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The Decline of Syrian Industry: An Assessment of Performance and Capabilities During the 1990s

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Syrian manufacturing industry has several advantages: it has a long history and a strong entrepreneurial base, relatively low wages and a good location to serve large markets in oil-rich neighbours and Europe. It has not, however, performed well. This paper focuses on its record in the 1990s, benchmarking indicators of performance and competitive capabilities against selected comparators. Manufacturing growth has been erratic and probably low; manufactured exports have declined dramatically and its composition has shifted towards primary products. The demise of the Soviet block, which provided a 'soft' market for Syrian exporters, has exposed their competitive weaknesses. The competitive base of Syrian industry has been eroding. With greater openness, Syria faces enormous challenges in terms of building new technological capabilities to strengthen existing activities and diversifying into more dynamic non-oil manufactured exports.

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I. Introduction

The Syrian Arab Republic (henceforth Syria) has a long industrial and entrepreneurial tradition. It is rich in oil and agricultural resources. It has good infrastructure by developing country standards, and, by regional ones, a cheap, experienced and disciplined labour force. It is well positioned to serve Europe and has privileged access to higher income Arab markets. After a long period of relative isolation, it is starting to open up to international markets and capital flows, giving greater freedom to the private sector and foreign investors. However, the 1990s have seen a significant deterioration in its industrial performance, particularly in its export record: manufactured exports have declined by two thirds over the decade. This has coincided with variable but relatively weak industrial growth; the failure to generate employment is exacerbating economic and social problems.

This paper maps Syrian industrial and export performance in the 1990s and assesses the structural factors that underlie its poor record. The evaluation is useful because little is known about this subject; it is also difficult because of the paucity of up-to-date data and analyses of relevant policies and institutions. There are, for instance, no studies of Syrian trade policy: nominal tariff rates are published, but nothing is known about effective rates of protection or about hidden barriers to exports and imports. Nor are there data on activities like industrial research and development (R&D), training or quality management. There are no analyses of the business climate confronting private investors: legal barriers have been eased but it appears that enterprises face a difficult regulatory environment. While this means that a comprehensive analysis of Syria's performance cannot be undertaken, it is still possible to make some progress with the available data and qualitative evidence.

This paper benchmarks Syria against developing countries in and outside the region, comparing its production and export record and some structural factors affecting these. Sections II and III assess Syrian industrial performance by various measures (capacity, growth, structure and upgrading). Section IV analyses Syria's industrial capabilities and Section V concludes.

II. Industrial and export performance

It is difficult to track the growth of industry in Syria because of the lack of consistent data. We have used a combination of sources after careful consideration of reliability and the picture that emerges is as follows. Manufacturing value added (MVA) grew at 7 percent per annum in constant prices during 1980-85 and then declined by 5.2 percent per annum in 1985-90 (UNIDO, 1996). In the 1990s, according to the World Bank, World Development Indicators 2002, it grew by 9.7 percent per annum (9.5% in 1990-95 and 9.8% in 1995-2000). However, according to the industrial production index of the Syrian government, growth was much slower, coming to only 2.5 percent per year in the latter half of the 1990. Most of the growth took place in 1996-97, after which production stagnated (EIU, 2001). By 2000, Syria's MVA of $155 per capita (in 1995 prices, according to World Bank) was well below that of most comparators in Middle East and North African (MENA) for which data are available (Table 1).

Table 1: Manufacturing Value Added for Syria and Selected Comparators (constant 1995 US$ thousand)

	MVA (constant 1995 $ m.)			Growth rate			MVA per capita ($)	
	1990	1995	2000	1990-95	1995-2000	1990-2000	1990	2000
Syria	998.7	1,574.1	2,515.9	9.5%	9.8%	9.7%	82.4	155.4
Egypt	7,925.0	9,829.0	14,606.4	4.4%	8.2%	6.3%	151.1	228.3
Jordan	635.8	865.7	1,074.9	6.4%	4.4%	5.4%	200.6	220.0
Lebanon	-	1,178.4	1,183.7	-	0.1%	-	-	273.5
Tunisia	2,576.2	3,389.5	4,394.0	5.6%	5.3%	5.5%	315.9	459.5
Turkey	24,618.7	31,436.6	38,012.1	5.0%	3.9%	4.4%	438.4	563.8

Source: World Bank, *World Development Indicators 2002*

Dashes indicate that data is not available.

The share of manufacturing in GDP (7.5 per cent in 2000, again according to World Bank data) was low by regional standards, and even further below that of the newly industrialising economies of East Asia (all the Asian 'Tigers', with the exception of Hong Kong, have shares between 20 and 40 percent). Two traditional activities – processed foods and textiles – account for 51 per cent of MVA (UNIDO, 2002)[2]. The share of more technology intensive industries (the seedbed of sustained growth) is very low and has not risen significantly over time.

Syrian manufacturing is heavily domestic oriented and until the 1990s, its exports went mainly to 'soft' markets in the Soviet bloc. The collapse of these markets led to a massive decline in exports after 1990 (Table 2). During 1990-2000, its manufactured exports fell by 9.8 percent p.a. (from $2 billion to $0.7 billion), when world manufactured exports grew by 6.5 percent p.a., those by developing countries by 11.7 percent and those by the Middle East and North Africa (MENA) region by 7.1 percent.[3] In per capita terms, Syrian manufactured exports fell from $169.7 to $45.5 and by 2000, Lebanon and Jordan exported 3 times more manufactures per capita than Syria, Oman and Saudi Arabia 17 times and Malaysia around 83 times.

Table 2. Manufactured Exports by Syria and Selected Comparators (current US$ thousand)

	1990	1995	2000	Growth rates (90-95)	Growth rates (95-00)	Growth rates (90-00)	Mnf. exports per capita 1990	Mnf. exports per capita 2000
Syria	2,055,790	1,031,071	736,421	-12.9%	-6.5%	-9.8%	169.7	45.5

[2] Other important industries are fabricated metal products (17.4 per cent of total MVA) and pottery, china and earthenware (13.7 per cent of total MVA).

[3] The trade data are calculated from the UN Comtrade database. The MENA region is defined to include Turkey.

