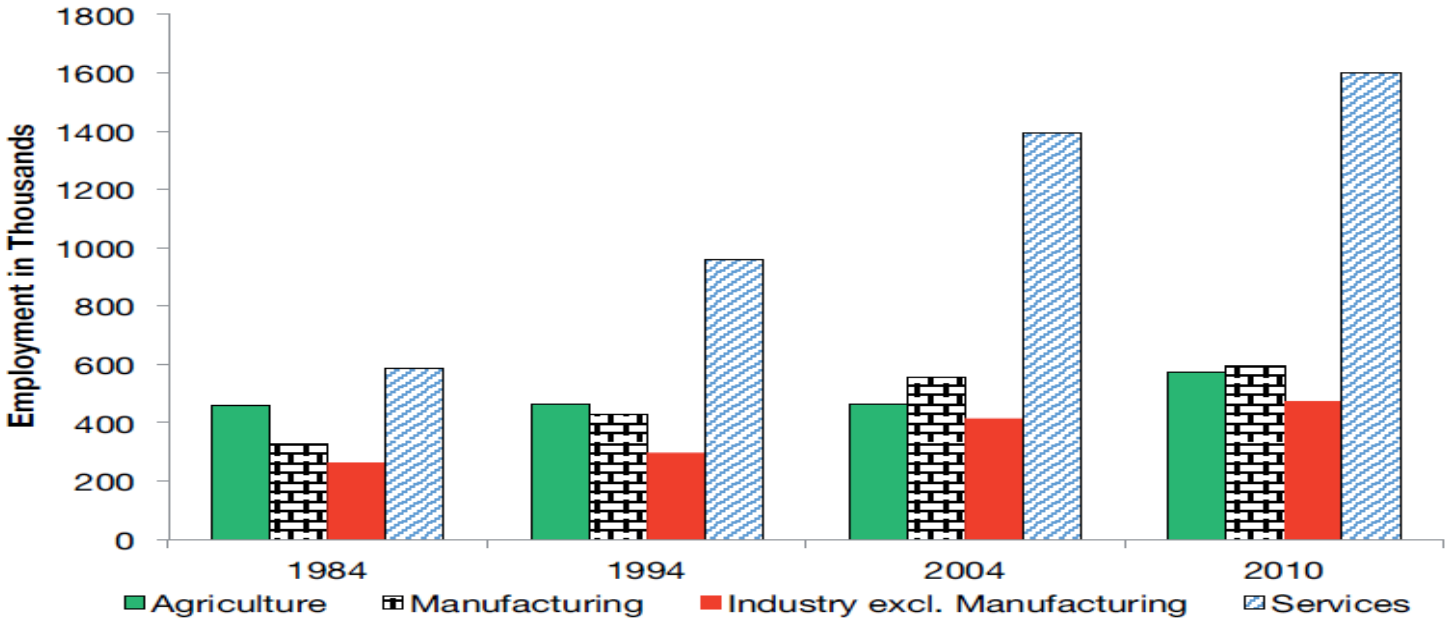
	2008	2012
Agriculture, hunting, forestry, fishing	8.6	9.4
of which fishing		
Mining	8.5	8.1
of which oil	7.3	7.5
Manufacturing	19.5	17.0
Electricity, gas and water	1.4	1.4
Construction	4.4	4.6
Wholesale and retail trade, hotels and restaurants	13.8	13.1
of which hotels and restaurants	5.4	4.6
Transport, storage and communication	13.2	13.2
Finance, real estate and business services	14.7	14.8
Public administration, education, health and social work, community, social and personal services	15.4	17.8
Other services	0.5	0.5
Gross domestic product at basic prices / factor cost	**100.0**	**100.0**

Source: Data from domestic authorities.

Managing the Trends of Deindustrialization

Source: TuGov/USAID/African Development Bank (2013), p. 38

Figure 2.12: Employment by Sector, Selected Years



Sectoral shares of total employment	1984	1994	2004	2010
Agriculture	27.9	21.5	16.3	17.7
Manufacturing	20.1	19.9	19.6	18.4
Industry excl. Manufacturing	16.1	13.9	14.7	14.6
Services	35.9	44.7	49.4	49.3
Source: Tunisian National Institute of Statistics				

Managing the Trends of Deindustrialization in Tunisia

Industrial Strategies and Policies

Pro-active and Comprehensive Industrial Policies are lacking: "Industrial Strategy Up to 2016" of Tunisia has focussed on the new international market realities, but has not considered the biased character of industrial policy towards small vested interest groups; need for reindustrialisation not seen; linkages onshore-offshore and manufacturing-agriculture-services underdeveloped or lacking completely; lack of complementary macroeconomic, trade, technology, competition, education and skills, and labour market policies; direct public transfers open-ended.

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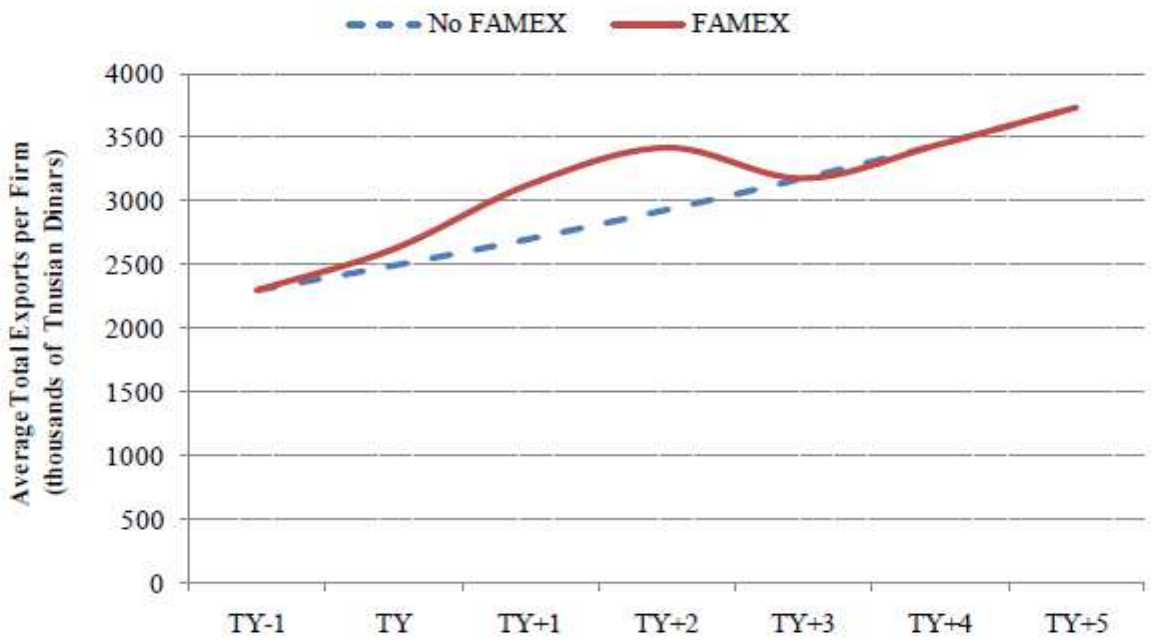
Source: World Bank/Cadot/Mattoo 2013, p. 31

Figure 2. Evolution of Total Exports for Typical FAMEX Beneficiary and Control Firm



Note: The figure is based on the numbers presented in Appendix Table D.1.

Managing the Trends of Deindustrialization in Tunisia

Industrial Strategies and Policies

Accumulation, Distribution and Management of Industrial Rents are not supportive: Rents created by industrial policies and economic support measures were not reinvested for growth, competitiveness and sustainability of supported firms and industries; the unfavourable rent management did affect quite negatively also firms and industries in export sectors and in neglected regions as market development and technological sophistication were prevented; results were a low growth of labour productivity and a lack of structural change.

Managing the Trends of Deindustrialization in Tunisia

Industrial Strategies and Policies

No incentives for the reallocation of skilled workers and for structural transformation: the persistence of an increasingly dualistic labour market prevented upgrading and labour mobility; a low share of tertiary-educated workers in manufacturing, in agro-processing and in minerals beneficiation hindered economic and social upgrading; only simple forms of integration into global value chains were supported instead of building knowledge platforms for broader industrial activities through horizontal specialisation and specialized niches of manufacturing;

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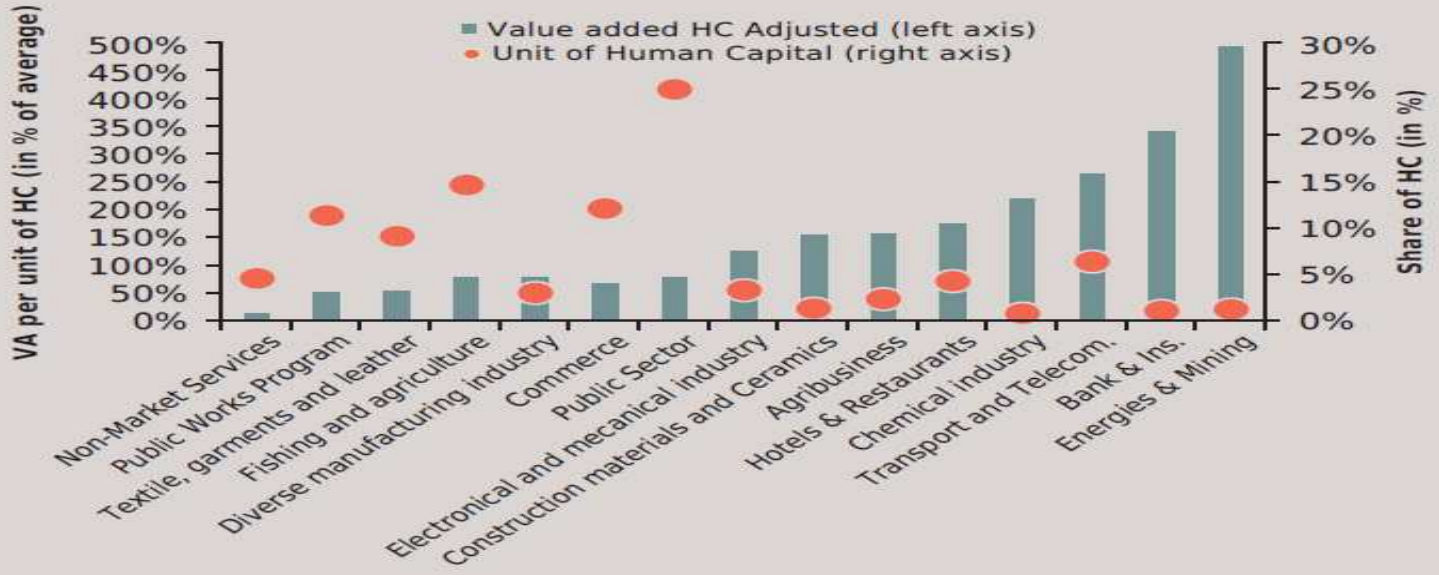
Source: World Bank, 2014, p. 12

Figure 1.6: Sectoral labor Productivity and Employment (in 2009) Shows Severe Misallocation of Resources



Source: Authors' calculations based on 2009 data from the INS.

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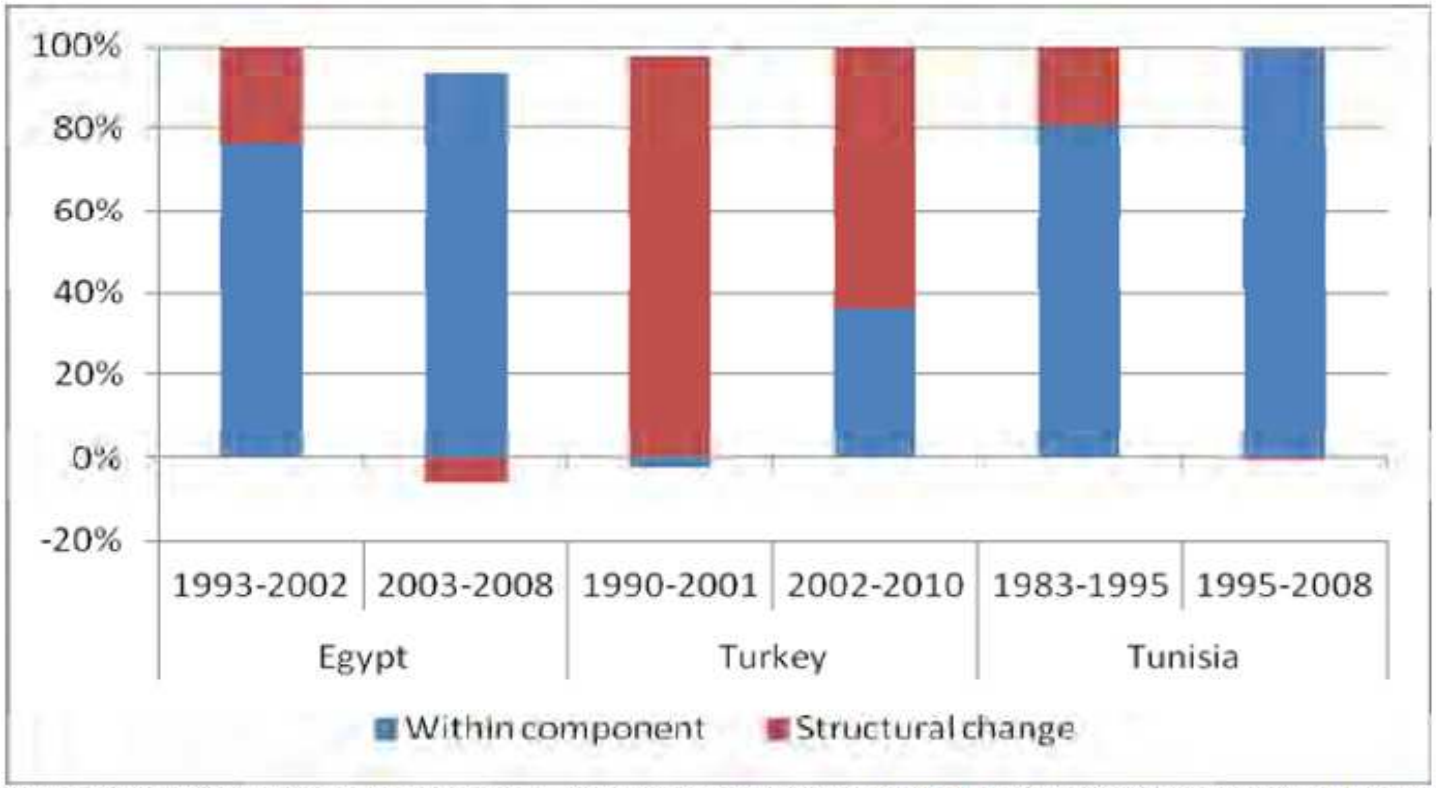
Source: EIB, 2015, p. 39

Figure 9: Contribution of structural change to aggregate productivity growth in Egypt Tunisia and Turkey (%)



Source: Calculated by the authors based on Atiyas and Bakis (2013) El-Haddad (2013) and Marouani and Mouelhi (2013)

The Contribution of STI Policies in Tunisia A Role in Managing Deindustrialization?

