



# ► National Economic Contribution of Jordan's Garment, Textile and Leather Industry

RESEARCH BRIEF

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## ▶ National Economic Contribution of Jordan's Garment, Textile and Leather Industry\*

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Jordan's garment, textile and leather industry has long been one of the country's leading export sectors, with a history of resilience and consistent growth. In recognition of the industry's significance, it has been identified as a priority economic sector in the Government of Jordan's recently launched Economic Modernization Vision. This research brief provides an overview of the industry's contribution to Jordan's economy, highlighting strengths and challenges faced by the sector and the implications for national economic and employment policies. The analysis focuses on several key aspects of the sector, including its domestic value added, linkages to other economic sectors in Jordan and its direct and indirect role in employment creation.

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\* This brief was jointly authored by Thoraya El-Rayyes (London School of Economics) and Santacruz Banacloche (European Commission, Joint Research Centre). The information and views expressed by the author do not necessarily reflect an official position of the London School of Economics or European Commission.

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## ► 1. Introduction

Jordan's garment, textile and leather (GTL) industry<sup>2</sup> has long been one of the country's leading export sectors, with a history of resilience and consistent growth. It comprises a wide range of manufacturing activities (see **Box 1** below), the largest of which is garment manufacturing (see **Figure 1, page 3**). Jordan's GTL industry has expanded dramatically since 1996, when implementation of a series of free trade agreements between Jordan and the United States began, granting Jordan preferential access to the US market.<sup>3</sup> Over the past decade, the industry's exports have more than doubled, increasing from USD 1.12 billion in 2012 to over USD 2.26 billion in 2022 (see **Figure 2, page 3**).<sup>4</sup> This is a significantly higher rate of growth than that observed for Jordan's overall exports, which grew by 70 percent over the same period, largely driven by a surge in phosphorus commodity prices during 2021 and 2022 (see **Figure 2, page 3**).<sup>5</sup> According to the latest official statistics, the GTL industry accounts for 7.7 percent of Jordan's manufacturing GDP<sup>6</sup> and 19.8 percent of the country's total exports of goods.<sup>7</sup>

### Box 1: Manufacturing sub-sectors in the garment, textile and leather industry

**Manufacture of garments:** The manufacture of ready-to-wear and made-to-measure clothing, spanning from large-scale apparel manufacturers to independent workshops and fashion designers.

**Manufacture of textiles:** The production, processing, and distribution of natural (cotton, wool, silk) and synthetic (polyester, nylon) fibres, yarns, and fabrics. The manufacture of carpets, rugs, cordage, rope, twine and netting.

**Manufacture of leather and related products:** The manufacture of footwear, luggage, handbags, the tanning and dressing of leather, the dressing and dyeing of fur.

In recognition of the sector's importance, the GTL industry has been identified as a priority economic sector in the Government of Jordan's recently launched Economic Modernization Vision. The vision anticipates that this sector has the potential to increase its exports by 3-4x over the next decade and create over 100,000 new jobs for Jordanians. To achieve this, the Economic Modernization Vision has set out a number of strategic priorities for the sector including the development of fabric manufacturing (vertical integration), the streamlining of sector-specific laws and regulations and increased integration between large and small enterprises which aims to foster growth among small enterprises.

2 This sector is defined as all garment, textile and leather manufacturing activities included in divisions 13, 14 and 15 of the International Standard Industrial Classification of All Economic Activities Revision 4.

3 Azmeh (2014).

4 Jordanian Department of Statistics External Trade Database. GTL exports are defined as those belonging to HS codes 50-65.