Egypt	1,427,112	2,022,140	2,390,820 [a]	7.2%	4.3% [a]	5.9% [a]	27.2	38.1 [a]
Jordan	487,164	929,731	707,486	13.8%	-5.3%	3.8%	153.7	144.8
Lebanon	N.a	N.a	540,548	-	-	-	N.a	124.9
Kuwait	493,278	706,626	6,048,389 [a]	7.5%	53.6% [a]	32.1% [a]	232.1	3,143.0 [a]
Oman	459,646	1,037,001	1,832,240	17.7%	12.1%	14.8%	282.5	765.0
Saudi Arabia	8,502,615	11,669,432	15,456,694	6.5%	5.8%	6.2%	538.0	745.9
Tunisia	2,704,183	4,817,933	4,989,720	12.2%	0.7%	6.3%	331.6	521.7
Turkey	9,798,417	18,464,519	24,187,572	13.5%	5.5%	9.5%	174.6	370.4

Source: Calculated from UN Comtrade

Note: a) data for 1999

This abysmal performance reflects serious weaknesses in Syria's export and industrial structure, trade competitiveness and policy regime. Let us start with the *export structure*. There has been a steady shift up the technological ladder in world manufactured trade. Resource based and low technology exports have grown relatively slowly and lost shares to medium and high technology exports.[4] In particular, the 1990s have seen a rapid rise in the share of high technology electronics products. Moreover, high technology exports have not been a preserve of mature industrial countries: developing countries raised their share of such exports dramatically, from 9.2% in 1990 to 32.3% in 2000 – high technology products were the main engine of the export success of the most dynamic industrializing countries (mainly in East Asia).

Syrian manufactured exports consist largely of simple products (next section). It exported some medium and high technology products earlier but these collapsed over 1990-2000. Syria now exports less than $3 per capita of medium and high technology products, the lowest in MENA. This collapse was not offset by exports by traditional sectors. Resource-based exports dropped from $591 million in 1990 to $379 million in 2000 (exports by agro-based industry declined by 10.6 per cent) while the main low technology export (textiles and clothing) fell by half.

With the decline of Soviet trade, the EU became the main destination for Syrian exports, its share growing from 30% in 1989 to over 60% by 1999. However, Syrian manufactured exports to the EU declined by 2.6% per year between 1990 and 2000[5]. Exports to the EU were predominantly (crude and refined) petroleum products (93 per cent of its total exports to EU in 2000). The EU share is likely to keep growing, particularly if Syria succeeds in negotiating an Association

[4] For a detailed analysis of the growth of world trade by technological categories, along with a definition of the categories, see Lall (2001). This schema is further explored and empirically extended in UNIDO (2002).

[5] By contrast, Syria's manufactured imports from the EU grew rapidly. The share of EU manufactured import in Syria's total imports increased from 80 per cent in 1990 to 82 in 2000 and its structure changed over the decade. In the early 1990s, Syria's main imports from the EU were primary goods (wheat and sugar). In 2000, leather and textile machinery and gas (natural and manufactured) became the main imports. Syrian imports from the EU are diversified: in 2000 none of Syria's main imports from the EU accounted for more than 5 per cent of total imports.

Agreement with the EU (EIU, 2001). However, sustained growth in exports will require significant upgrading of the export structure and competitiveness.

Syria's exports to the Arab world also did poorly, growing by 1.6 per cent per annum in the 1990s[6]. Manufactured exports to the Arab Common Market (ACM) grew slightly faster than to other Arab countries, though the values were smaller. Syria's imports of manufactures from the Arab world grew rapidly, at 7.2 per cent per annum from the Arab Common Market and at 14.7 per cent from other Arab countries. As a result, Syria's trade balance in manufactures within the region deteriorated significantly during the 1990s[7].

III. Industrial structure and upgrading

Syria suffered a technological downgrading of its production and export structures during the 1990s. In terms of production, the share of sophisticated (medium and high technology) products in MVA fell from 10.5 per cent in 1990 to 9.3 per cent in 2000 (table 3).[8] In this period, the share rose in most Arab countries: in Egypt by 12 points, in Jordan by 2, and in Kuwait by 2.7.

Table 3. Technological structure of MVA in Syria and Comparators (%)

	1990			2000		
	MHT	LT	RB	MHT	LT	RB
Syria	10.5%	48.7%	40.8%	9.3%[a]	55.9%[a]	34.8%[a]
Egypt	33.2%	19.5%	47.3%	45.3%[b]	20.5%[b]	34.2%[b]
Jordan	28.0%	14.2%	57.8%	30.0%	13.0%	57.0%
Kuwait	6.1%	7.8%	86.0%	8.8%[a]	10.5%[a]	80.7%[a]
Oman	N.a	N.a	N.a	19.6%[b]	18.7%[b]	61.7%[b]
Saudi Arabia	N.a	N.a	N.a	N.a	N.a	N.a
Tunisia	15.8%	23.2%	61.0%	24.4%[b]	36.8%[b]	38.8%[b]
Turkey	34.9%	20.5%	44.6%	38.7%	24.0%	37.3%

Source: UNIDO: Research, Economics and Statistics Division. Notes: a) data for 1998; b) data for 1999. MHT stands for medium- and high-tech; LT stands for low tech products; and RB for resource based. Lebanon is excluded for lack of data.

[6] We divide the Arab countries in two groups: the Arab Common Market (ACM), which includes Jordan, Kuwait, Libya, Sudan, UAE, and Egypt; and other Arab countries, which include Algeria, Bahrain, Lebanon, Morocco, Qatar and Saudi Arabia.

[7] Syrian imports from Arab countries increased dramatically over the last decade. In 2000, more than 80 per cent of Arab imports were manufactures products – in the case of non-ACM members the share was almost 92 per cent. Despite Syria's resources, it is a net importer of resource-based manufactures (e.g. lime, cement and building products, metal waste and scrap). Syria imports nearly $ 9 million of refined petroleum products (2.8 per cent of Syria's total import from Arab countries).

[8] For the definition of exports by technology levels see UNIDO (2002).

The technological downgrading of manufactured exports was more marked. From serving Soviet markets with sophisticated products, Syria increasingly moved to being a supplier of low value added products, even to its Arab neighbours. The share of medium and high technology products in manufactured exports plummeted from 28 per cent in 1990 to only 1 per cent in 2000 (Table 4). The perfumery and cosmetics sector suffered particularly badly, with exports falling by over $500 million. Pharmaceutical exports fell from $35 million in 1990 to $3.3 million in 2000. By contrast, most other Arab countries had a slight increase in the share of sophisticated exports in their export structures.