The National Innovation System (NIS) of Tunisia is centralised and uneven: R&D in enterprises is limited (< 0.3% of GDP); BERD/GERD of not more than 20%; also the incentives for networking enterprises with R&D institutions and innovators in the country are weak, especially the fiscal policy ones; the innovation efficiency (innovation output/input) is very low; R&D expenditures are infrastructure-centred, not on capability formation in a broader sense; there is a diversified public research system, but the relation to the enterprise system is weak.

The Contribution of STI Policies in Tunisia A Role in Managing Deindustrialization?

Absorption of tertiary education graduates is low and unbalanced: The tertiary education graduates are in sectors with low value added per human capital unit; huge imbalances in human capital allocation; upgrading of industry and export promotion programmes give no incentives for the employment of tertiary graduates; weak linkages between universities and enterprises; numerous public programmes to subsidize innovation are not coordinated; wide duplication of efforts; huge gap between some few larger companies and the SMEs in terms of R&D.

The Contribution of STI Policies in Tunisia A Role in Managing Deindustrialization?

“Knowledge Triangle”, but limited “Knowledge Circulation”: The knowledge triangle (KT) between industry, universities and public research institutions is not open for knowledge circulation (KC) and R&D valorisation, as there is a lack of incentives to share knowledge; there is no effective coordination of NIS and KT stakeholders at policy and implementation levels; promotion of high technology sectors, but not upgrading of technological capabilities in neglected regions and key economic sectors; insignificant links to the finance and venture capital sector;

The Contribution of STI Policies in Tunisia

The Dimensions of Capability Formation and Knowledge Circulation, Source: Nissanke, africaportal, 2015, p. 11

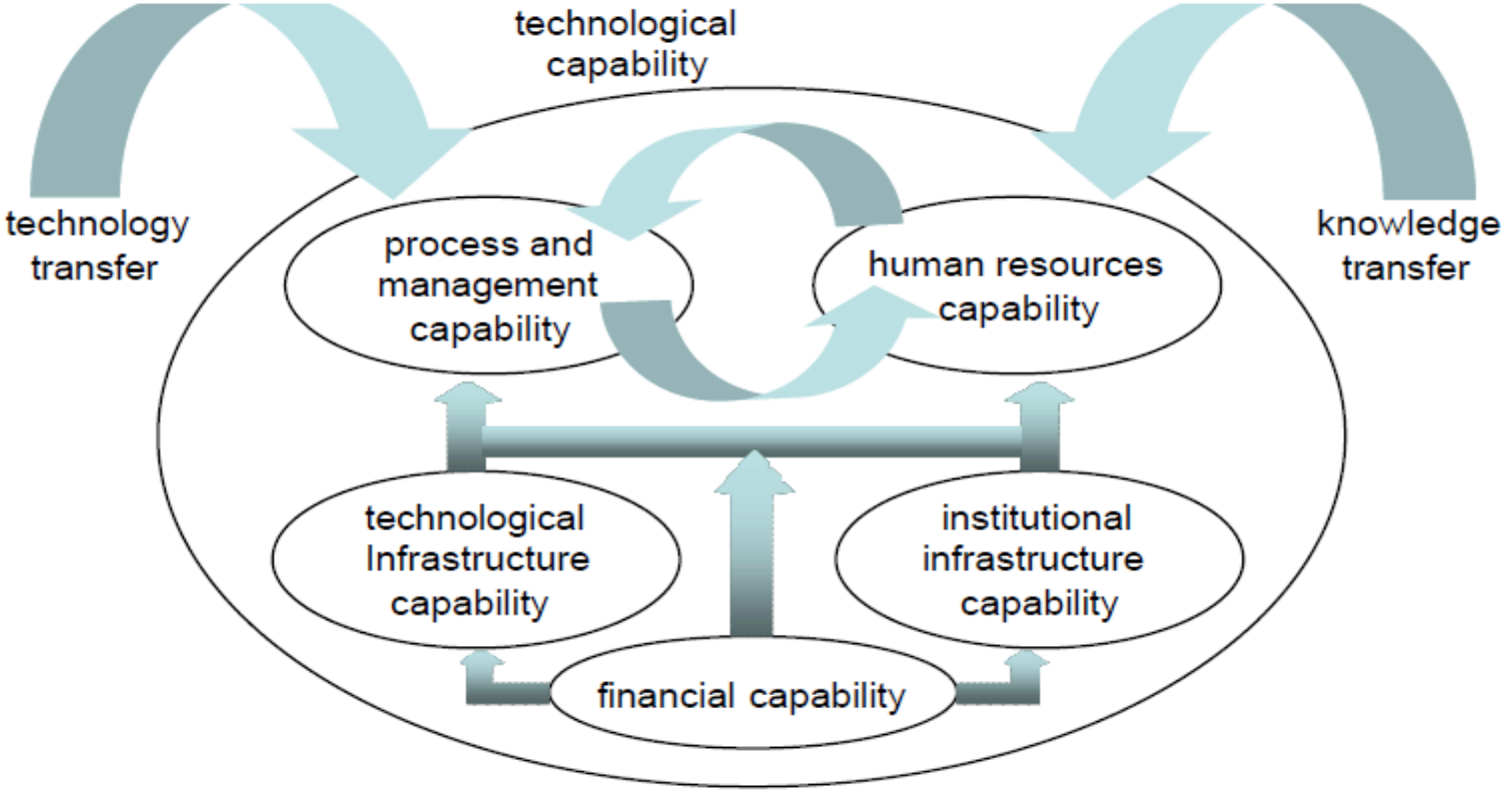
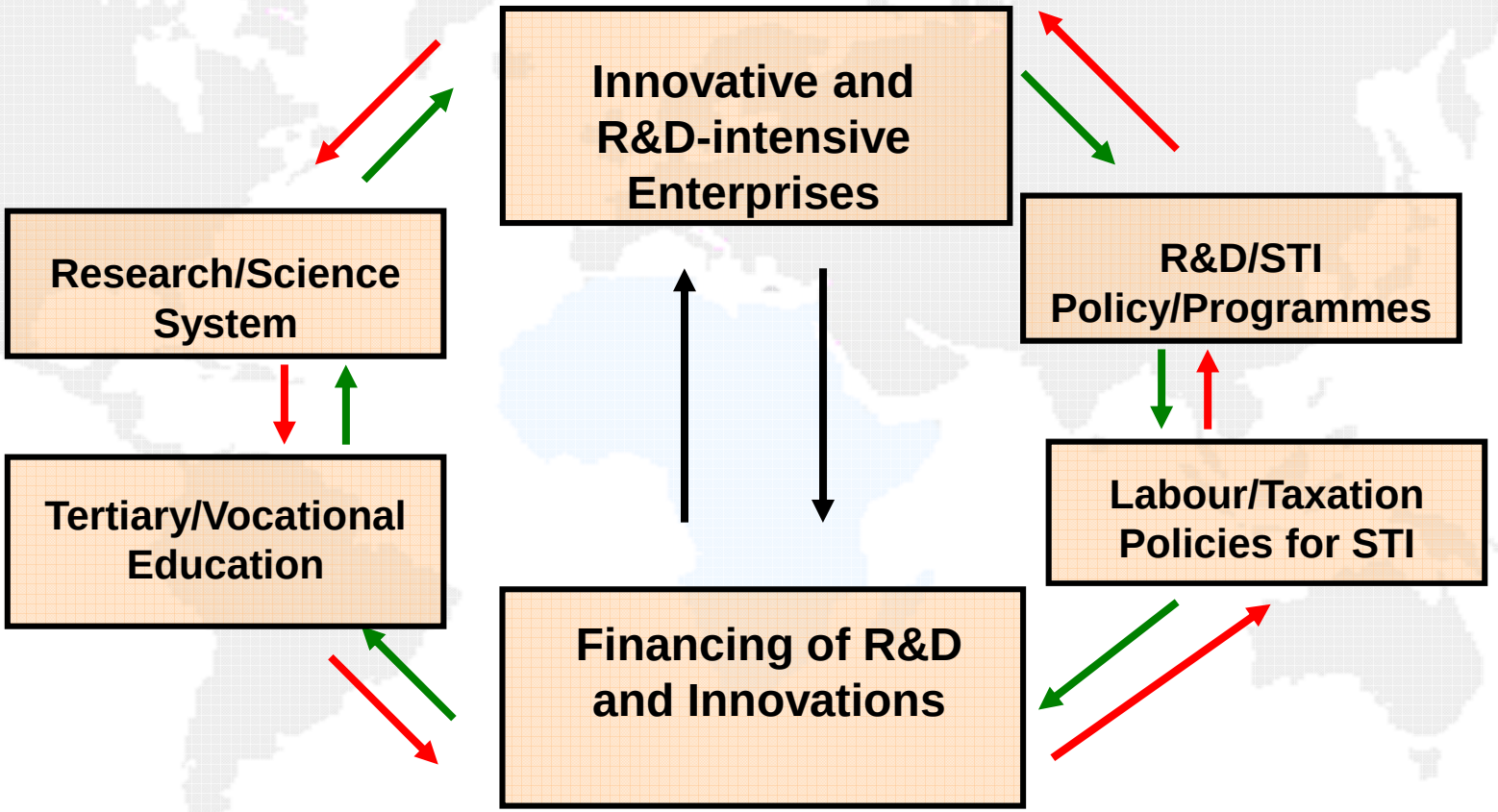


Figure 3. Capability building through technology and knowledge transfers

The Contribution of STI Policies in Tunisia
The National Innovation System: Complex, but Not Integrated



Scoping the Reindustrialization Processes in Tunisia

The Concept of Reindustrialization

Reindustrialization is a popular concept in advanced countries: Germany, for example, has seen after the unification in October 3, 1990 a deindustrialization process in Eastern Germany (with regard of heavy industries and basic chemicals) and a parallel reindustrialization process (towards high technology sectors, productive agriculture, and important services fields). Germany is now working on an Industry 4.0 type reindustrialization process (“internet of things”) to keep the country in a leading position in world competitiveness. UK and other advanced countries too.

Scoping the Reindustrialization Processes in Tunisia

The Development Objectives of Reindustrialization

Reindustrialization in Tunisia is a must for various development objectives: Parallel to further managing the deindustrialization process, reindustrialization in Tunisia has the potential to reduce poverty, overall unemployment and the unemployment of tertiary education graduates, to strengthen the manufacturing sector but also mining/and oil, agriculture and services sectors, to deepen the integration into global value chains, to contribute to mitigating the severe regional inequality problems, and to facilitate the growth of firms and of employment generation.

Scoping the Reindustrialization Processes in Tunisia

Four Key Dimensions of Reindustrialization

1. Reindustrialization via Other Economic Sectors, such as Agriculture, Mining/Oil, and Services
2. Reindustrialization via Initiatives at Regional Development and Regional Integration
3. Reindustrialization via Deeper Integration into Global Value Chains
4. Reindustrialization via Green Growth Development Strategies

Scoping the Reindustrialization Processes in Tunisia

Reindustrialization 1: A New Sector Perspective

To start again the process of structural change in Tunisia: A new agricultural development policy is needed (alongside of new policies for mining/oil, the manufacturing sector, and the services sector). A new agricultural development policy is the base and has benefits for employment creation, regional development within Tunisia, regional integration with neighbouring countries, for the strengthening of agricultural value chains, for stimulating agribusiness and agro-industrial development. The system of price support and food self-sufficiency has to be adapted.

Scoping the Reindustrialization Processes in Tunisia, Source: World Bank 2014, page 261

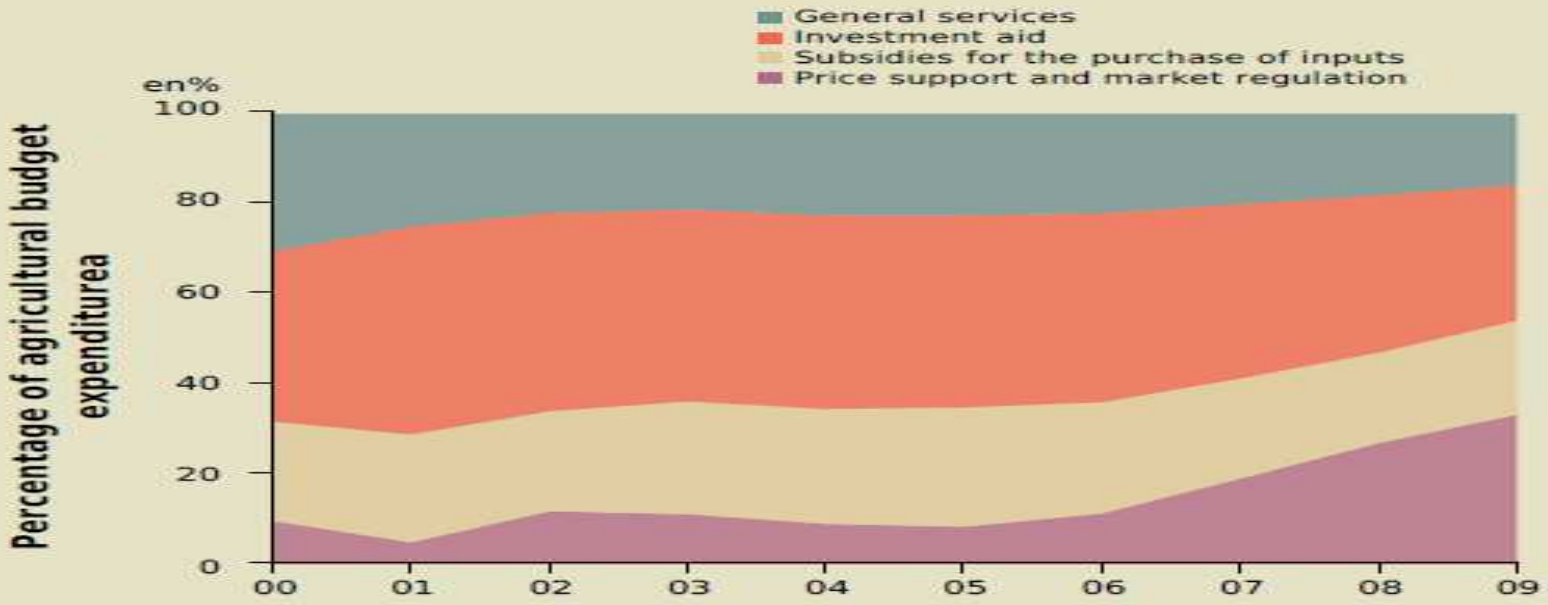
Table B9.1.1 Cost of Production in Domestic Resources

Products	2000	2004	2008
Soft wheat	1.86	3.13	0.9
Soft wheat, irrigated	0.97	n.d.	0.65
Hard wheat	1.2	0.96	0.56
Heard wheat, irrigated	0.61	n.d.	0.39
Barley	3.14	4.02	1.69
Potatoes	0.56	0.5	1.39
Tomatoes	0.6	0.45	0.66
Oranges	0.83	0.31	1.29
Peaches	0.49	0.49	1.39
Olive oil	0.91	0.82	0.36
Bovine integrated local breed	0.79	2.22	3.65
Bovine, non-integrated local breed	1.85	2.6	4.57
Bovine, integrated pure breed	1.32	1.75	<0
Bovine, non-integrated pure breed	1.46	2.03	<0
Integrated milk	0.82	1.23	1.15
Non-integrated milk	1.06	2.1	1.91
Ovine	0.44	0.65	0.5

Source: World Bank 2009d (the results for 2000 and 2004 are based on a report by IDEACONSULT in 2005).