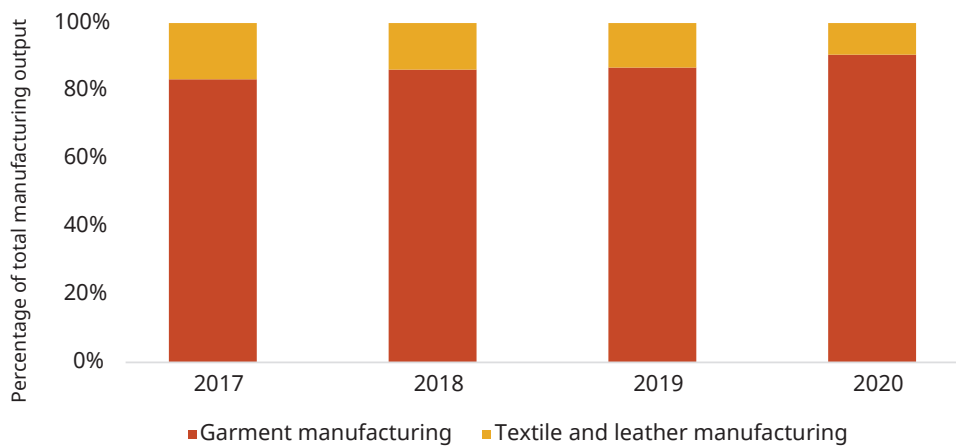
5 Jordanian Department of Statistics External Trade Database.

6 Jordanian Department of Statistics Industry Survey 2020.

7 Jordanian Department of Statistics External Trade Database. GTL exports are defined as those belonging to HS codes 50-65. This figure refers to exports for the year 2022.

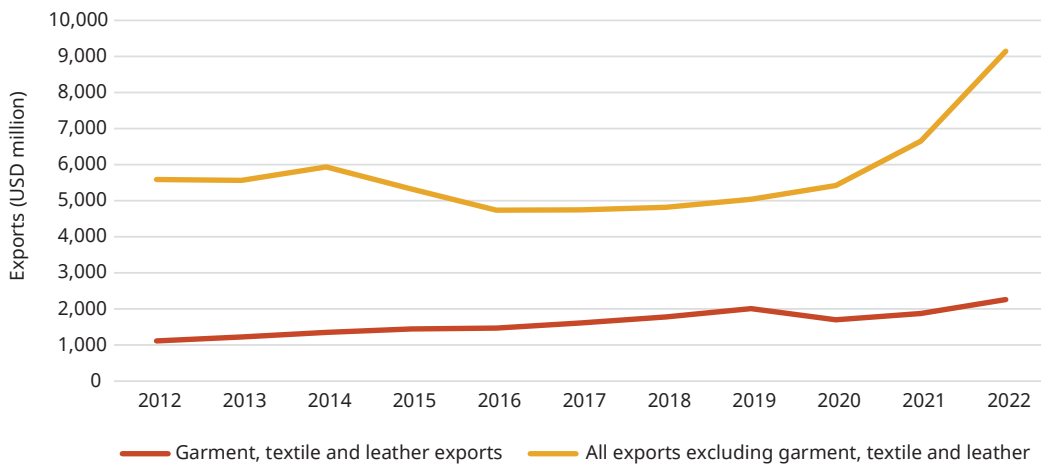


**Figure 1: Garment, textile and leather manufacturing output by subsector, 2017-2020**



Source: Jordanian Department of Statistics Industry Surveys 2017-2020

**Figure 2: Jordanian exports of goods, 2012-2022**



Source: Jordanian Department of Statistics External Trade Database (GTL sector is defined as HS codes 50-65).

Importantly, the GTL industry is a labour-intensive sector which creates a substantial number of employment opportunities. Official employment figures for the GTL industry are collected infrequently, with the latest figures published in 2018. According to these figures, the industry employs around 89,900 workers, representing almost 39 percent of Jordan's manufacturing workforce<sup>8</sup> and approximately 4.0 percent of the country's total private sector workforce.<sup>9</sup> More recent employment statistics are available specifically for the export-oriented segment of the garment industry. In 2022, this segment of the industry employed around 77,800 workers with migrant workers comprising three quarters of the workforce.<sup>10</sup> Similar to garment industries in other countries, women occupy about 75 percent of the

<sup>8</sup> Jordanian Department of Statistics Census of Economic Establishments 2018.