Table 4. Technological structure of exports and growth rates in Syria and comparators (%)

	1990				2000				Annual growth rates (1990-2000)			
	HT	MT	LT	RB	HT	MT	LT	RB	HT	MT	LT	RB
Syria	0.8%	20.4%	13.6%	14.1%	0.1%	1.0%	6.8%	8.3%	-21.0%	-25.6%	-6.0%	-4.3%
Egypt	0.7%	5.8%	34.6%	14.4%	1.7% [a]	7.6% [a]	24.9% [a]	37.8% [a]	12.6% [a]	6.1% [a]	-0.8% [a]	14.5% [a]
Jordan	6.7%	24.4%	9.9%	12.0%	11.9%	18.2%	28.5%	16.2%	6.3%	-2.6%	11.5%	3.3%
Lebanon	N.a	N.a	N.a	N.a	5.9%	16.7%	29.8%	32.2%	N.a	N.a	N.a	N.a
Kuwait	0.4%	3.4%	1.4%	2.0%	0.4% [a]	6.5% [a]	1.0% [a]	42.0% [a]	7.3% [a]	14.4% [a]	2.0% [a]	49.6% [a]
Oman	0.8%	3.3%	0.9%	3.4%	1.5%	8.2%	2.0%	5.3%	13.7%	17.1%	16.5%	11.9%
Saudi Arabia	0.0%	3.9%	0.9%	14.6%	0.1%	3.7%	1.0%	15.3%	37.8%	5.1%	7.3%	6.3%
Tunisia	2.6%	15.8%	40.6%	18.3%	3.5%	16.8%	49.4%	15.6%	8.4%	5.9%	7.4%	3.6%
Turkey	2.9%	14.3%	46.4%	12.1%	7.9%	21.4%	47.9%	12.0%	19.1%	12.1%	8.0%	7.5%

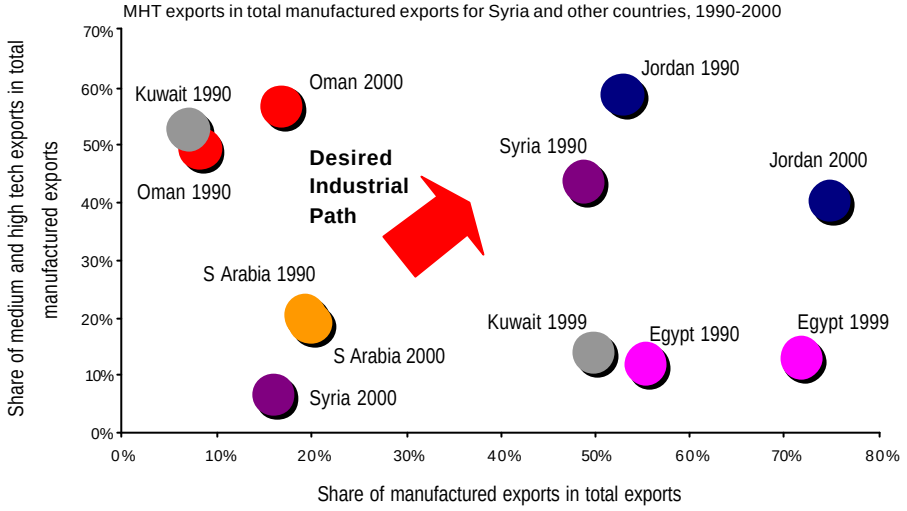
Source: Calculated from the UN Comtrade database

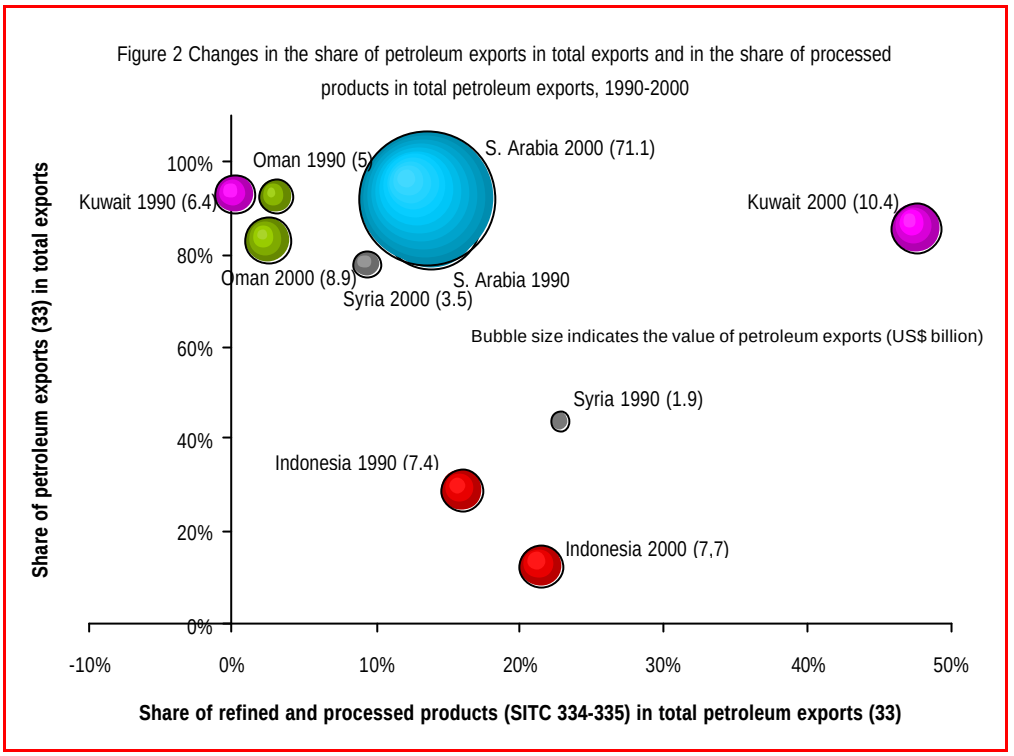
Notes: a) data for 1999. Categories do not add up to 100% due to the omission of the share of primary goods in total exports. For country coverage, see note in table 3. HT stands for 'high tech', MT for 'medium tech', LT for 'low tech' and RB for 'resource based'. Annual growth rates are calculated based on actual export figures and do not always mirror differences in export structures. This explains, for instance, that a decrease of HT in the export structure may be accompanied with positive growth rates in total HT exports.

We can think of the 'desirable' path of export development for a developing economy as consisting of higher shares of manufactures in total exports and higher shares of complex products in manufactured exports. Figure 1 shows the record of Syria and other countries during the 1990s. Egypt and Oman move along the desirable path, the former by raising the share of manufactures in total exports (rather than by technological deepening) and the latter by upgrading the technological structure of exports. Jordan and Kuwait have raised the share of manufactured exports but decreased the share of complex products in manufactured exports. Saudi Arabia's export structure remains relatively stagnant over the decade: manufactures remain less than 20 per cent of total exports and the share of medium and high-technology exports declines slightly. Syria is one of the worst performers in the region. Starting with a strong and balanced position in the early 1990s it loses ground in both dimensions.