Scoping the Reindustrialization Processes in Tunisia, Source: World Bank 2014, page 267

Figure 9.3: Composition of Budget Transfers to the Agricultural Sector in Tunisia, 2000-2009



Source: WTO (Domestic support) and Ministry of Agriculture and Water Resources.

Scoping the Reindustrialization Processes in Tunisia, Source: World Bank 2014, page 263

Table 9.1: Contribution of Individual Products to the Growth of the Agricultural Sector

	Share in overall production (1990-2010)	Contribution to the growth of the sector (1990-2010)
Competitive		
Durum wheat	10.0	8.0
Arboriculture	27.0	23.5
Horticulture	15.2	15.2
Fisheries	5.8	-0.7
Total	**58.0**	**46.0**
Non competitive		
Cereals (excluding durum wheat)	4.2	5.0
Livestock	35.2	46.7
Total	**39.4**	**51.7**
Other products	2.6	2.3

Source: Author's calculations.

Scoping the Reindustrialization Processes in Tunisia, Source: World Bank 2014, page 269

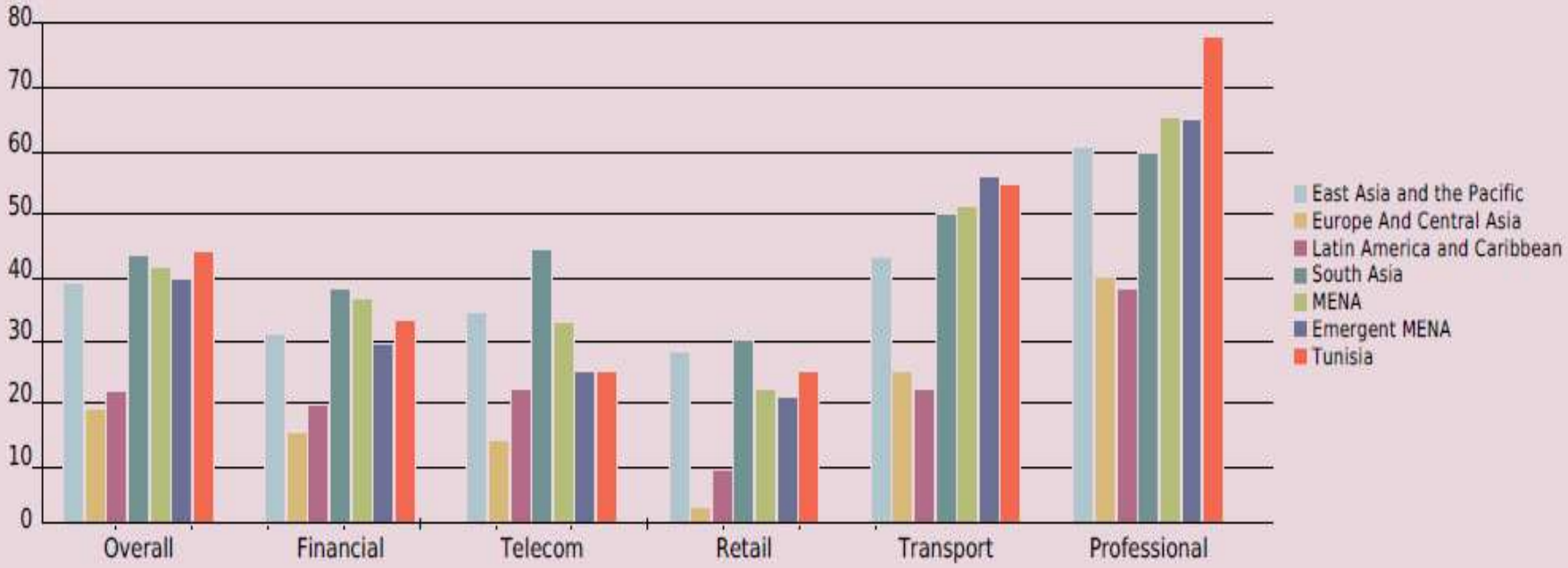
Table 9.5: Winners and Losers from a Reform of Agricultural Policies in Tunisia

Farm	Change in gross margin	% of total farms	% of the arable area	Type of farm
Farms benefiting from the liberalization	Gain from 55 to 294%	41	30	Olive oil, Off season Horticulture (Gabes) Citrus (Nabeul)
Farms the profitability of which would be more or less the same	Gain of 47%	42	41	Arboriculture and sheep rearing (Central and South) Irrigated farms
Farms loosing from liberalization	Loss from 1 to 79%	16	30	Cereal farms (North and North West)

Source: Linear Programming modelling results, World Bank (2006)

Scoping the Reindustrialization Processes in Tunisia, Source: World Bank 2014, page 250

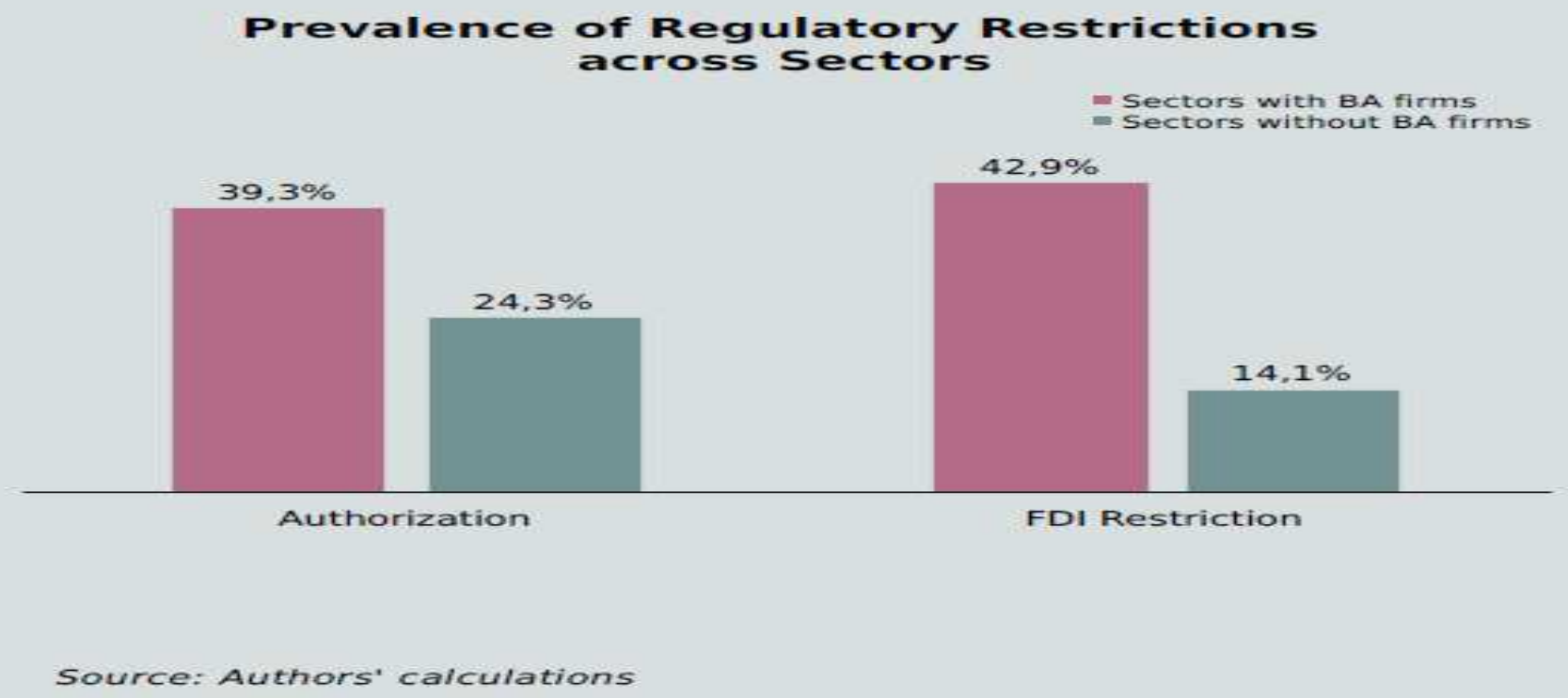
Figure 8.5: Service Trade Restriction Index (STRI) by Sector and Region



Source: Data from World Bank Service Trade Restriction Database
Note: STRI is calculated as simple country averages.
Emergent MENA economies exclude Iran and Yemen

Scoping the Reindustrialization Processes in Tunisia, Source: World Bank 2014, page 113

Figure 3.2: Cronyism and Regulation in 2010



Source: Authors' calculations

Scoping the Reindustrialization Processes in Tunisia

Reindustrialization 1: A New Sector Perspective

Supporting Value Chain Formation and Strengthening: The cases of organic agriculture, food processing, olive oil production, and the cases of tourism, ICT, and professional services development show that Tunisia can develop such chains successfully, but only if the basic macro, meso, and micro incentives are right in the country. The same applies to mining and petroleum subsectors. Value chain financing, better links to R&D, and new type industrial policies could enhance such value chains. A huge job creation potential of investments is envisaged (see Job Creation Strategy, IFC).

Scoping the Reindustrialization Processes in Tunisia, Source: IFC 2012

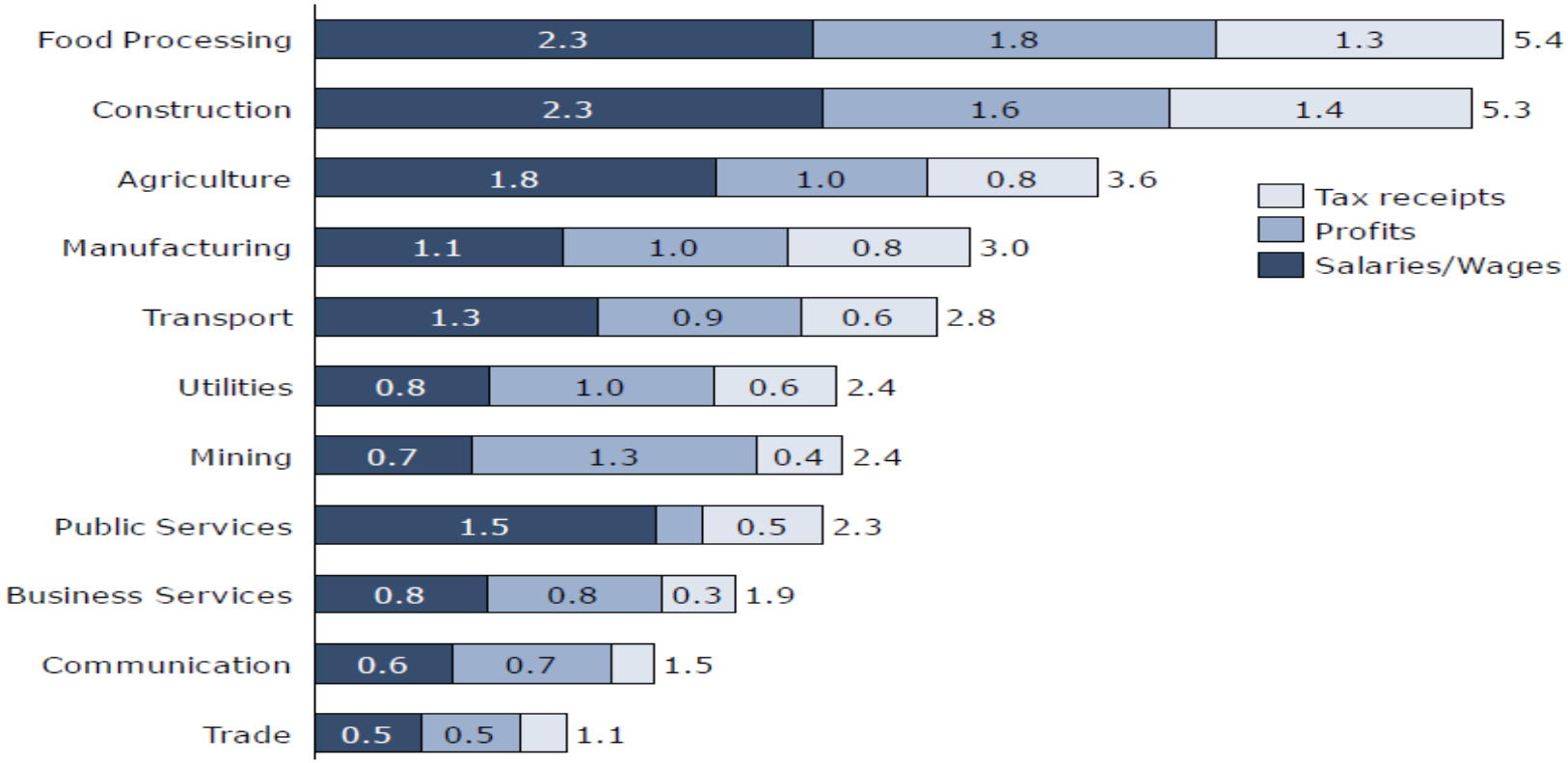


Exhibit 5: *Economy-wide value added associated with $1 million investment into a specific sector by type of value-added (in $ millions)*

Scoping the Reindustrialization Processes in Tunisia

Reindustrialization 2: A Regional Development Perspective

Economic Policies are not neutral in terms of space and incentives for industrial development: So far the economic and regional development policies in Tunisia were not neutral in terms of space. This has affected negatively industrial development, employment creation, and the utilisation of comparative advantages in the regions. More than 83% of the firms are located in coastal governorates, and nearly 40% of the firms are in two business districts (Tunis, Sfax). Manufacturing is not diversified in interior regions, and there is only little change.