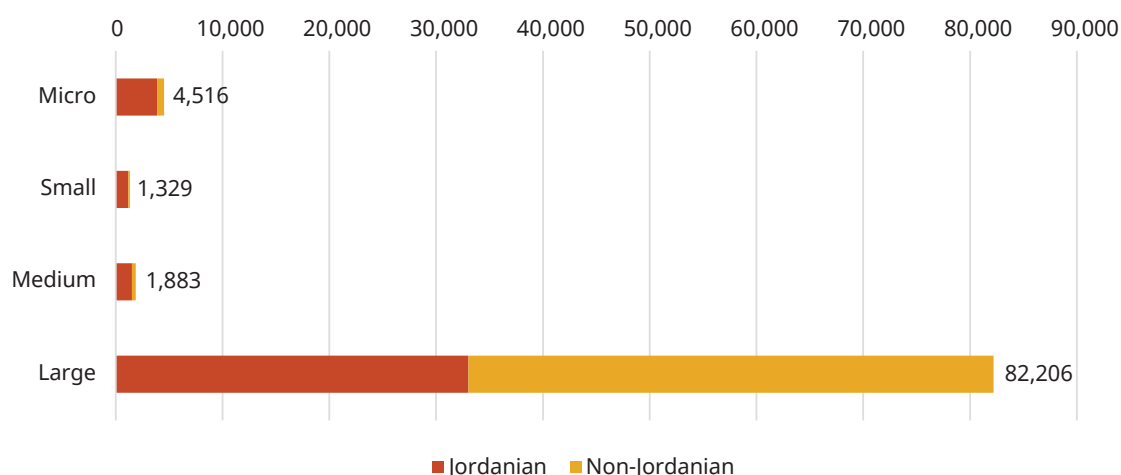
<sup>9</sup> Authors' calculations based on Jordanian Department of Statistics Census of Economic Establishments 2018; Jordanian Department of Statistics Employment Survey 2018 data on public sector employment; ILO STAT database.

<sup>10</sup> Better Work (2023).



workforce.<sup>11</sup> The vast majority of workers in Jordan's GTL industry are employed in large enterprises with micro, small and medium enterprises (MSMEs) combined employing only 8.6 percent of the workforce (see **Figure 3**).<sup>12</sup> But while large enterprises in the sector predominantly employ migrant workers, a large majority of GTL workers in MSMEs are Jordanian (see **Figure 3**).

**Figure 3: Garment, textile and leather industry employment by enterprise size and worker nationality**<sup>13</sup>



Source: Jordanian Department of Statistics Census of Economic Establishments 2018.

This research brief provides an overview of the Jordanian GTL industry's contribution to the national economy, highlighting strengths and challenges faced by the sector and the implications for national economic and employment policies. The analysis focuses on several key aspects of the sector, including its domestic value added, linkages to other economic sectors in Jordan and its direct and indirect role in employment creation. The key findings of this analysis are as follows:

- ▶ The domestic value added (DVA) of the GTL industry as a share of production output stood at 41.7 percent in 2018, the most recent year for which statistics are available. This figure is relatively high when benchmarked against low- and middle-income countries with notable export-oriented garment and textile industries. It is also high when benchmarked against other Jordanian manufacturing sectors. Importantly, Jordan's GTL industry appears to have succeeded in combining a relatively high share of DVA with a high rate of export growth<sup>14</sup> suggesting that the industry has been able to make a substantial contribution to GDP while remaining globally competitive.

11 Better Work (2023).

12 Jordanian Department of Statistics Census of Economic Establishments 2018.

13 Micro-enterprises are defined as those employing fewer than 5 workers, small enterprises are defined as those employing 5-19 workers, medium enterprises are defined as those employing 10-99 workers and large enterprises are defined as those employing 100 workers or more.

14 The latest figures available from the World Bank's World Integrated Trade System (WITS) database shows that Jordan's textile and apparel export growth over the period 2010-2019 (98.6 percent) greatly outperformed global textile and apparel export growth over the same period (22.3 percent). WITS export figures for 2020 were available at the time of writing, however, they were excluded from the analysis due to the idiosyncratic effects of COVID-19 on manufacturing exports.