As an oil exporter, albeit a small one, Syria has also not performed well in terms of diversification and upgrading (Figure 2). It became more dependent on oil exports in the 1990s and the share of refined and processed products in oil exports declined (from 29 per cent in 1990, worth $440 million, to 9 per cent in 2000, worth $330 million). One reason for the rise in the share of oil in total exports was the fall in manufactured exports. And one reason for the decline in the degree of processing of oil exports was that its two main oil refineries, built by Czechoslovakia and Romania in the late 1950s and early 1980s, lacked the technology to make the low sulphur light products demanded in export markets.

Figure 1. Changes in the share of manufactured exports in total exports and in the share of MHT exports in total manufactured exports for Syria and other countries, 1990-2000





This dismal picture of Syrian production and export performance suggests that the long period of isolation from open markets has left its industrial structure with enormous competitive gaps. The experience is not unique; it is typical of many import-substituting economies, exacerbated by strong socialist orientation that led to discrimination against the private sector and market institutions. Parts of the industrial sector are saddled with obsolete technologies. There is a strong public sector presence in heavy industry, with many of the inefficiencies that tend to characterise such industry. There are many private small and medium sized enterprises, largely in simple activities geared to local markets and unable to compete in world markets. All this amounts to an industrial sector unable to grow in a liberal setting.

IV. Industrial capabilities and policies

Human capital

Modern manufacturing requires high-level, specialised and vocational training, even in labour-intensive activities, calling for close interaction between training institutions and industry. Syria has a long tradition of industry and entrepreneurship (its entrepreneurs are legendary in the region). The Syrian workforce is "considered among the best trained and skilled in the region" (Oxford Business Group, 2002, 156). It is well disciplined and has considerable capabilities, with years of experience. However, Syria suffers from weak education and training systems[9]. More than a quarter of the Syrian population (around 2.4 million people) is illiterate[10].

[9] This, in fact, applies to the whole MENA region. According to Billeh (2000): 'the general paradigm for a typical MENA education and training system is characterised by being state dominated centralised and rigid, supply driven, where education and

Table 5. Enrolments in secondary and tertiary education in Syria and comparators (% of relevant group)

	Secondary		Tertiary	
	1990	1997	1990	1997
Syria	51.9	42.5 [b]	18.2	15.4
Egypt	76.2	78.3	15.8	20.2 [a]
Jordan	44.6	57.4	16.1	17.9 [b]
Lebanon	72.9	81.0 [b]	29.0	27.0 [a]
Kuwait	42.9	64.8	N.a	19.3 [b]
Oman	45.7	66.9	4.1	8.0
S Arabia	44.0	60.8 [b]	11.6	16.3 [b]
Tunisia	44.9	64.3	8.5	13.7 [b]
Turkey	47.3	58.2 [b]	13.1	21.0 [b]

Source: World Bank, *WDI 2001*. Note: a) data for 1995; b) data for 1996

Although the average schooling period has risen from 2.2 years in 1970 to 5.8 years in 2000, it remains below that in many neighbouring countries. Staff-to-student ratios and government spending per student are among the lowest in the region and has been declining, particularly in higher education[11] (Bizri, 2002). Contrary to global and regional trends, Syria's enrolments in secondary and tertiary education declined between 1990 and 1997 (table 5). Education reform in the mid-1990s led to the creation of technical schools, but this did not prevent the drop in overall enrolment rates. By 1997, Syria had one of the lowest school enrolment rates in the region – only Oman had a lower enrolment ratio in tertiary education.

The structure of Syria's tertiary education has changed dramatically in the last two decades,. In the mid-1980s, under Soviet influence, Syria had one of the largest pools of scientists and engineers in the Middle East; almost 0.5 per cent of the population was enrolled in technical subjects (mathematics, engineering, computing and science) (Table 6). That share declined by half by the mid 1990s, and the trend has continued. According to ESCWA, the number of science and engineering students declined by 5,000 between 1995 and 1999 (ESCWA 2001). Today, humanities and education have become the preferred subjects for Syrian students.

training are separated, policy and delivery are combined and the focus is on institutional training and not on workplace learning' (p. 7-9)

[10] Females comprise a large portion of the illiterates (over 40%) in Syria.

[11] The budget for higher education fell from 3.1% to 2.7% of the total budget over 1996-2000.

Table 6. Tertiary technical enrolment in Syria and comparators (% of population), 1987-1995

	1987	1995
Syria	0.43%	0.20%
Egypt	0.15%	0.12%
Jordan	0.35%	0.42%
Lebanon	0.32%	0.40%
Kuwait	0.25%	0.39%
Oman	0.07%	0.04%
S Arabia	0.13%	0.12%
Tunisia	0.19%	0.24%
Turkey	0.22%	0.33%

Source: Calculated form UNESCO, Statistical Yearbook, various years

Several factors account for the declining interest in technical subjects:

- *There is low demand for scientists and engineers in the labour market*. Public companies are not technology-intensive and carry out little or no R&D. This restricts the number of qualified technical manpower they need. Syria's private sector, consisting of traditional micro-enterprises, also demands little qualified technical manpower.

- *Syria has a rigid and compressed wage structure that does not encourage enrolments in long-gestation and difficult subjects*. A compressed wage structure does not offer incentives for workers to invest in qualifications in difficult technical subjects, when a shorter and cheaper education would yield almost the same remuneration[12].

- *Rigid and complex labour laws* deters industry even more from investing in seeking more skilled and qualified labour. Enterprise investment in employee training appears to be inadequate, and workers themselves lack the motivation to improve their skill levels – particularly in public enterprises – mainly due to over-employment and compressed and rigid wage structures.

The government is aware of these deficiencies and has established 147 'intermediate institutes' for technical education and vocational training over the past two decades. These institutes, aimed primarily at the public sector, graduated just over 15 thousand people in 1999-2000 (ESCWA,

[12] In the public sector, for instance, a technician with university degree earns only $ 50 per month more than a shop floor worker with primary education. In the private sector, competition for jobs is so high that employers can lower salaries down and still get highly educated staff.