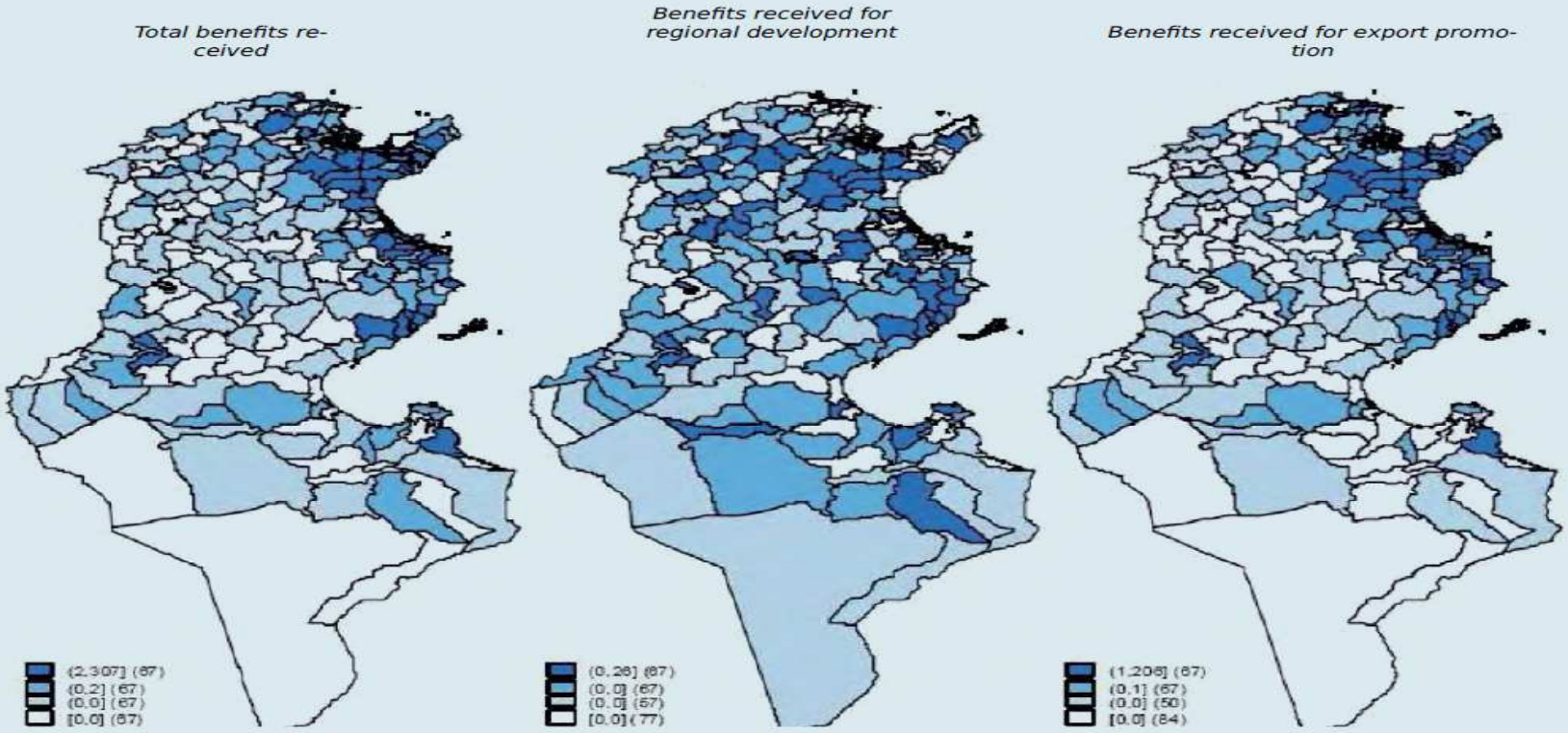
Scoping the Reindustrialization Processes in Tunisia

Reindustrialization 2: A Regional Development Perspective

Some interior governorates (as Tozeur and Medenine) **became even less diversified** (more specialized in agro-food industry). This makes the interior regions more vulnerable to demand and supply shocks, in terms of value added, public revenues, and employment. The diversification level and the human development level are much lower in the internal regions, and the chances for reindustrialization depend on newly designed, locally-based, nationally backed, and pro-active industrial policies. The lessons form the past failures have to be learned.

Scoping the Reindustrialization Processes in Tunisia, Source: World Bank, 2014, p. 141

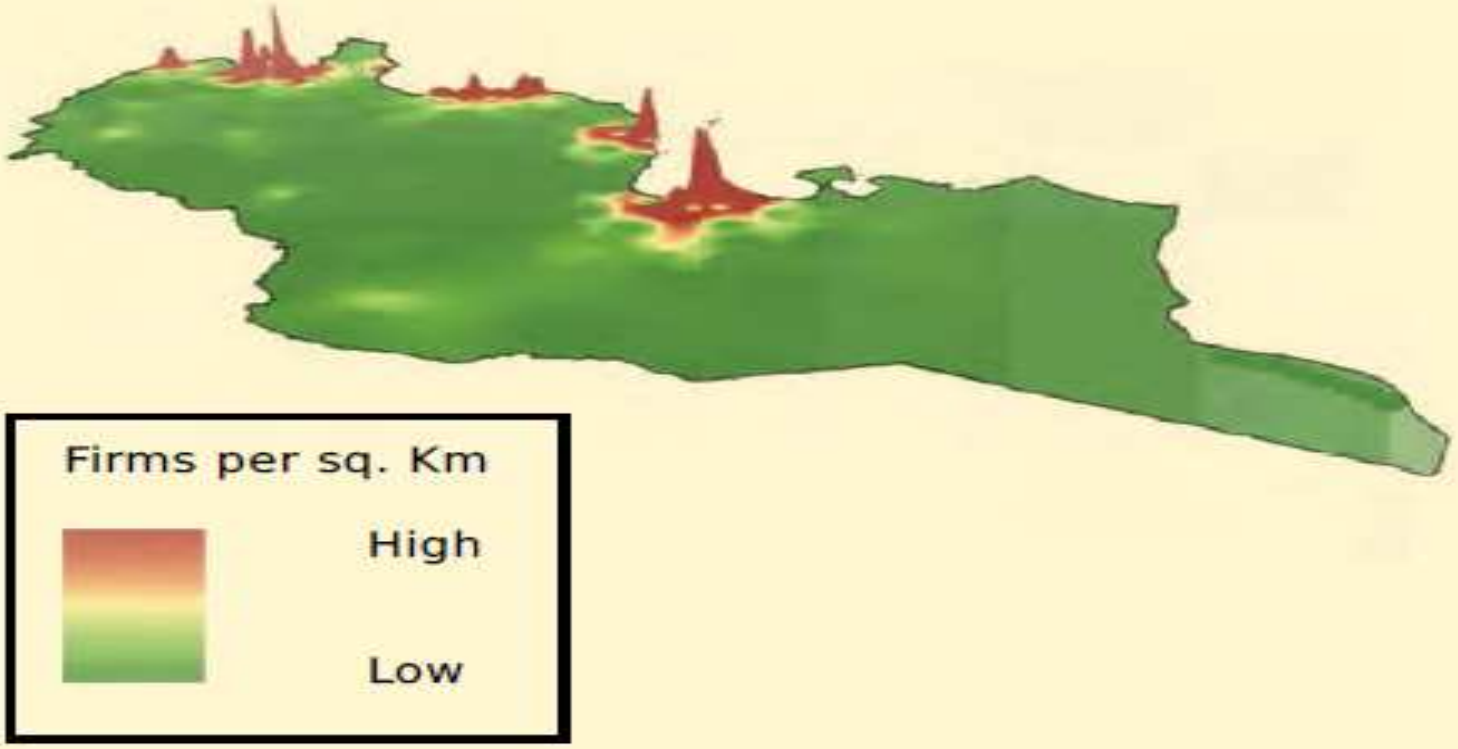
Figure 4.1: Geographic Distribution of Incentives Granted under the Investment Incentives Code, 2008-2011 (TND million)



Source: Ministère du développement et de la coopération internationale (MDCI)

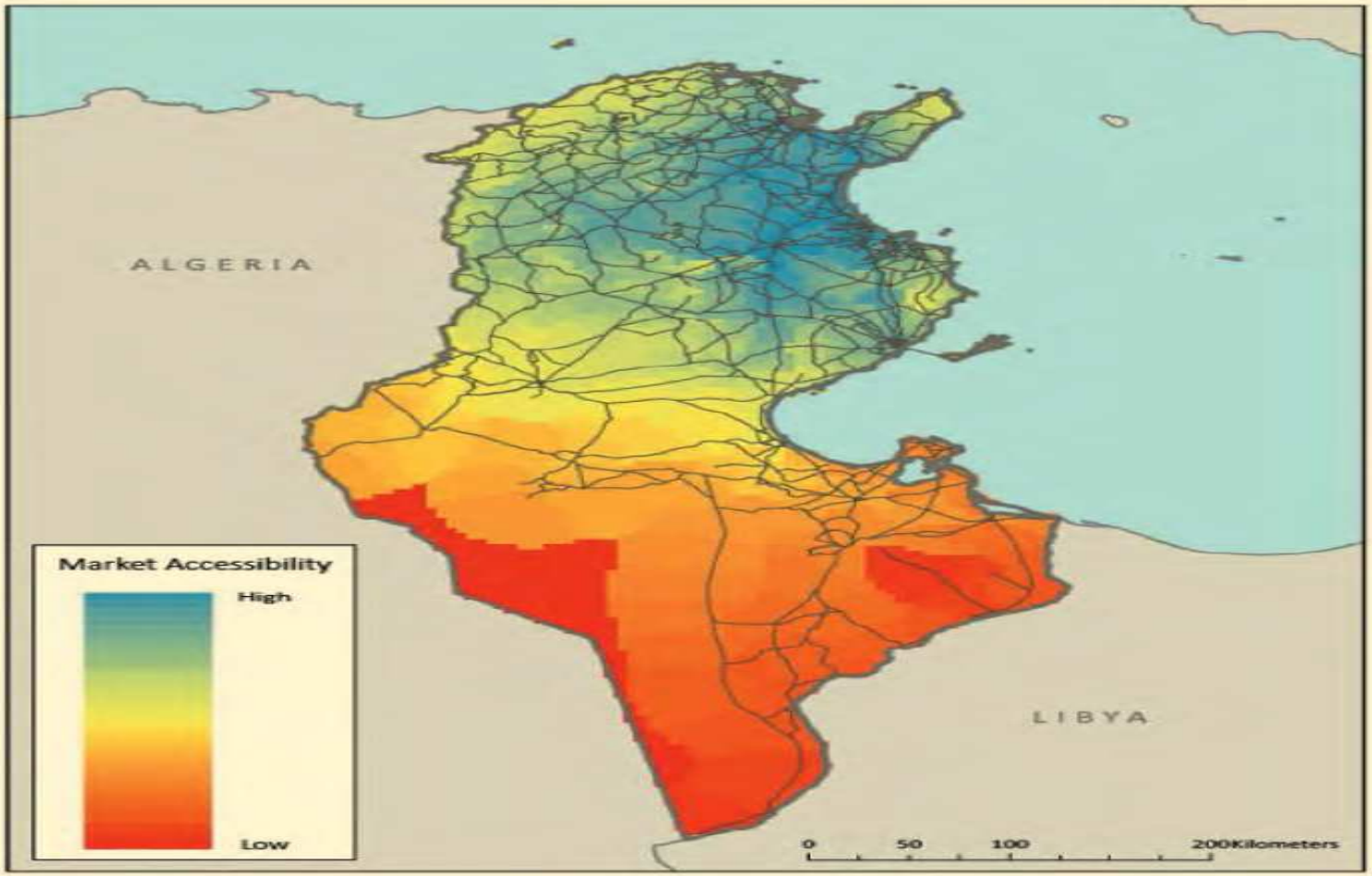
Scoping the Reindustrialization Processes in Tunisia, Source: World Bank, 2014, p. 282

Figure 10.2: Firm Density per Square Kilometer in Tunisia, 2012



Scoping the Reindustrialization Processes in Tunisia, Source: World Bank, 2014, p. 286

Figure 10.9: Market Accessibility across Tunisia



Source: World Bank 2014g

Scoping the Reindustrialization Processes in Tunisia

Reindustrialization 2: A Regional Development Perspective

The Proximity Factor in New Industrial Policies: Partial migration of labour-intensive activities to disadvantaged regions nearby the coastal regions; incentives have to become “spatially neutral”, what means that coastal areas will benefit from advanced technology/technological sophistication/marketing/export development support for all the firms (export and domestic sector firms); disadvantaged areas will benefit from support of labour-intensive activities, backed by infrastructural and institutional development measures. So far, the systems of support were non-neutral.

Scoping the Reindustrialization Processes in Tunisia

Reindustrialization 2: A Regional Development Perspective

The Sub-Regional Approach towards New Industrial Policies: The 13 most disadvantaged regions have only 17.9% of manufacturing sector employment and 22.5% of the industrial companies. Building on the established local industries and on proximity is essential. Three elements were identified: a) creating viable development zones for industrial development, b) supporting - via a new space-neutral investment code - the use and the development of local productive capacities, competences and capabilities, and c) creating adapted techno-hubs in the three regions.

Scoping the Reindustrialization Processes in Tunisia

Reindustrialization 2: A Regional Development Perspective

Three Development Zones and the New Industrial Policies: The **North–West Region (NWR)** is based on agri-business and electronics; proximity of Bizerte with textile and electronic industry; potential in the three sectors. The **Centre-West Region (CWR**) is based on agri-business and textiles; proximity of Sfax and Sousse could contribute to metal production; Monastir and Mahdia are relevant for textiles. The **South Region (SR**) is based on agri-business, construction, ceramics and glass, chemical and rubber, and textiles; proximity to Gafsa is important.


Bizerta
Ariana
Manouba
Tunez
Nabeul
Jendouba
Béja
Ben Arous
Zaghouan
Kef
Siliana
Susa
Kairuán
Monastir
Mahdia
Kasserine
Sidi Bou Said
Sfax
Gafsa
Tozeur
Gabès
Kebili
Medenire
Tataouine

Scoping the Reindustrialization Processes in Tunisia

Reindustrialization 2: A Regional Development Perspective

Key Public Investments and Very Specific Investment Incentives as Instruments of New Industrial Policies: Important are: Infrastructural Network Investments (roads, highways, communication infrastructure); Investments to develop Industrial and Technological Zones by new forms of Public-Private Partnership; Investments to link the Competitiveness Poles (Bizerte, Sousse, Sfax, Monastir, Gafsa) by New Trade and Partnership Initiatives; newly designed and very specific Investment Incentives (for R&D, Linking to Value Chains, Export Development, Marketing).