- ▶ Returns to capital are estimated to comprise just over half of the sector's DVA, while payments to labour comprise around 40 percent of sectoral DVA and around five percent of sectoral DVA accrues to the Jordanian government through income, corporate and production taxes. Notably, around one third of payments to labour are ultimately remitted by migrant workers to their home countries.
- ▶ In 2018, the most recent year for which statistics are available, Jordan's GTL industry expended a total of USD 429.5 million on domestic intermediate inputs compared to USD 603.1 million on imported intermediate inputs. The most notable sources of domestic intermediate inputs for the industry come from the real estate sector, the road transportation sector and the machinery, equipment and furniture manufacturing sector.<sup>15</sup>
- ▶ During 2018, the most recent year for which statistics are available, GTL industry activities in Jordan indirectly created around 12,400 jobs in the national economy. Put differently, for every seven workers employed directly by the garment industry there is approximately one additional worker employed in a job indirectly created by the sector. Almost half of these jobs are in the administrative and support services sector, which is comprised of activities such as business support services, building maintenance and cleaning, private security provision and the renting and leasing of machinery and equipment.

## ▶ 2. Data and Methodology

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The analysis presented in this research brief employs an input-output approach to calculating DVA, intra- and inter-sectoral economic linkages and estimating indirect employment effects. A detailed description of the methodology is provided in Annex 1.

Multiple data sources were used in this analysis, including national input-output tables and labour force data from the Jordanian Department of Statistics, harmonized national input-output tables from the Asian Development Bank and OECD, the ILOSTAT database and Better Work Jordan Worker Survey data. A detailed description of the data sources used is provided in Annex 1. At the time of writing, the time series for the Jordanian Department of Statistics' national input-output tables covered the period 2016-2018. The analysis presented here is therefore limited to this period.

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15 This is the sector named "Manufacture of other products" in the Jordanian Industrial Classification. It corresponds to divisions 26-33 of the International Standard Industrial Classification of All Economic Activities (ISIC) Revision 4. In the Jordanian context, this sector primarily refers to the manufacturing of electronic products, the installation, repair and manufacturing of machinery and equipment and furniture manufacturing.