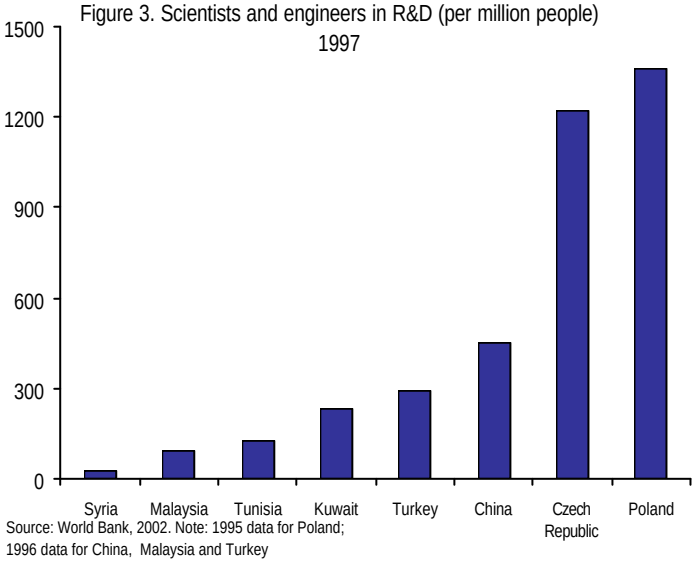
2001). The institutions were under the control of government ministries, with the Ministry of Industry having nine institutions (producing 1.2 thousand graduates in 1999-2000). The quality of the training is difficult to assess, but it is possible, given the bureaucratic procedures and rigidities likely to exist, that they do not meet the skill needs of industrial enterprises.

Technological effort

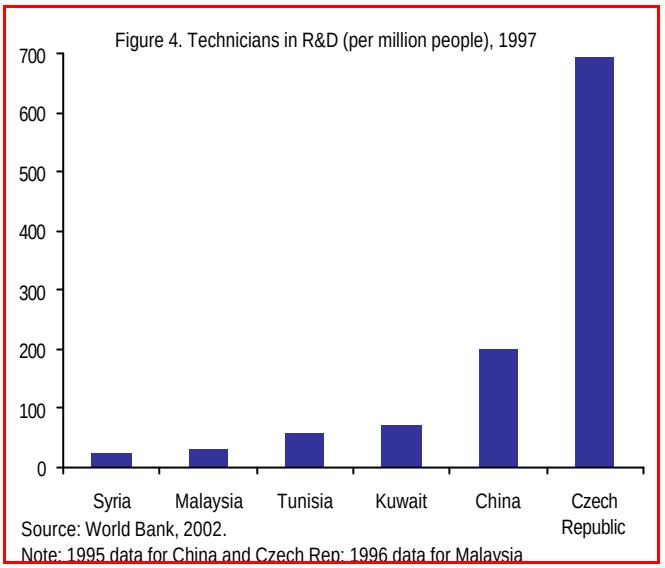
Industrial competitiveness depends on the intensity and effectiveness of local technological activity. Technological effort can take many forms and occur in every facet of manufacturing, making it very difficult to measure. Formal research and development (R&D) is only the tip of the technological effort iceberg, but it is measurable across countries. It also captures an important part of industrial ability to assimilate, adapt and improve upon imported technologies.

There are no published data on R&D in Syria, but there appears to be very little – according to ESCWA, 2002, national R&D is unlikely to exceed 0.2 per cent of GDP. R&D financed by industrial enterprises, perhaps the best measure of technological effort relevant to industrial competitiveness (UNIDO, 2002), is negligible. The reasons for the low R&D by private enterprises are evident: small size, low exposure to international markets, weak human capital,the lack of long-term industrial financing and the virtual absence of official support or encouragement. There are no tax incentives for R&D, no other schemes for 'recognising' or supporting R&D units, no official awards for innovation or for other forms of technological improvement. Nor are there schemes to support private technology-based entrepreneurs (like incubators, venture capital funds or technology support financing from the banking system).

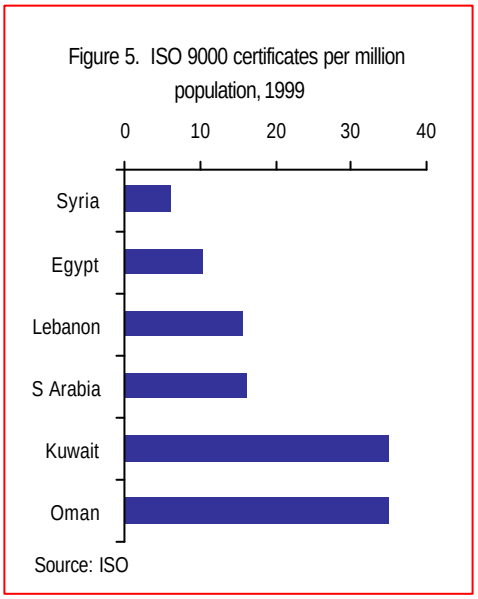
Figure 3. Scientists and engineers in R&D (per million people)
1997



Source: World Bank, 2002. Note: 1995 data for Poland; 1996 data for China, Malaysia and Turkey



R&D in the public sector, which dominates industrial activity, is also very low. To the above factors one needs to add the myriad of regulations and controls on public companies that stifle innovative effort and raise its cost. They receive no incentives for R&D. They do not network with each other, with technology institutions or with universities to upgrade technology or innovate. In general, Syrian government allocations to science and technology are skewed to the higher education sector than to productive enterprises (Bizri, 2002). Even when compared to the Arab region (which itself lags behind dynamic developing regions), R&D efforts in Syria are weak. Take the *number of scientists and engineers and technicians in R&D*. Syria has the lowest ratios of R&D scientists and engineers per million of population of all the countries for which data are available (Figures 3 and 4).



A commonly used measure of R&D activity is the number of patents taken out internationally (in Europe or the US). Such patenting is very low in the Arab region as a whole, with Saudi Arabia leading in the number of patents taken out in the US (117 during 1992-2001). Syria accounts for only 8 patents in the US in this period. Compare this to countries like Israel and South Korea, with 6,109 and 21,472 patents respectively (UNDP, *Human Development Report 2001)*. The weak state of Syrian industrial technology is also reflected in the low technology composition of its exports, discussed above. To the extent that successful R&D has been undertaken in recent years, it has been largely in agriculture and related fields rather than in industry (Bizri, 2002).

An indirect indicator of technological effort is the number of ISO 9000 certificates awarded to each country[13] (Figure 5). In Syria, 93 companies had been awarded ISO 9000 certificates by 1999, compared to 66 in Lebanon, 67 in Kuwait, 82 in Oman, 324 in Saudi Arabia and 649 in Egypt. Adjusting for country size, Syria held the lowest number of ISO 9000 certificates per million inhabitants in the region: Egypt has twice as many certificates per million inhabitants, Lebanon and Saudi Arabia nearly three times more, and Kuwait and Oman about 6 times.