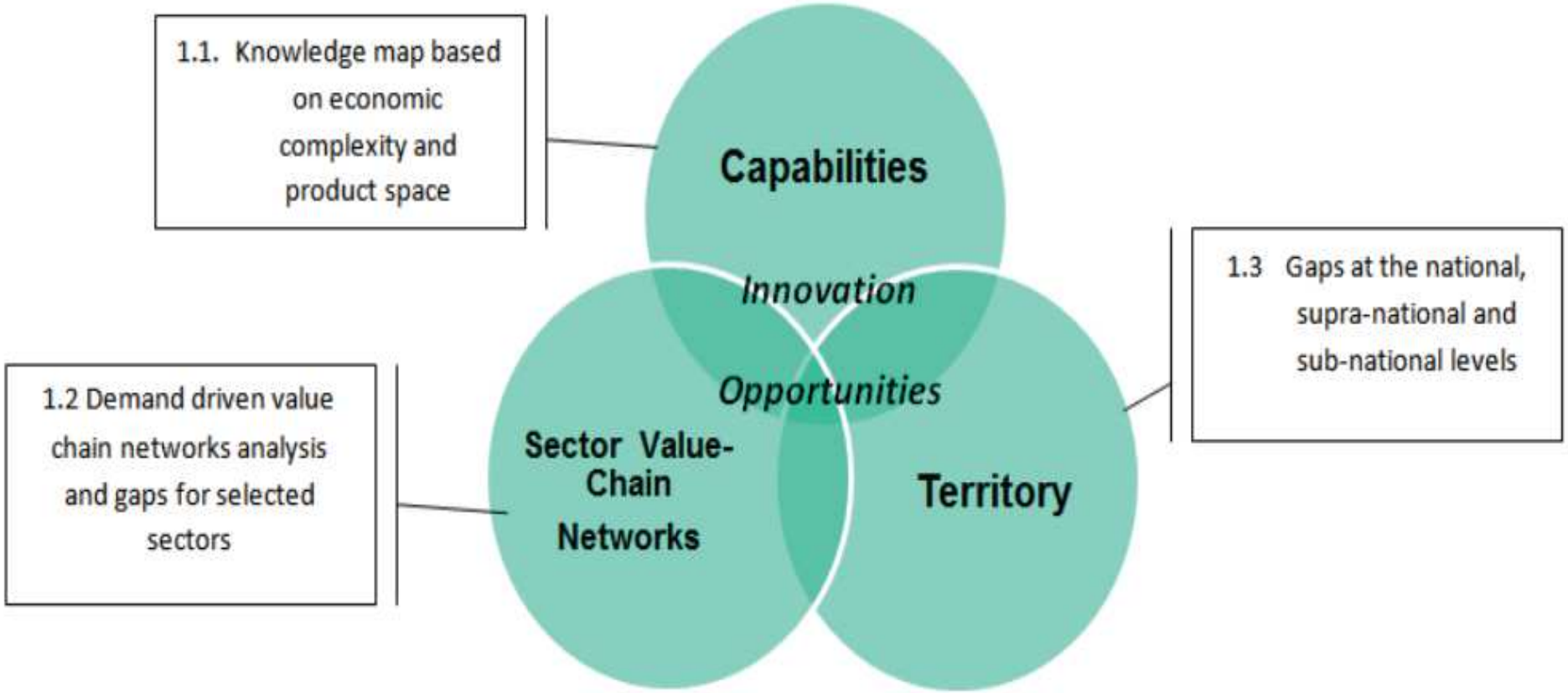
Scoping the Reindustrialization Processes in Tunisia

Reindustrialization 3: A Global Value Chain Perspective

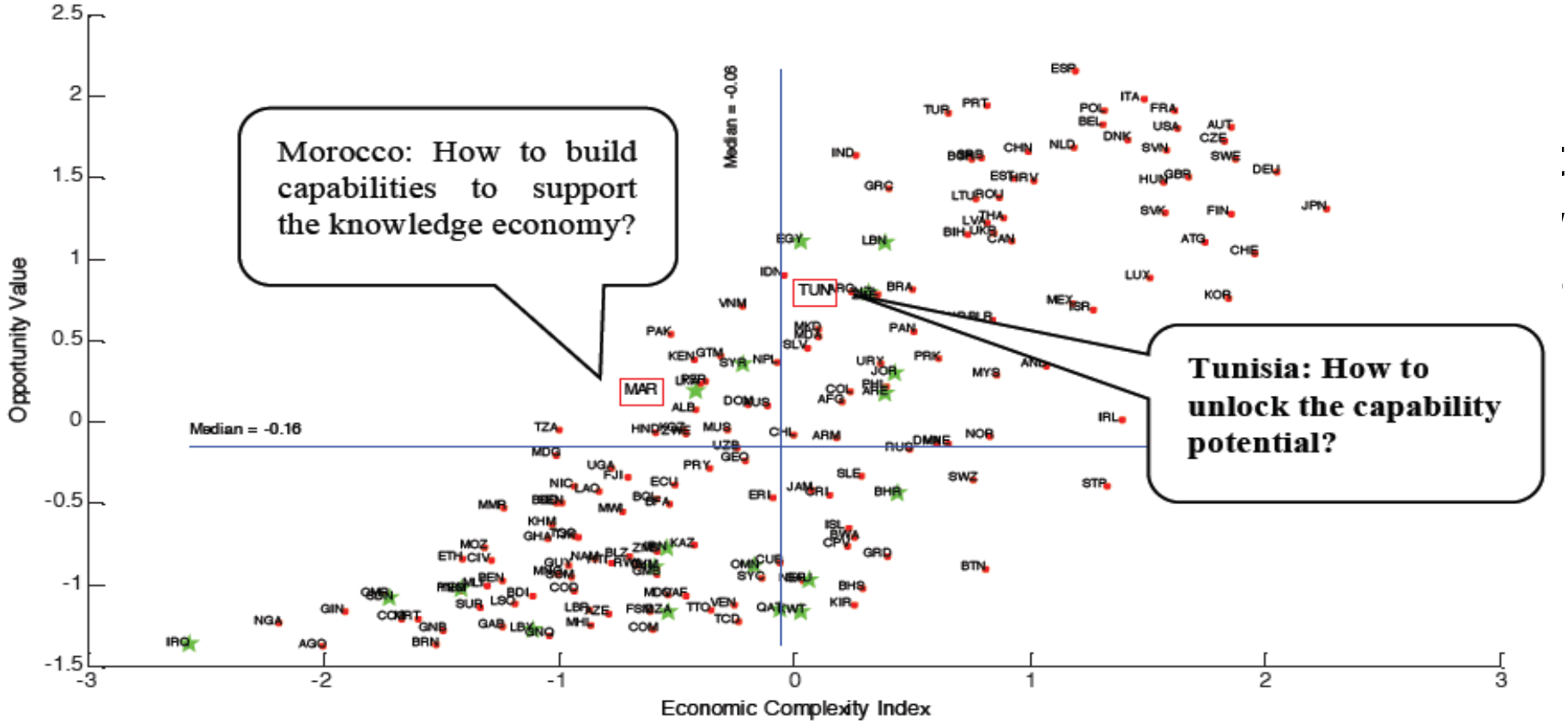
Tunisia has huge potentials for reindustrialization, but they can be activated only on the basis of new industrial policies: The *Industrial Strategy with Horizon 2016* is ambitious, but not more than a list of hopes and expectations. Much more is needed – an approach combing capabilities, sector-specific networks ad spatial impacts. It is a task to identify sectors with opportunities, innovation potential, and benefits for neglected regions. Such an approach was outlined on the basis of an Innovation Investment Index, but it has to be implemented.

Scoping the Reindustrialization Processes in Tunisia, Source: Industrial Strategy Tunisia, p. 20