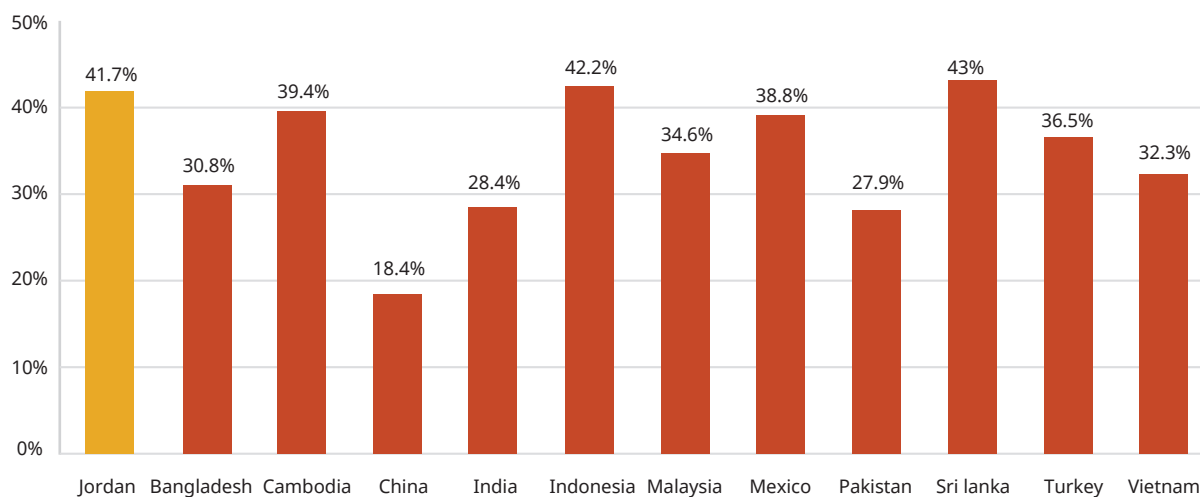


### ► 3. Domestic Value Added

Domestic value added is a measure of the economic value created within a country's borders as a result of the production of goods and services. It is calculated as the difference between the total value of economic output and the value of intermediate inputs used in the production of this output. In other words, it represents the portion of final economic output that is generated by domestic factors of production, such as labour, capital and entrepreneurship. The DVA of an economic sector can provide several insights into its contribution to a national economy. At the most basic level, a higher DVA indicates that a sector is contributing more to a country's gross domestic product. It is also possible to decompose DVA into the shares which accrue to labour, capital and government. This provides insights into the economic structure of a sector and how the value it generates is distributed among different factors of production.

In 2018, the most recent year for which statistics are available, the DVA of Jordan's GTL industry as a share of production output stood at 41.7 percent. Over the period 2016-2018, this figure hovered between a range of 41.0 and 41.7 percent. It is possible to benchmark this figure to key low and middle-income countries with notable export-oriented garment and textile industries (see **Figure 4**). This reveals that the DVA of Jordan's GTL industry is relatively high, although it should be noted that the comparator countries presented below have much larger garment industries, as illustrated in **Figure 5**.

**Figure 4: Domestic value added as a share of total production output for the garment, textile and leather industry, 2018**

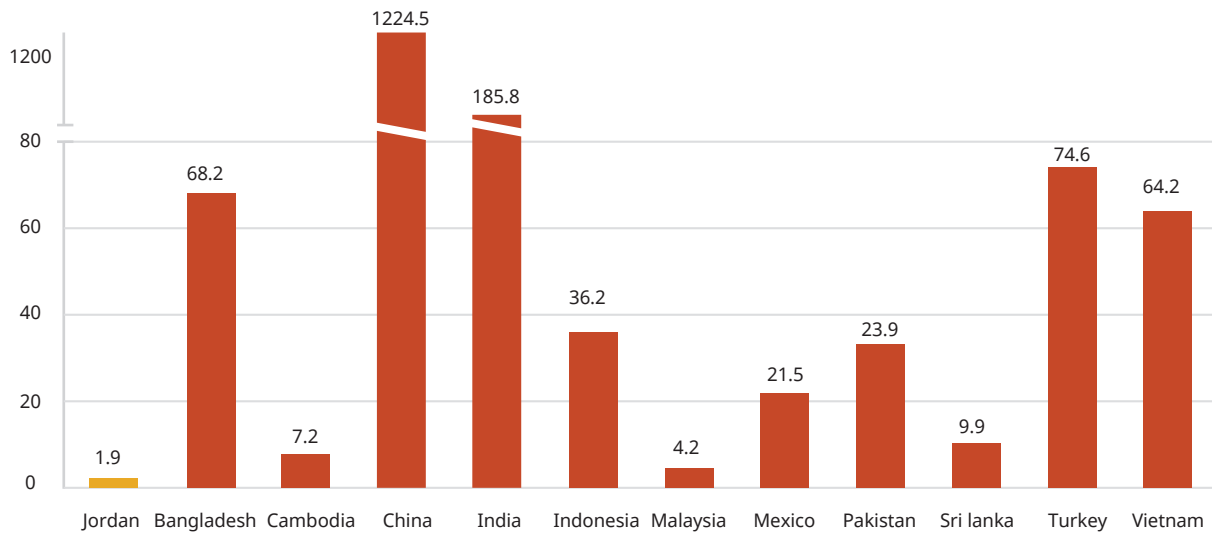


Source: Authors' calculations based on Jordanian Department of Statistics National Input-Output Table 2018; Asian Development Bank National Input-Output Tables 2018; OECD National Input-Output Tables 2018.

16 All low and middle-income countries with notable export oriented garment and textile industries which have national input-output tables published by the Asian Development Bank or OECD have been included in this comparison.