Technology support institutions, to the extent they exist, are weak. According to Bizri (2002), "such facilities are largely lacking in the Syrian Arab Republic. While the Industrial Testing and Research Centre (ITRC) has contributed to industrial development, its impact has been wanting in many respects. Previous evaluations of ITRC performance indicate a number of causes for its lacklustre performance. One is that its staff and equipment cannot conceivably deal with the requests posed by the multitude of industrial enterprises it is supposed to service. Inadequate ITRC performance has led to diminished confidence in its capabilities, initiating a vicious cycle compounded by limited funding, outdated legislation regulatory frameworks and limited incentives to motivate staff." (29).

Foreign direct investment

MENA has not reaped the benefits of growing FDI in developing countries – its share of FDI in the developing world declined from 21.7 percent in 1981-85 to just 3.1 percent in 1993-98.[14] However, countries vary: Egypt, Jordan and Lebanon saw significant FDI increases in the 1990s, while Oman and Saudi Arabia suffered large declines (Table 7). FDI inflows in Syria rose from $70 million in 1990 to $84 million in 2000. In 2000, only about 2-3 per cent of this was in manufacturing, most went into oil. Per capita FDI declined from $5.8 in 1990 to $5.2 in 2000. Egypt attracted almost 4 times more than Syria in 2000, China (despite its gigantic population) 6 times more, Jordan and Saudi Arabia 9 times, Lebanon 10 times and Malaysia over 50 times.

Syria was relatively closed to FDI for a long period. There was a significant change in 1991, when Investment Law No 10 offered incentives (five-year tax holidays and duty-free import of equipment) to private local and foreign investors to enter large-scale manufacturing. The Law attracted some investor interest: 1,600 projects were approved, of which 80 per cent came from abroad. However, most approved projects went to the oil and service sectors rather than into manufacturing. The Ministry of Industry estimates the Law permitted 294 manufacturing projects since 1991, expected to provide employment of 13,700 (about 4 per cent of Syrian private sector workforce). Of these permits, 71 were for engineering industry and 126 for foodstuffs. However, only 65 per cent of projects were completed and the final outcome in terms of investment and employment is not known. The numbers include local as well as foreign investments: FDI was likely to have been fairly small (few TNCs would set up affiliates on such small scales).

[13] ISO 9000 certificates are awarded by the International Standards Organisation for quality management. While they are not directly related to technology, there tends to be a correlation between technological capabilities and quality management systems. Data on ISO certificates are available from the ISO website.

[14] The main winner in this period was East Asia, in particular China (UNIDO, 2002).

Table 7. FDI inflows for the Syrian Arab Republic and Selected Comparators (%)

	Total values (US$ million)			Per capita (US$)		
	1990	1995	2000	1990	1995	2000
Syria	70.3	99.5	84.2	5.8	7	5.2
Egypt	681.7	558.5	1,151.6	13	9.6	18
Jordan	26.0	9.6	219.9	8.2	2.3	45
Lebanon	9.1	46.5	237.2	2.5	11.6	54.8
Kuwait	-5.5	6.3	16.5	-2.6	4	8.3
Oman	129.7	28.4	58.9	79.7	13.3	24.6
Saudi Arabia	1,836.3	1,871.5	959.5	116.2	-102.8	46.3
Tunisia	88.9	378.9	778.5	10.9	42.3	81.4
Turkey	684.8	872.8	966.3	12.2	14.4	14.8

Source: UNCTAD 2002

Investment Law No 10 did not provide a satisfactory investment regime. It imposed restrictions on profit repatriation (investors could only take out as much capital as they had originally invested) and required investors to use the official exchange rate (much less favourable than the free market rate). It did not allow foreigners to own land without a 25% local interest (Oxford Business Group, *Emerging Syria 2002*). The government reformed the Law in 2000. It ruled that private assets could not be expropriated or nationalised, profits could be repatriated more freely, free market exchange rates would be used and land could be owned outright. The five year tax holiday was extended to seven years for certain firms: those exporting more than 50% of their output, located in rural areas, operating in 'technologically advanced' activities, investing 'large amounts of capital' or employing 'large numbers of people'. The tax for enterprises under Law 10 was lowered from 60% to 25% (after the expiration of the tax holiday).

In 2000-01, the government undertook further measures to improve the climate for FDI. Restrictions on foreign currency holdings were relaxed, tariff rates were lowered for export-oriented activities (inputs into manufacturing export activity were subject to only 1% tariff), and the 7% tax on agricultural exports was removed. Private sector managers (including foreign firms) were allowed to run loss-making state companies under service contracts. Private banking was legalised for the first time since 1963. While these were major improvements, the climate for private business and FDI still lags well behind most competing countries. There remain numerous inefficiencies and distortions to deter efficient industrial investment. An important gap is the *absence of an institution to promote and attract investors*. This is a significant deficiency as competition for FDI intensifies and most competitors, in developed and developing countries, have well-funded, skilful and targeted promotion programmes (Loewendahl, 2001).

ICT infrastructure

Syria is lagging behind the region in all ICT indicators except for telephone mainlines (Table 8). The world's average fixed-line telephone density is about 16 per hundred inhabitants, while the figure for Syria is around 11. In mobile communications – where the private sector plays a significant role – Syria's performance is poorer. In 2001, the world average for mobiles per hundred inhabitants was around 12 while Syria's was only 1. Syria is also well behind other Arab countries, with an average of 6.5 mobiles per hundred inhabitants. The gap with other developing countries like Chile or the Republic of Korea was considerably greater. However, it is encouraging that the last two years (2000-2002) have witnessed a dramatic rise in the number of mobile connections in Syria (ESCWA, 2002).

Syria ranks low in the use of personal computers, with 16.3 per 1,000 people in 2001, lower than the average for Arab countries of 21.6 (though higher than Egypt at 15.5) and than the world average of 84.2 (ESCWA, 2002). Internet access in Syria, at 3.6 users per thousand inhabitants, is significantly lower than other Arab and ESCWA countries, with average rates of 16.1 and 22.3 respectively. Internet penetration in Syria is in fact the lowest in the region (excepting Iraq and the Palestinian Territories, for which no data are available). Internet Service Providers are privately owned and operated in most ESCWA countries, but in Syria the only provider is the Syrian Telecommunication Establishment (the Syrian Computer Society offers Internet services on a professional membership basis only).