Reindustrialization 3: A Global Value Chain Perspective
Source: EBRD 2014, p. 14

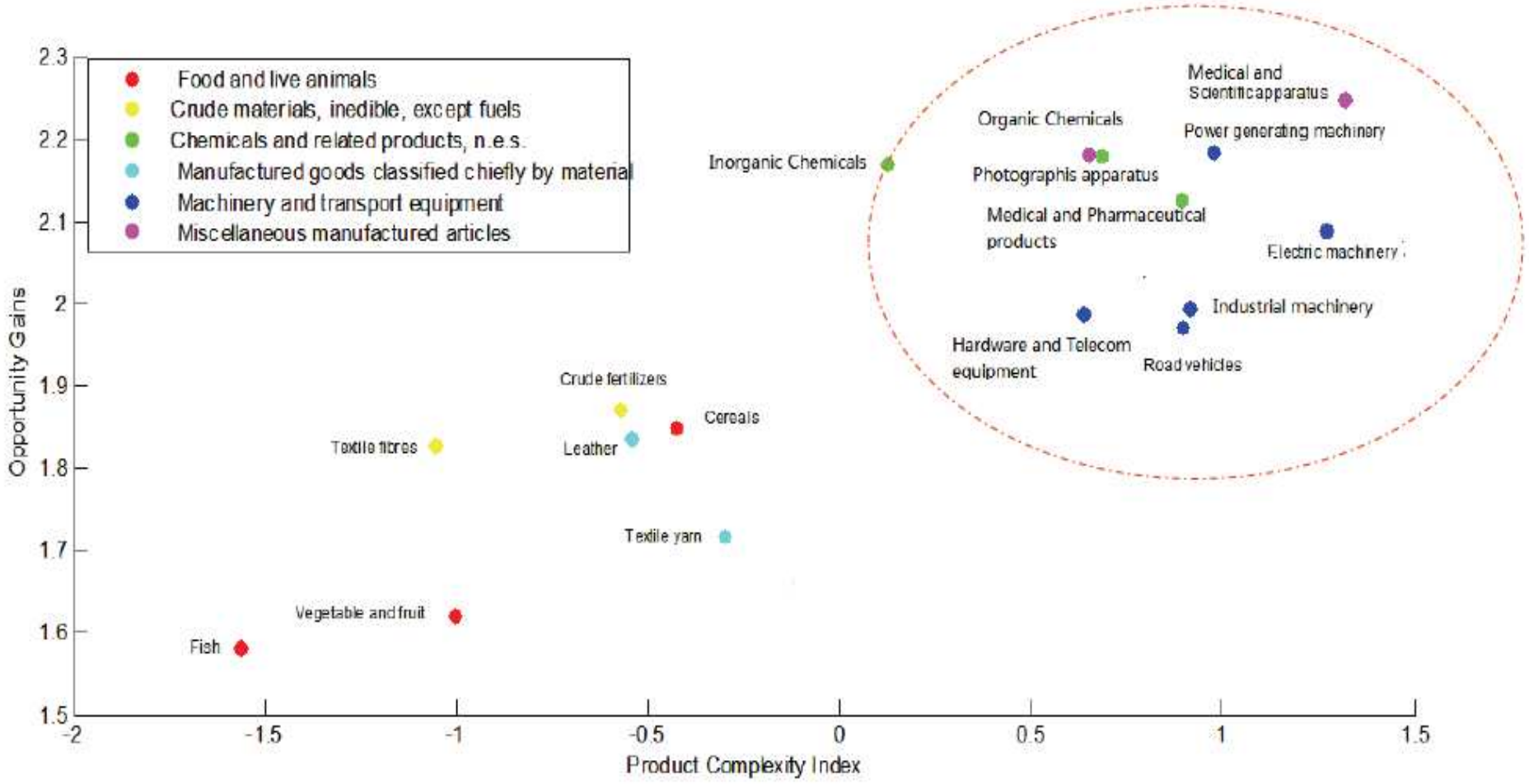


Reindustrialization 3: A Global Value Chain Perspective
Source: EBRD 2014, p. 8

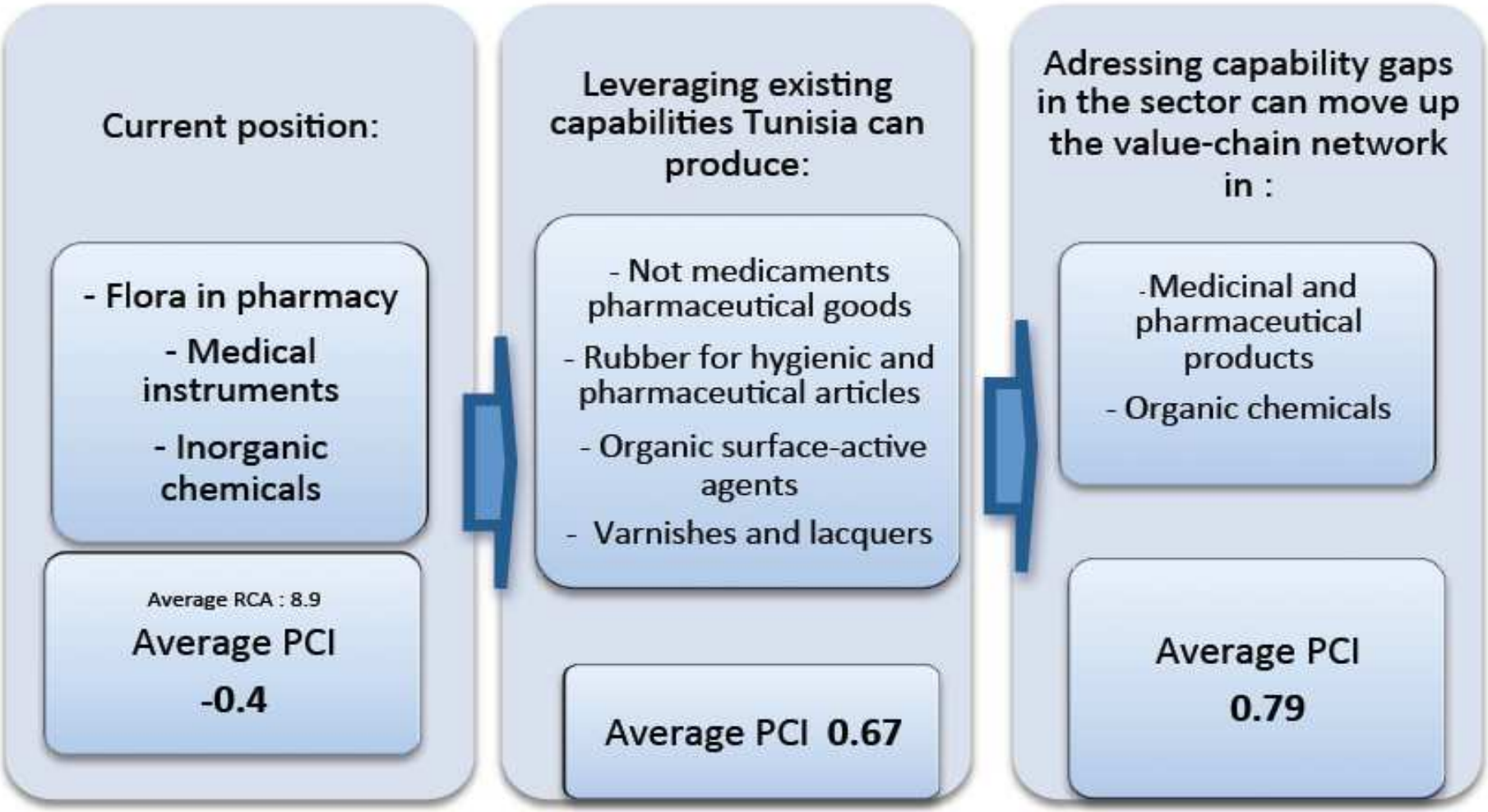


Note: MENA countries are marked with green pentagons

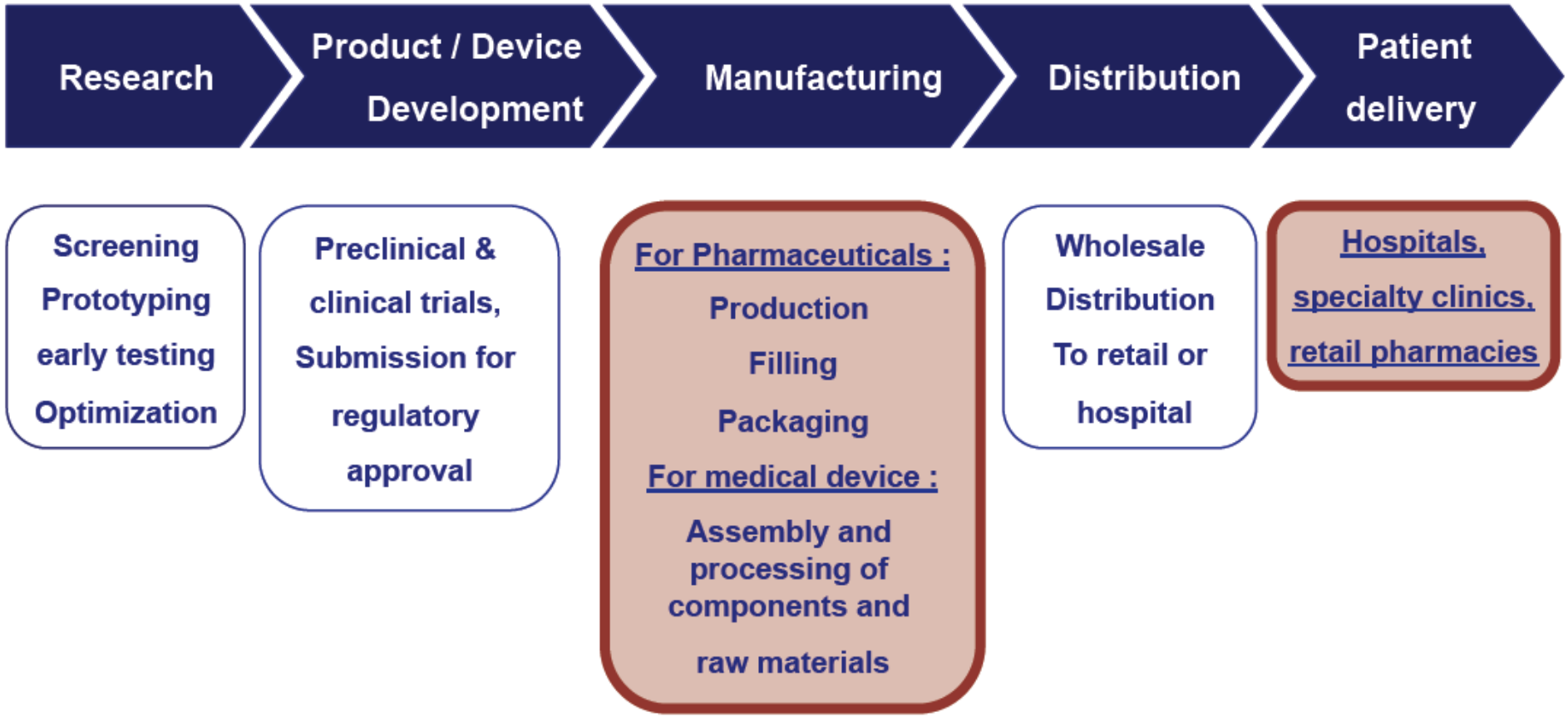
Reindustrialization 3: Opportunity Gains and Product Complexity Index 2010
Source: EBRD 2014, p. 78



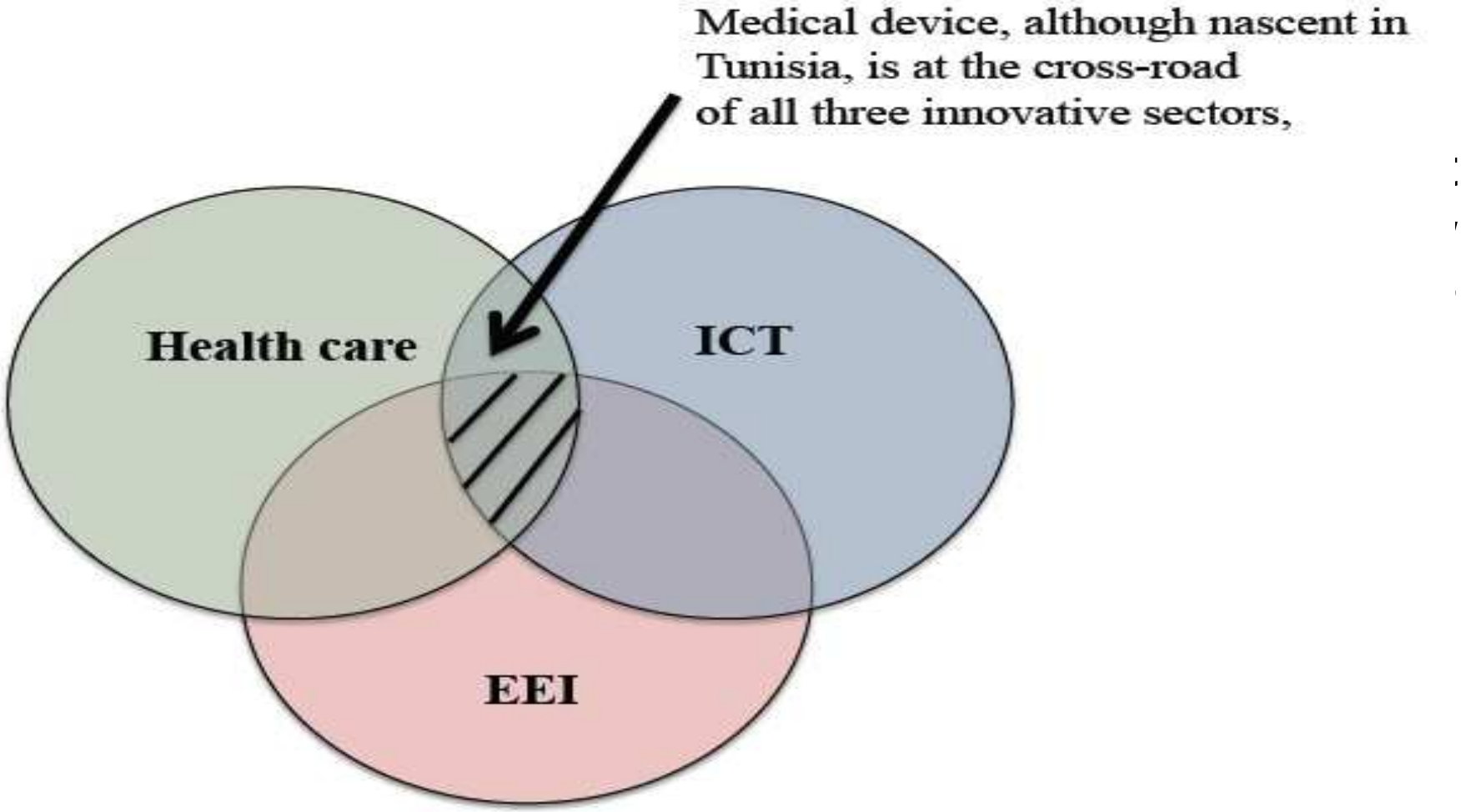
Reindustrialization 3: Product Evolution in Chemical and Medical Industries, Source: EBRD 2014, p. 79



Reindustrialization 3: Pharmaceutical Value Chain Perspective Tunisia, Source: EBRD 2014, p. 90

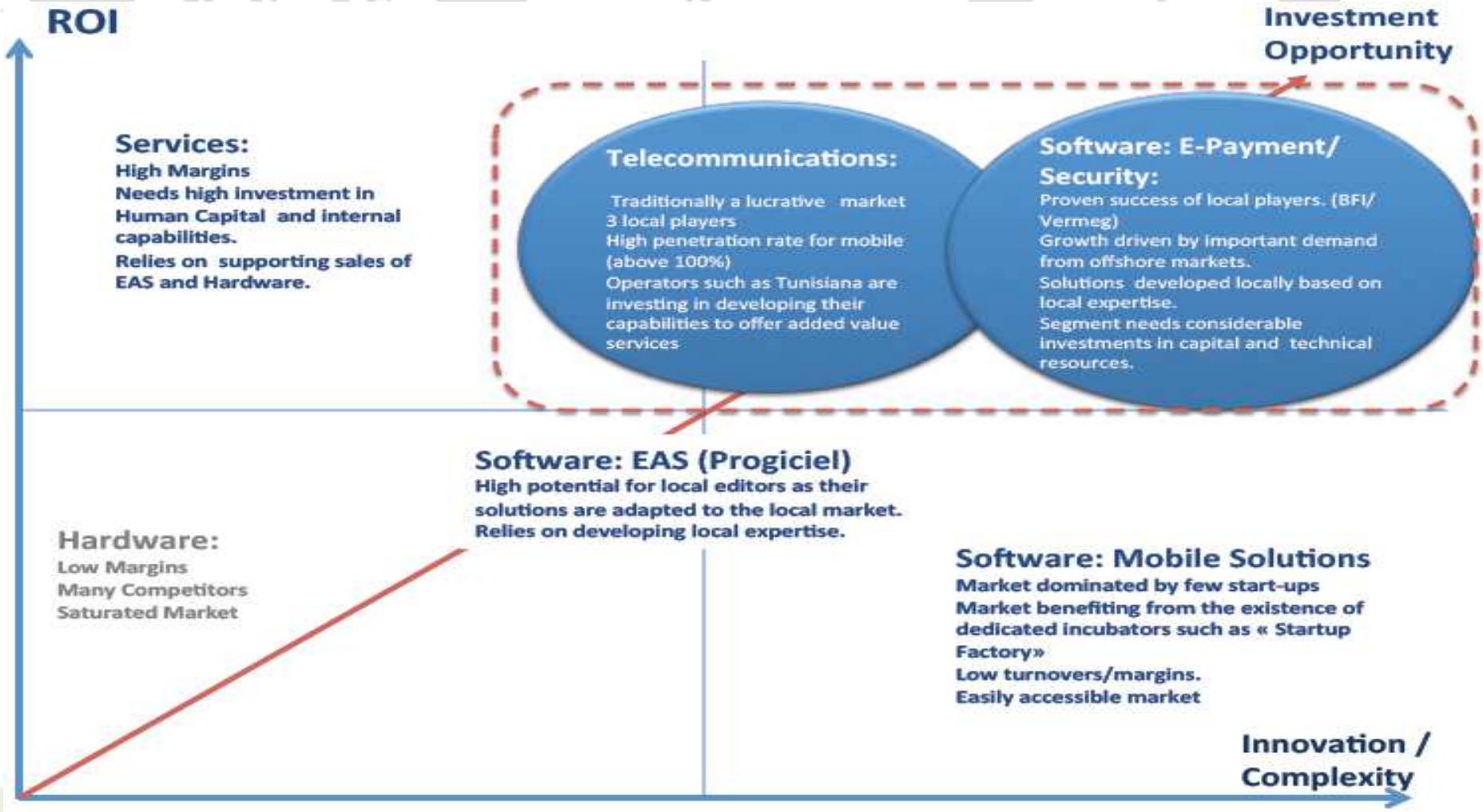


Reindustrialization 3: An Integrated Global Value Chain Perspective, Source: EBRD 2014, p. 91



Reindustrialization 3: Product Evolution in EEI (Electronics and Electrical Industries), Source: EBRD 2014, p. 80

Reindustrialization 3: ICT high potential segments, Source: EBRD 2014, p. 87



Reindustrialization 3: Tunisia Innovation Investment Index, Source: EBRD 2014, p. 94

Tunisia Innovation Investment Index 2012								
Dimensions	**1. Does the country have capabilities in this product/service?**	**2. Is it complex and innovative?**		**3. Is it an opportunity?**		**4. Does it support employment?**		**Innovation-Investment Index**
Sub-questions	1.1. Do capabilities exist?	2.1. Does the country focus on the high or low end of value chain network?	2.2. Is the product/service complex?	3.1. Do they have a market?	3.2. What is the potential gain in Opportunity value?	4.1. What is the geographical distribution of companies over the country?	4.2. Is employment high?	
Variables	Revealed Comparative Advantage (scaled)	Sector value chain network level of complexity (scaled)	Product complexity index (scaled)	Market size (scaled)	Opportunity Gain (scaled)	Herfindal-Hirschman Index for companies' distribution (scaled)	Employment in the sector (scaled)	**Weighed average of all dimensions**
Scientific, Measuring and Medical electronic equipment	100	49	100	29	99	100	39	**77**
Auto parts	47	49	75	44	79	93	98	**66**
Hardware and telecom electronics	78	49	48	34	82	100	39	**64**
Telecom	64	47	38	100	38	51	100	**63**
Mobile Solutions	64	100	100	3	94	51	24	**62**
Aircraft equipment parts	68	49	88	7	100	93	20	**62**
E-Payment/Security	64	100	75	3	100	51	24	**60**
R&D - Engineering	64	55	100	5	100	51	24	**58**
Houehold electronics	47	49	62	29	79	100	39	**57**
Enterprise Application Software	64	100	63	3	88	51	24	**57**
Essential Oils, soaps, Odoriferous substances, organic surface-active agents	89	41	13	15	81	92	19	**55**
ITO	64	55	75	5	88	51	24	**53**
IT Implementation	64	67	63	6	81	51	24	**52**
IT consulting	64	67	50	6	88	51	24	**52**
Operations management	64	67	50	6	69	51	24	**49**
Training and education	64	67	38	6	81	51	24	**49**
Non-medical pharma	36	41	68	13	87	92	16	**49**
Perfumery and cosmetics	59	41	16	15	81	92	19	**48**
Hardware	64	32	25	34	75	51	35	**47**
Support services	64	67	38	6	63	51	24	**47**
Medicines	7	41	73	13	91	92	16	**43**
Organic Chemicals	11	41	47	4	94	92	29	**41**
Allocated Weights for dimensions within the index	**0.25**		**0.25**		**0.25**		**0.25**	
Allocated Weights for variables within the dimensions	**1**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	

Note: Industrial products are in grey, ICT and Offshoring services are in blue

Reindustrialization 3: Falling Stars, Missed Opportunities, Rising Stars and Strategic Retreat, Abdmoulah 2016, in: Wohlmuth et al. 2016

Tunisia has huge potentials for reindustrialization of type three, but these can be activated only if a dynamic export development process is supported: It is very necessary to export products which are ***Rising Stars (RS)*** and to export products which are representing ***Missed Opportunities (MO)***, while the export of products being ***Falling Stars (FS***) and being in ***Strategic Retreat (SR)*** may be a benefit for some companies, but this will not be sufficient to create more employment via exports in the longer run (when global demand for a product is declining).