**Figure 5: Total production output in USD billions for the garment, textile and leather industry, 2018**



Source: Authors' calculations based on Jordanian Department of Statistics National Input-Output Table 2018; Asian Development Bank National Input-Output Tables 2018; OECD National Input-Output Tables 2018.

It is also possible to tentatively benchmark the DVA of the sector to that calculated by Brown and Deardorff (2011)<sup>17</sup> for Jordan's garment industry in 2006. This calculation was based on an unpublished input-output table produced solely for that year by the Jordanian Ministry of Planning and International Cooperation before the systematic production of input-output tables by the Jordanian Department of Statistics began.<sup>18</sup> Brown and Deardorff report that the DVA of the industry as a share of total production output stood at 36.9 percent in 2006. While this may seem to suggest a moderate increase in the sector's DVA over time, this comparison should be made with considerable caution as the 2006 figures refer only to the garment industry, whereas the national input-output tables used for this study provide aggregate data for the GTL industry (in line with international conventions). The two DVA figures are therefore not directly comparable.

Finally, it is possible to benchmark the sector's DVA as a share of output to the Jordanian manufacturing sector more broadly. DVA as a share of output for Jordan's manufacturing sector excluding the GTL industry stood at 32.6 percent in 2018, the most recent year for which statistics are available. Over the period 2016-2018, this figure hovered between a range of 32.6 and 33.3. This is substantially lower than the GTL industry.

In general, it is important to note that the significance of a high share of DVA in an economic sector should not be overstated. Imported goods and services can be a key support to an industry's competitiveness and replacing key imported inputs with inferior domestic versions can lead to fewer gross exports and lower total value-added in exports overall. This said, Jordan's GTL industry does appear to have

<sup>17</sup> Brown, D. and Deardorff A. (2011).

<sup>18</sup> At the time of writing, the time series for the Jordanian Department of Statistics' national input-output tables covers the period 2016-2018.



succeeded in combining a relatively high level of DVA with a high rate of export growth<sup>19</sup> suggesting that the industry has been able to make a substantial contribution to GDP while remaining globally competitive.

Jordan's national input-output tables can also be combined with income and corporate tax estimates to estimate the post-tax redistribution of DVA between capital, labour and the government. In 2018, we estimate that returns to capital comprised 54.6 percent (USD 433.3 million) of the GTL industry's DVA, while payments to labour comprised 40.8 percent (USD 323.6 million) and the remaining 4.6 percent (USD 36.5 million) of sectoral DVA accrued to the Jordanian government in income, corporate and production taxes (see **Table 1**).

Building on the above estimates, it is possible to calculate what Brown and Deardorff (2011)<sup>20</sup> describe as the share of DVA accruing to the Jordanian economy. This refers to the share of DVA remaining after deducting migrant worker remittances and returns to foreign capital. Drawing on wage data from Jordanian Department of Statistics' (DoS) Industry Survey 2018 and BWJ Worker Survey data, we estimate that migrant worker remittances stand at 32.4 percent of payments to labour in Jordan's GTL industry. This equates to 13.2 percent of the sector's DVA added. Following the methodology used by Brown and Deardorff (2011),<sup>21</sup> it is also possible to estimate returns to foreign capital from the sector's DVA using the official estimate of foreign share of investment in the sector (67.1 percent). As discussed in Annex 1, this estimate should be treated cautiously. After deducting migrant worker remittances and returns to foreign capital, the remaining DVA as a share of output stands at 20.9 percent. It should be noted that Brown and Deardorff's definition of the share of DVA accruing to the Jordanian economy assumes that returns to foreign capital are transferred abroad. In reality, however, some of these returns may be reinvested in the Jordanian economy. As Calabrese and Balchin (2022)<sup>22</sup> have shown, some foreign investors in developing countries' garment industries become "locally embedded" and make significant contributions to sector growth and upgrading.

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19 The latest figures available from the World Bank's World Integrated Trade System (WITS) database shows that Jordan's textile and apparel export growth over the period 2010-2019 (98.6 percent) greatly outperformed global textile and apparel export growth over the same period (22.3 percent). WITS export figures for 2020 were available at the time of writing, however, they were excluded from the analysis due the idiosyncratic effects of COVID-19 on manufacturing exports.