The use of ICTs by industrial enterprises is very low, partly because most companies have yet to understand its potential economic benefits. An ESCWA study estimates that the ratio of PCs to employees in Syrian SMEs is about 1 to 18, and much lower in large public companies. Computers are basically used for simple administrative and managerial purposes rather than for sophisticated design and manufacturing processes (e.g. CAD/CAM).

Table 8. ICT in Syria and comparators

	Telephone mainlines per 100 people (1999)	Mobile phone subscribers per 1,000 people (2000)	Personal computers per 1,000 people (2000)	Internet users per 1,000 people (1999)	Internet hosts per 100,000 people (1999)
Syria	10.17	1.85	15.44	1.27	0.01
Egypt	7.50	21.42	22.06	2.98	3.50
Jordan	8.72	58.31	22.49	18.51	9.44
Lebanon	20.08	212.50	50.05	61.81	146.14
Kuwait	24.02	248.64	130.59	52.72	214.52
Oman	8.95	64.75	31.52	20.32	27.56
Saudi Arabia	12.94	63.68	60.17	14.35	13.53
Tunisia	8.98	5.84	22.86	3.17	0.35
Turkey	26.47	245.56	38.05	22.88	120.34

Source: World Bank 2002; and UNCTAD, 2002

The government is making a major effort to modernise the telecommunication networks and to install high capacity optic cables. The Syrian Computer Society, the government's chief ICT consultant and first private Internet provider in Syria, is trying to spread the use of information technology. A Virtual University was set up in 2002. The Minister of Higher Education announced plans to set up a "Syrian Technopolis" near Homs, with its own airport and railroad links to Mediterranean ports. A "technology village" is to be established near Damascus and other technology complexes in Aleppo and Palmyra.

V. The business environment

The 'business environment' is a *melange* of trade and industrial policies, regulations, restrictions and rules that affects the incentive framework for industrial firms. A 'good' business environment provides the incentives for competitive industrial activity taking into account the need for infant industry promotion and the development of local capabilities. It minimises the costs and risks of setting up a plant, obtaining the necessary permits and infrastructure, hiring and firing employees, importing and exporting, expanding or contracting over time, paying taxes, and so on. A 'bad' environment raises costs, adversely affecting competitiveness and the ability to attract export-oriented FDI.

The long legacy of pervasive government controls on economic activity means that the trade and industrial regime in Syria is not conducive to competitive industrial activity. While controls are being relaxed and markets liberalised, there remain widespread (and often concealed) constraints. This is reflected in the investment pattern. In real terms, the index number for gross

fixed capital formation fell from 100 in 1995 to 93 in 2000. Private sector investment fell even more, from 100 to 64. The share of private in total fixed capital formation peaked at 67 per cent in 1992, and declined steadily thereafter to reach 38 per cent in 2000.[15] Clearly, the policy framework is failing to stimulate investment, which is the bedrock of growth; and it is failing to inspire the confidence of the private sector.

One major problem is the trade regime. Trade barriers created by export and import duties and controls in Syria are high, perhaps among the highest in the world today. There is a valid case for trade strategy to promote infant industries and to help industries restructure during liberalisation (Lall, 1996, 2001), but the protective structure in Syria is not based on a well-designed infant industry promotion or restructuring strategy. While tariff rates have come down in recent years, there remain many discretionary controls that are likely to distort signals for industrial restructuring and resource allocation, deterring enterprises from entering global markets and holding back the development of new export activities. [16]

The government regulates imports into Syria and licenses most private sector import transactions. Licensing has now become largely automatic for most private imports (with the exception of a small number of banned items), but obtaining the licence involves an extra fee of 1.5 per cent of the import value. Import duties remain high and tariff revenues as a percentage of import value have risen from 15.9% in 1990 to 45.4% in 1998 – a high figure by current international standards. Syria also has much higher 'effective duty collection' than other countries in region: Lebanon was 15.8% in 1998 and Jordan 11.8%, Oman 4.8% and Kuwait 0% in 1999.

In recent years the import duties have been lowered to improve export competitiveness (Oxford Business Group, 2002). The duty structure from May 2001 is as follows:

- Live animals and some medicines Nil
- Raw material and industrial equipment 1%
- Semi-finished and intermediates 10-16%
- Final consumer goods 29-50%
- Luxury goods 100-250%

These rates are subject to an additional 'unified tax' varying according to the tariff rate, from 6% (at duties of 1%) to 35% (duties of 100% and above). There are no duties on imports of raw materials and equipment for projects under Law No 10 and for tourist establishments. There is, in addition, the 1.5% import licence fee noted above.

While the reduction of duties on equipment and raw materials may help established exporters, the structure of effective protection (protection of value added) implicit in the tariff schedule is undesirable for long-term industrial development. It gives high protection to producers of final

[15] Data are from the Central Bureau of Statistics, *Statistical Abstract 2001.*

[16] Syria is one of the few countries in the world that till recently relied on export duties as an important source of revenue. Syrian export duties as a percentage of export earnings peaked at 11 percent in 1998, having risen during the 1990s by nearly 10 percentage points. Malaysia's export duties fell steadily from 5.4% of exports in 1985 to 0.5% in 1995. Tunisian export duties fell from 0.8% of total exports in 1985 to 0.09% in 2000. For other Middle East countries on which data are available – Jordan, Oman, Kuwait and Egypt – export duties are zero. While Syria has removed most explicit export taxes, its foreign exchange system still imposes a tax on exporters by means of the 25% surrender requirement.

goods, reducing incentives for them to improve efficiency (even in labour-intensive activities in which Syria can develop new competitive advantages). It simultaneously penalises component and capital goods production, exposing producers (potential and actual) to intense competition. This poses a serious threat to the deepening of the industrial structure and to the development of more advanced technological capabilities.

Tariff rates do not capture the effects of other regulations on trade or the costs of trading entailed in (complex or corrupt) customs procedures, storage, freight charges and the like. These costs and delays modify and amplify the protective impact of the trade regime, and can make it less transparent and predictable. It is likely (see below) that these costs are high in Syria, compounding the damaging effects on private enterprise of the generally 'business unfriendly' regime within the country.[17]

The trade regime assumes greater significance because Syria has joined the Arab Free Trade Agreement and is negotiating an association with the EU. These agreements will significantly affect levels of protection for Syrian industry, and their impact will vary for each activity. It is vital to prepare each activity to face foreign competition within the Arab Free Trade Area (where many countries have much more liberal trade and investment regimes than Syria) and later from the EU. According to the Arab Free Trade Agreement, all products traded among member states will have the status of national goods and be liberalised through annual reductions of customs duties, fees and taxes by 10 per cent. Duty-free trade among the Arab States is planned to lead to an Arab Free Trade Zone by 2008. The EU Association Agreement will, if successful, require barriers to be lowered significantly over 12 years. The EU offer is along the same line as agreements already concluded, in chronological order, with Tunisia, Israel, Morocco, the PLO, Jordan, and Egypt. It will allow for safeguard clauses allowing partners to take exceptional measures in the form of an increase or reintroduction of customs duties for a limited duration.