Reindustrialization 3: Falling Stars, Missed Opportunities, Rising Stars and Strategic Retreat, Abdmoulah 2016, in: Wohlmuth et al. 2016

	Tunisia			
	FS	MO	RS	SR
HT	8	2	6	1
MT	36	2	22	14
LT	10	5	11	20
RB	28	16	33	33
Total	82	25	72	68

Scoping the Reindustrialization Processes in Tunisia

Reindustrialization 4: A Green Growth Perspective

A Green Growth Perspective of Reindustrialization delivers Multiple Developmental Benefits: Tunisia has huge potentials for reindustrialization of type 4, with beneficial impacts on employment creation; absorption of tertiary education graduates; regional development impulses; environmental protection benefits; activation of eco-services, such as tourism and logistics; waste management, recycling and remanufacturing businesses; and development of new high technology sectors; these potentials can be activated through new industrial policies.

Scoping the Reindustrialization Processes in Tunisia

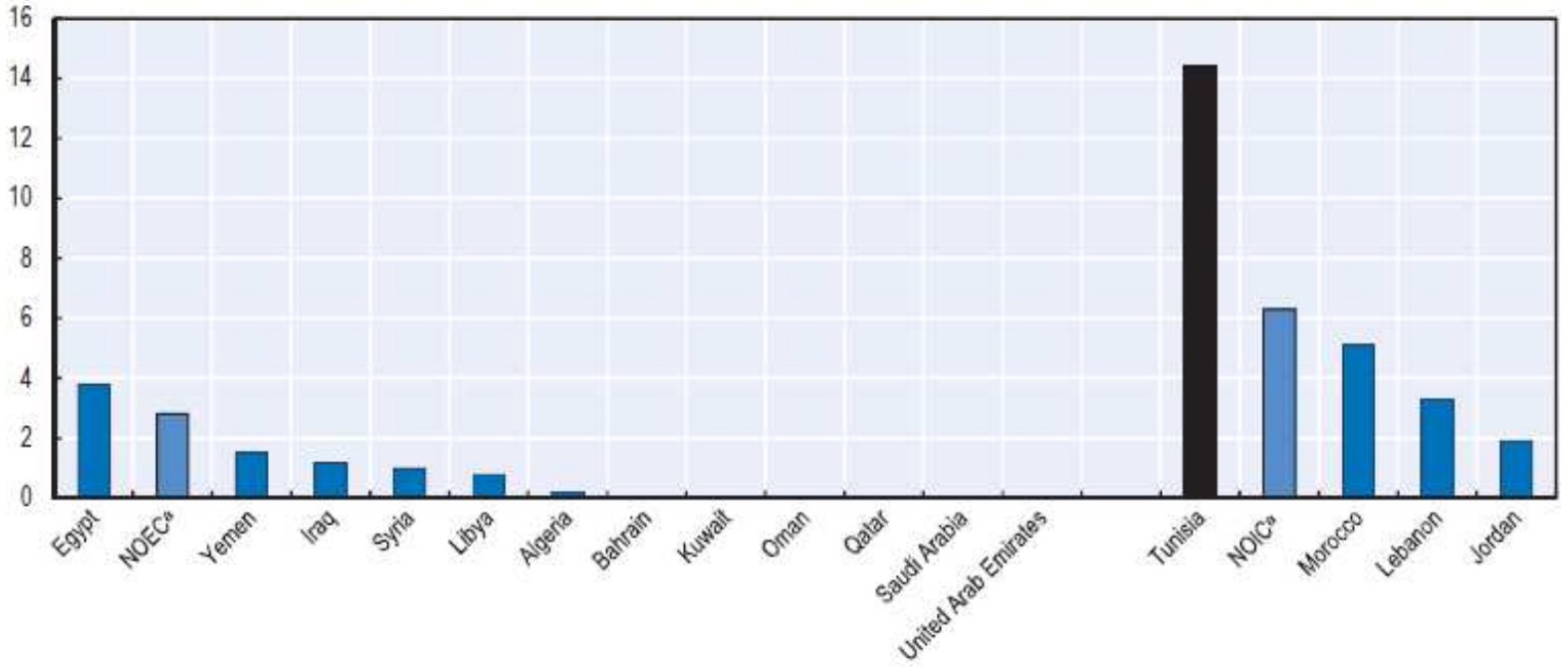
Reindustrialization 4: A Green Growth Perspective

Six areas have the potentially highest impact on youth employment, entrepreneurship development, overall employment, reform of the education and training system, and on structural change: These are the development of innovative clean-tech companies; renewable energy development; improving waste management; developing greening existing tourism and developing eco-tourism; developing further organic agriculture; and greening construction activities. Huge employment , skills and technology gains are anticipated.

Scoping the Reindustrialization Processes in Tunisia, OECD 2015, Page 225

Figure 5.2. Use of renewable energy in Arab countries, 2010

Share of renewable energy in total primary energy supply

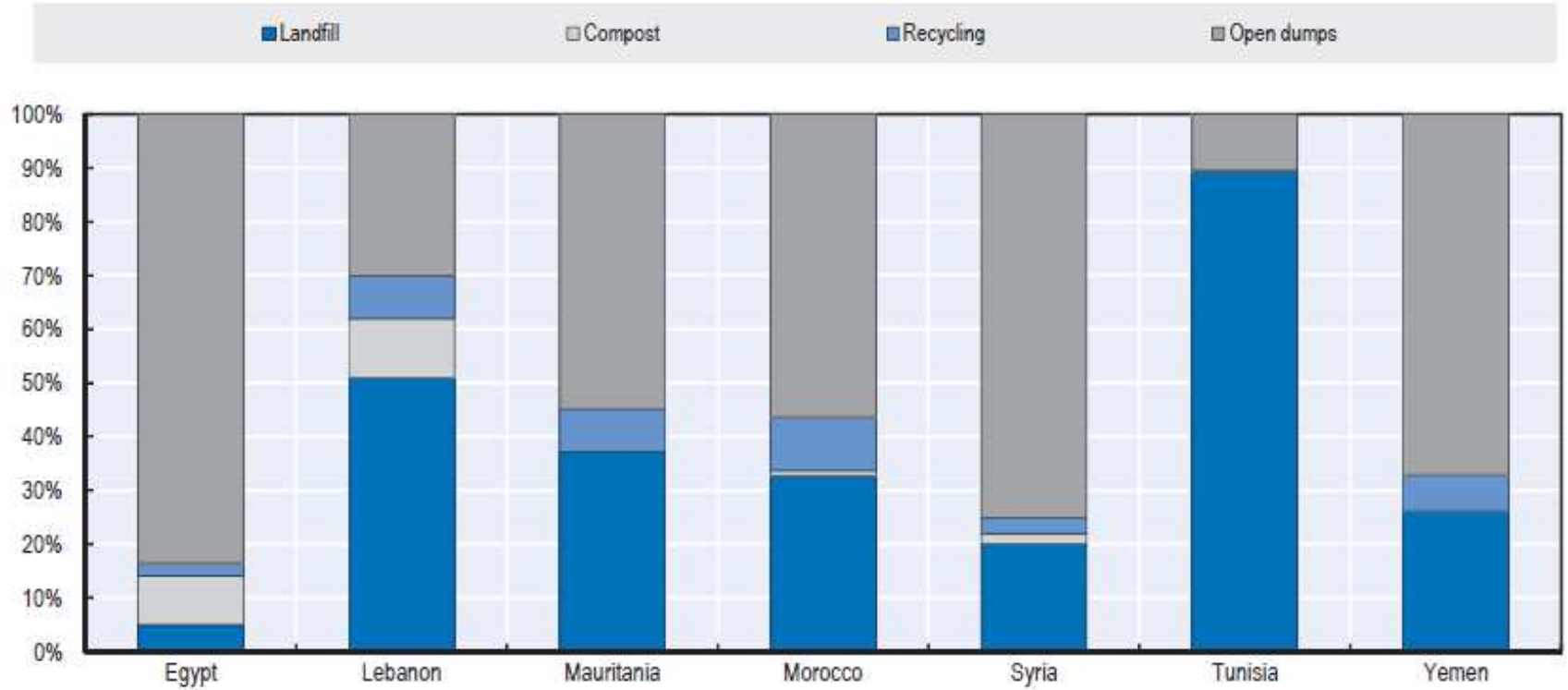


a) NOEC = Net Oil Exporting Countries. NOIC = Net Oil Importing Countries.

Source: AFED (2013), "Arab Environment: Sustainable Energy: Prospects, Challenges, Opportunities", 2013 Report of the Arab Forum for Environment and Development, Arab Forum for Environment and Development, Beirut.

Scoping the Reindustrialization Processes in Tunisia, OECD 2015, Page 228

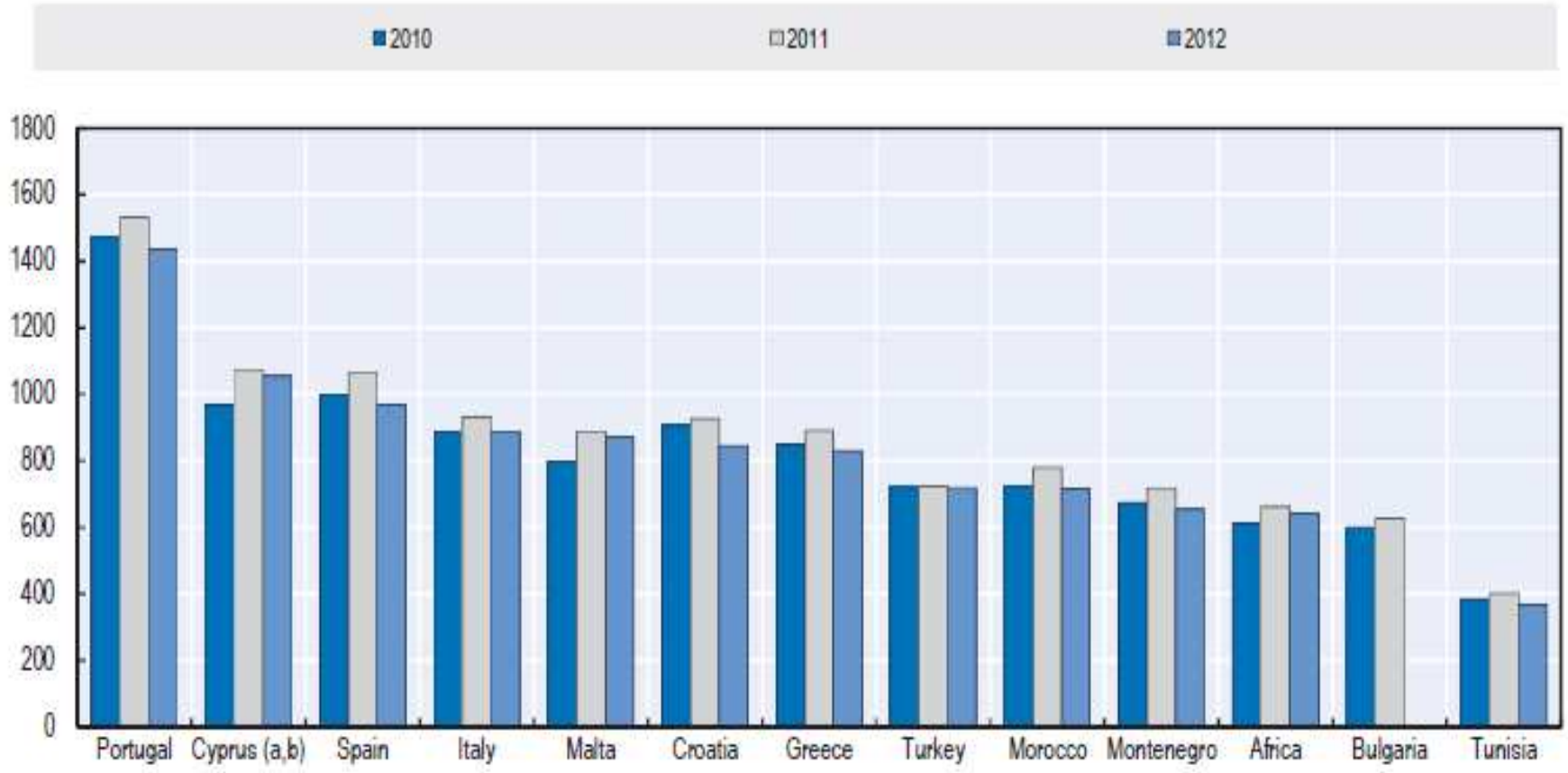
Figure 5.3. Treatment of municipal solid waste, end 2011



Source: SWEEP-Net (2012), "The Solid Waste Management Situation in Mashreq and Maghreb Countries: Update on the Challenges and Opportunities", Solid Waste Exchange of Information and Expertise Network.

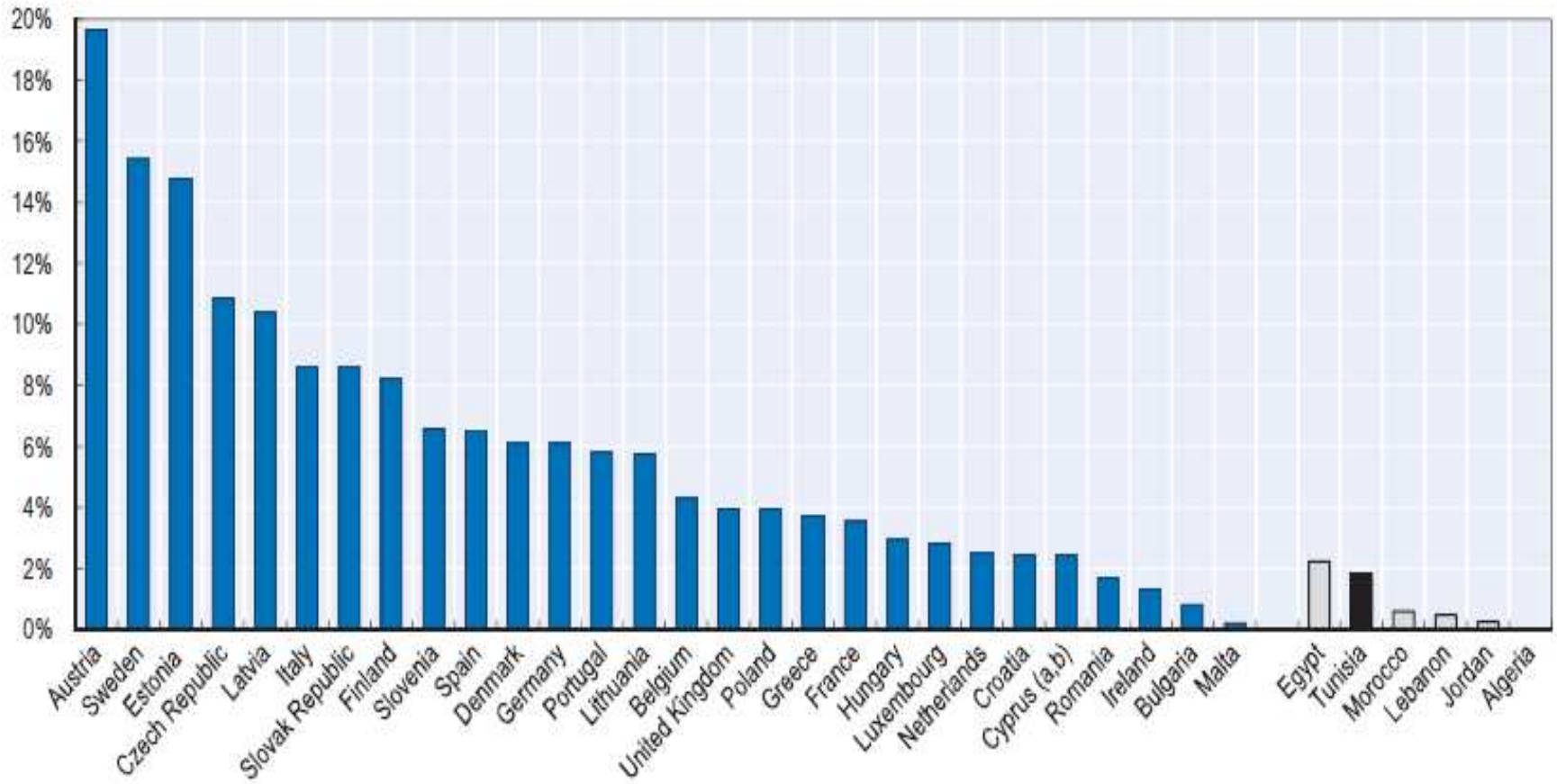
Scoping the Reindustrialization Processes in Tunisia, OECD 2015, Page 230