20 Brown, D. and Deardorff A. (2011)

21 Brown, D. and Deardorff A. (2011)

22 Calabrese, L. and Balchin, N. (2022).

**Table 1: Domestic value added of the Jordanian garment, textile and leather industry, 2018**

	USD thousands	Share
<b>Input-output framework</b>	<b>793,359</b>	<b>41.7%</b>
Of which, compensation of employees	323,583	17.0%
Of which, gross operating surplus / mixed income	461,651	24.2%
Of which, taxes on production	8,125	0.4%
<i>Compensation of employees, as percent of sectoral DVA</i>	-	40.8%
<i>Gross operating surplus / mixed income, as percent of sectoral DVA</i>	-	58.2%
<i>Taxes on production, as percent of sectoral DVA</i>	-	1.0%
<b>Adjusted by income and corporate taxes</b>	<b>793,359</b>	<b>41.7%</b>
Of which, labour share	323,583	17.0%
Of which, capital share	433,312	22.8%
Of which, government share	36,464	1.9%
<i>Labour share, as percent of sectoral DVA</i>	-	40.8%
<i>Capital share, as percent of sectoral DVA</i>	-	54.6%
<i>Government share, as percent of sectoral DVA</i>	-	4.6%
<b>Adjusted by income taxes, corporate taxes and remittances</b>	<b>688,563</b>	<b>36.2%</b>
Of which, labour share net remittances	218,787	11.5%
Of which, capital share	433,312	22.8%
Of which, government share	36,464	1.9%
<i>Labour share net remittances, as percent of sectoral DVA</i>	-	31.8%
<i>Capital share, as percent of sectoral DVA</i>	-	62.9%
<i>Government share, as percent of sectoral DVA</i>	-	5.3%