In domestic industrial policy, transaction costs for private enterprises are generally high. Procedures for operating the public sector are cumbersome and rigid. The Government acknowledged this and set up a Ministry for Administrative Development in 2001: the success of this measure is not known. Attempts to rationalise the business environment for the private sector appears to be more piecemeal and there is no systematic attempt to analyse or reform the policy and regulatory structure. Syria is in the high tax bracket by current standards in developing countries, where most corporate tax rates are settling at around 25-30%. According to the Oxford Business Group (2002), the top rate on companies in the real estate and trade sectors earning over SP1 million is 63%. Industrial corporations are liable to a 32% flat rate tax, with an

[17] The indirect trade regime includes the following: *Import licensing:* All imports into Syria are subject to import licences issued by the Ministry of Economy and Foreign Trade. The grant of the licence is now largely automatic for private importers, with a charge of 1.5% of the import value. Some imports require the previous approval of the authorised Ministry or institution representing the sector where the company operates. The import of cars is subject to the availability of foreign exchange at the time of requesting the licence. *State trade monopolies*: Imports of certain goods by public sector enterprises have to be routed through state trading enterprises. This often delays the import process. For instance, in the food industry, acquiring new machinery has been known to take 1 to 2 years; by the time the import takes place, the needs of the importer had changed. The bureaucratic procedures for imports impose severe penalties on state enterprises. However, private firms are no longer required to go through this route and can now import directly (the import of cars is still channelled through the state monopoly). *Ceilings on the value of export shipments*: In Syria, the value of exports whose payments have not yet been received cannot exceed 300% of the exporter's net worth. If it does exceed this ceiling, the exporter must deposit 50% of the value of exports in excess of the ceiling to the Central Bank of Syria or present a personal guarantee of an equal amount. This penalises successful exporters.

additional defence surcharge of 33% and a local tax of 4 to 10%. R&D and training are not tax-deductible expenses in the tax codes[18].

Labour markets in Syria are rigid, and redundancies are difficult and costly for employers. Social security charges come to 14 percent of salaries for over five employees. The government controls the prices of many products in the public sector. Such controls, which tend to be rigid and arbitrary, detract from investment, both physical and technological, by public enterprises.

VI. Conclusions

Syrian industry is falling behind in a liberalising world of rapid technical change and increased mobility of technology, finance, products and skills. The fading of commercial ties with former Soviet markets has exposed the competitive weaknesses of Syrian industry. The Syrian economy remains highly dependent on crude petroleum as the main means to obtain 'hard' currency. Manufactured exports have declined both in quantity and quality – Syria now exports less and with lower technological content than in the early 1990s. This disappointing performance reflects poor domestic capabilities and an unfavourable policy regime. Technological lags and stagnation, low levels of investment and shortages of skilled labour interact with pervasive controls and a bureaucratic culture that attaches low priority to efficiency and dynamism. While there have been significant improvements in the policy framework, there remain serious constraints in the regime facing industrial enterprises. The system promotes isolation from rather than integration with the global environment, at a time when such integration, specialization and networking are essential for dynamism.

Public sector enterprises face daunting hurdles to professional management and technological upgrading. The industrial sector remains specialized in resource-based and simple activities, poorly positioned to cope with the technology-driven dynamics of modern industry. There is a huge 'missing middle' – the gap between the myriad tiny enterprises in the private sector and the large enterprises in the public sector. This 'middle' is vital for Syria's industrial deepening, diversification and flexibility. Traditional industries often suffer from low productivity, weak skills and technological lags. They do not invest significantly in skill and technology upgrading. They face a labour market in which the output of skills has declined over time (with decreasing enrolments at the secondary and tertiary levels) and the quality of skills created may be inadequate to industrial needs. The wage structure is rigid and undifferentiated, reducing incentives for skill and productivity improvement. The closed economy has held back the development of marketing skills and modern management techniques.

Yet there is enormous industrial potential in Syria. It is poised to gain better access to markets in the Middle East and Europe, where it can, given its low wages, exploit advantages in labour-intensive manufacturing activities. Domestic enterprises can, with some upgrading (in technology and in access to inputs), find new outlets in resource-based products and textiles and apparel. FDI can be attracted into export-oriented and domestic-oriented activities if the

[18] Most countries give full tax exemption for R&D expenditures and several for training. Countries like Malaysia give *double* (200%) deductions for both.

investment climate is improved, and provide a major input into the restructuring and upgrading of the industrial structure.

It is vital to bear the global context in mind. TNCs are outsourcing labour-intensive operations for the European market to low wage countries in the proximity and Syria can easily capture a part of this relocation (most of it is presently going to Eastern Europe and North Africa). It is particularly noteworthy that European value chains are starting to spread assembly activities to Arab countries with higher wages than Syria (like Morocco and Tunisia) and high value clothing and engineering activities to countries like Hungary, the Czech Republic and Poland. Once established, these chains will be difficult to shift – first movers can build up strong and cumulative skill, technological and cluster advantages that later entrants find difficult to replicate: lower wages in Syria will not offset incumbents' advantages in accumulated skills, capabilities, clusters and infrastructure. Time is of the essence in moving into global production systems, and delay by Syria will cost it valuable opportunities.

The main threat to industrial development in Syria and other MENA countries arises from political uncertainties largely outside its control. Apart from this, perhaps the most important weakness in Syria is the absence of a strategic vision, policy-design and implementation capability in the government. There is no institution charged with developing a strategy for industrial growth and competitiveness, or with the information and analytical abilities to do so. Issues of vital importance to industrial development are not analysed (a good example is the absence of detailed studies on the implications of Syria joining the Arab Free Trade Area or the free trade agreement with the EU). Policies evolve in a piecemeal, uncoordinated and haphazard manner without a clear understanding of national needs or the international context. There seems to be a lack of consensus even on the form that industrial development should take. Unless these fundamental issues of policy capability are addressed, Syria cannot undertake the restructuring and upgrading it needs to build a competitive industrial sector.

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