Figure 5.4. Receipts per tourist arrival in selected Mediterranean destinations, 2010-12



Scoping the Reindustrialization Processes in Tunisia, OECD 2015, Page 233

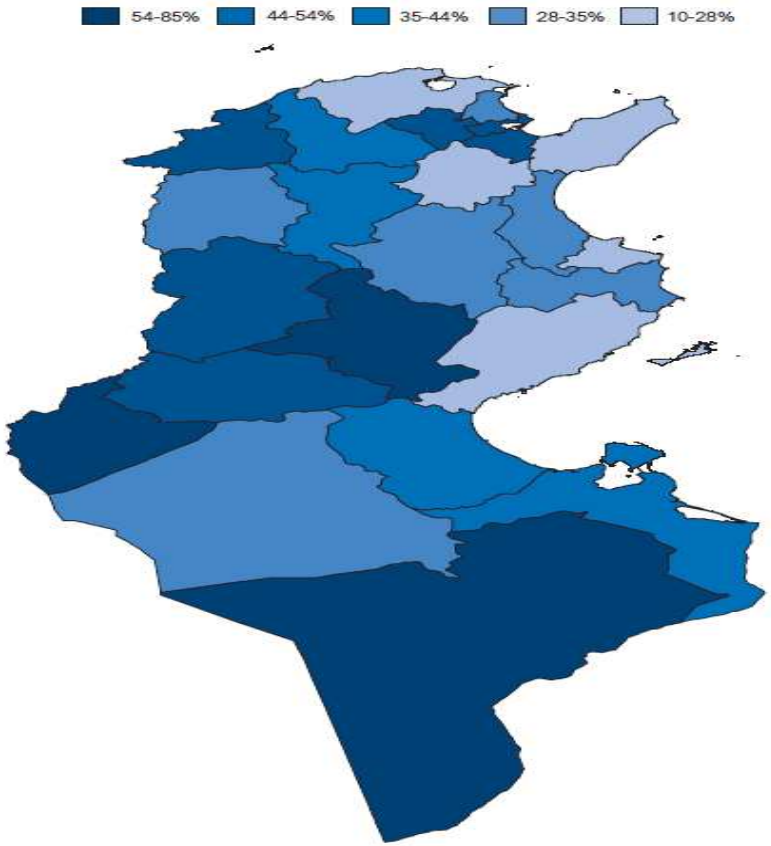
Figure 5.5. Percentage of agricultural land certified as organic, 2011



Scoping the Reindustrialization Processes in Tunisia, OECD 2015, Page 21

Figure 0.2. Youth unemployment by governorate, Tunisia, 2012

Percentage of the labour force in each governorate

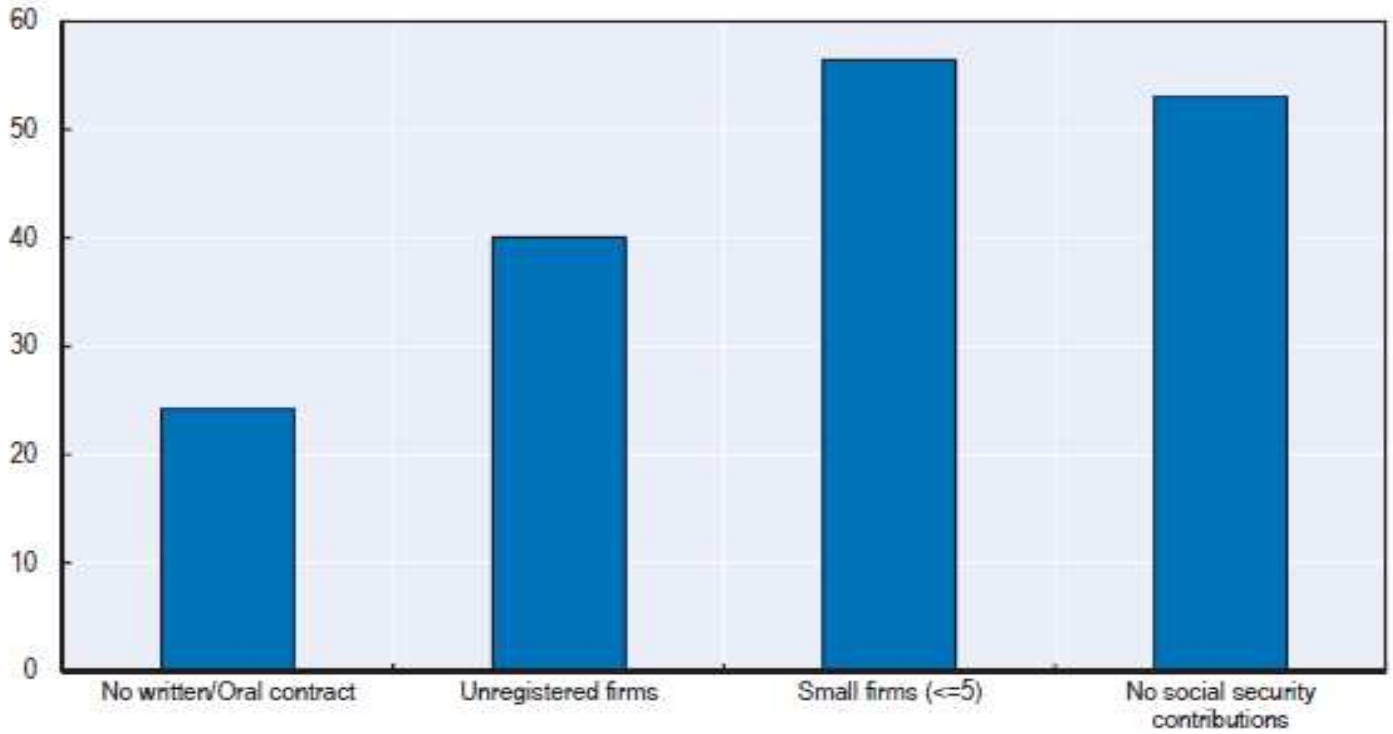


Source: OECD calculations based on the *Enquête Nationale sur la Population et l'Emploi* (ENPE) [National Population and Employment Survey].

Scoping the Reindustrialization Processes in Tunisia, OECD 2015, Page 57

Figure 1.11. Informality in Tunisia, 2013

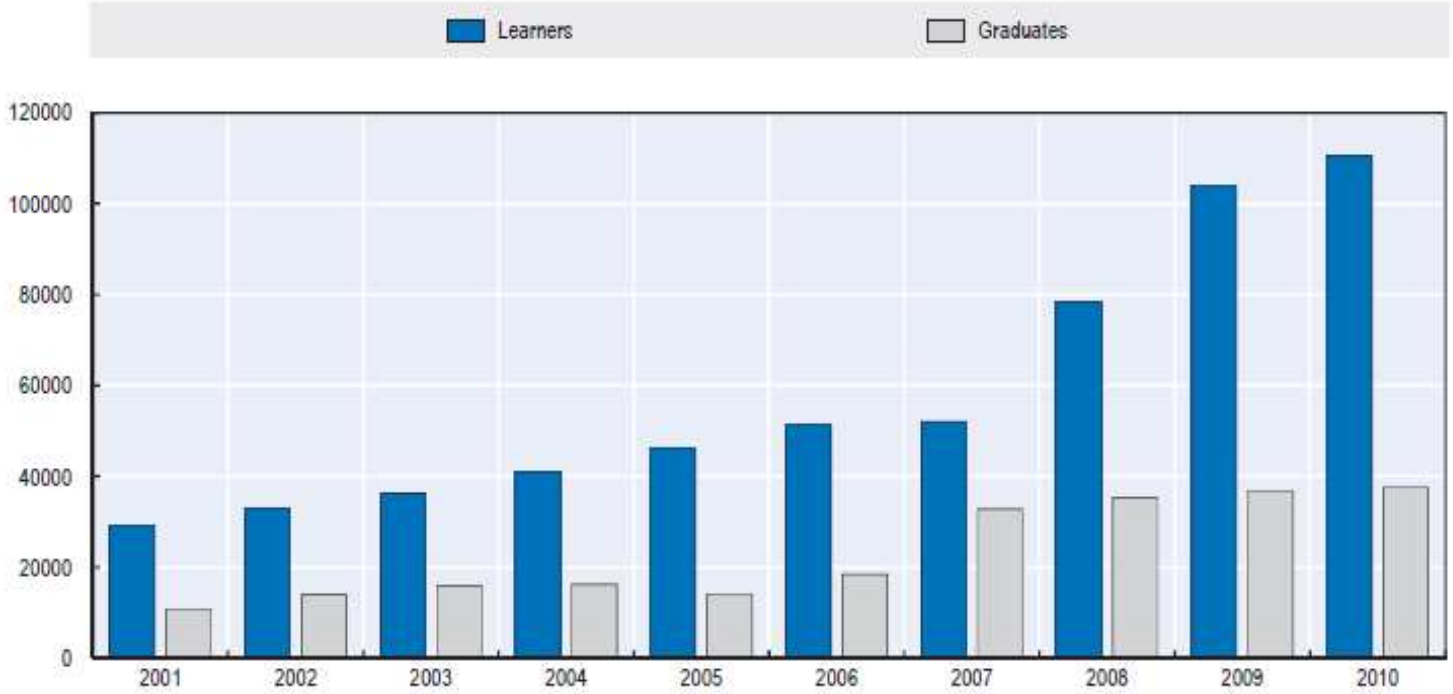
As a proportion of employed youth (15-29)



Source: OECD calculations based on the ILO School-to-Work Transition Survey for Tunisia (2013).

Scoping the Reindustrialization Processes in Tunisia, OECD 2015, Page 177

Figure 4.4. Number of learners and graduates in vocational education, 2001-10



Source: Chahed, M.Y. (2013), "Skills for Entrepreneurship [Tunisia]: Le renforcement de la culture entrepreneuriale dans le cursus de la formation professionnelle dispensée dans les centres de l'Agence tunisienne de la formation professionnelle (ATFP)", Rapport Final de Mission, Project by the OECD, GIZ, ETF.

Scoping the Reindustrialization Processes in Tunisia, OECD 2015, Page 181

Table 4.7. Unemployment rates by level of education, Tunisia, 2010

Percentage of the labour force

Highest qualification achieved	Unemployment rate
None	5%
Primary	9%
Secondary	13%
Tertiary	24%
CAP	21%
BTP	22%
BTS	25%
TOTAL	14%

Source: OECD calculations based on the Enquête Nationale sur la Population et l'Emploi (ENPE) [National Population and Employment Survey].

The Contribution of Coherent Industry and STI Policies

Tunisia needs for a successful reindustrialization more coherent and basically horizontal investment and STI policies: Reindustrialization requests investment and STI policies which are *neutral with regard of space/regions, sectors and sizes of enterprises*, overcoming the onshore/offshore duality. 79% of the amount of incentives is wasted. An additional job costs not less than $ 20,000. Only four types of incentives (out of 68 different ones) account for 85% of the incentives. But, a new investment code for Tunisia will work only if three major preconditions are met.

The Contribution of Coherent Industry and STI Policies

Three Major Preconditions for a working New Investment Code: *Competition* is needed (as 60 percent of the Tunisian economy is closed to competition). A *corporate tax reform* is needed (the Total Tax Rate is estimated at 62.9 percent in 2012 and 59.9 percent in 2016, while the corporate tax system has many arbitrary exemptions and incentives). *Reforming the regulatory burden of investors* is needed (as it is > 13% of the turnover of firms). Concerning investment incentives, a *Malaysian type of Knowledge and ICT-based Code* is recommended.

The Contribution of Coherent Industry and STI Policies

Three Core Capabilities matter for Tunisia's industry and STI policies and for a redrafted Investment Code: Three capabilities should be promoted when granting incentives for investment. First, *technological capability* as measured by the Comparative Industrial Performance Index; second, *innovation capability* as measured by the Global Innovation Index; and third, the *information technology (IT) capability*, as measured by the Global Innovation Technology Index. Reindustrialization is based on types of manufacturing requiring the three capabilities.

The Contribution of Coherent Industry and STI Policies

Mixed Outcomes in Tunisia: The *Comparative Industrial Performance (CIP)* measures the capacity to produce and to export manufactures, the technological deepening and upgrading performance, and the global impact of Tunisia's performance; the middle position of Tunisia has not improved; the *Global Innovation Index (GII)* measures the Innovation Input, Output, Efficiency Ratio, and various Innovation Pillars; Tunisia's position deteriorated strongly since 2012 (Rank 59) to 2013 (Rank 70) and to 2014 (Rank 78), especially so in the Efficiency and Output Indexes.

The Contribution of Coherent Industry and STI Policies

Mixed Outcomes in Tunisia: The Global Information Technology (IT) Index (or *Networked Readiness Index/NRI*) has seen in 2015 an improvement to rank 81 from rank 87 in 2014. The political, regulatory, business and innovation environment sub-index is poor (rank 103), while the readiness sub-index (with infrastructure, affordability and skills) is relatively favourable (rank 69). Usage and Impact sub-indexes have each a rank 81. The business usage (rank 106), the economic impact (rank 103), and the business and innovation environment (rank 108) are poor.

The Tasks Ahead: An Agenda for Action

New Investment Code: to be based on new policies on STI, industry and technology development, competition, regulatory issues, foreign investment, and the total tax rate

Starting with the Sector Transformation Policies towards reindustrialization: Parallel action is needed on the four routes of reindustrialization, as inclusive growth is aimed at (employment creation, regional development, etc.)

Working hard on the "new development model" agenda ("appropriability" issues): Private and public investors!