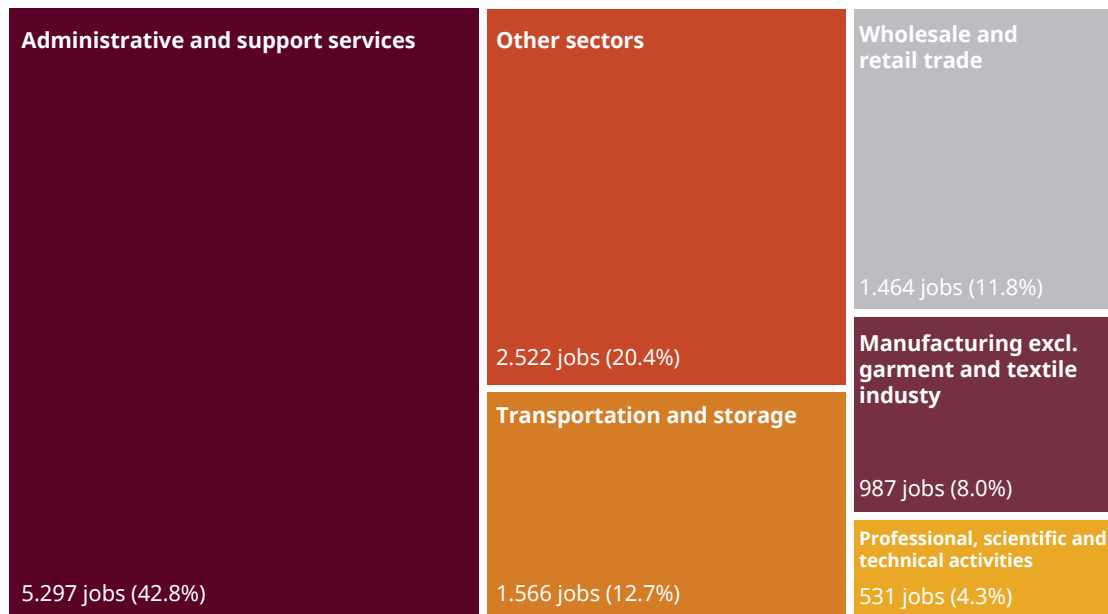


## ► 4. Economic Linkages

Jordan's GTL industry has considerable economic linkages with other sectors in the national economy. In 2018, the industry expended a total of USD 429.5 million on domestic intermediate inputs compared to USD 603.1 million on imported intermediate inputs. Over this period, the industry expended the greatest amount on intermediate inputs from Jordan's real estate sector (USD 42.3 million), followed by the road transportation sector (USD 33.9 million) and the machinery, equipment and furniture manufacturing sector<sup>23</sup> (USD 33.6 million). Additionally, enterprises in the industry expended USD 180.8 million on intermediate inputs from other enterprises within Jordan's GTL industry during 2018.

Another aspect of domestic economic linkages relates to indirect employment effects. We draw on data for 2018 from DoS national input-output tables, labour force surveys and the census of economic establishments combined with ILOSTAT labour force data for Jordan to estimate that GTL industry activities in Jordan indirectly created around 12,400 jobs in the national economy during that year. Put differently, for every seven workers employed directly by the garment industry, there is approximately one additional worker employed in a job indirectly created by the sector. This figure includes over 5,000 jobs in the administrative and support services sector, which is comprised of activities such as business support services, building maintenance and cleaning, private security provision and the renting and leasing of machinery and equipment. This figure also includes over 1,500 jobs in the transportation and storage sector, almost 1,500 jobs in the wholesale and retail trade sector and almost 1,000 jobs in the non-garment/textile manufacturing sector (see **Figure 6**).

**Figure 6: Indirect employment effects of Jordan's garment, textile and leather industry, 2018**



Source: Authors' calculations based on Jordanian Department of Statistics National Input-Output Table 2018; Jordanian Department of Statistics Employment and Unemployment Survey 2018, Jordanian Department of Statistics Census of Economic Establishments 2018, ILO STAT database.

<sup>23</sup> This is the sector named "Manufacture of other products" in the Jordanian Industrial Classification. It corresponds to divisions 26-33 of the International Standard Industrial Classification of All Economic Activities (ISIC) Revision 4. In the Jordanian context, this sector primarily refers to the manufacturing of electronic products, the installation, repair and manufacturing of machinery and equipment and furniture manufacturing.



Data limitations pose a challenge to benchmarking the above-described indirect employment effects to those of GTL industries in relevant comparator countries. However, data from the OECD Trade in Employment Database allows for international benchmarking specifically of the employment effects which are embodied in exports, both direct and indirect. It is worth noting here that direct employment embodied in exports for a given industry refers to all employment in that industry used in the production of goods and services exported by that industry, including the employment associated with production of intermediate inputs for exports from within the same industry. Thus, direct employment embodied in exports for a given industry is often greater than the number of workers employed to produce the final exported goods. The OECD Trade in Employment Database provides estimates of sectoral direct and indirect employment effects for several low and middle-income countries with notable export-oriented garment and textile industries: China, India, Indonesia, Mexico and Türkiye. As shown in Table 2, the number of indirect jobs created by Jordan's GTL industry for each direct job (i.e. the ratio of indirect to direct employment embodied in exports) is relatively low. It is worth noting, however, that the employment intensity of Jordanian GTL exports (i.e. direct employment embodied in exports per USD million in gross exports) is moderate and considerably higher than that in China, Mexico and Türkiye.

**Table 2: Garment, textile and leather industry employment, 2018**

	Total sectoral employment (thousands)	Direct employment embodied in exports (thousands)	Indirect employment embodied in exports (thousands)	Ratio of indirect to direct employment embodied in exports	Direct employment embodied in exports per USD million in gross exports
<b>Jordan</b>	89.9	83.7	11.7	0.14	52.3
<b>China</b>	17,028.6	5,572.5	13,540.6	2.43	20.1
<b>India</b>	12,935.7	3,389.4	3,684.7	1.09	82.6
<b>Indonesia</b>	5,319.0	2,342.3	480.0	0.20	145.6
<b>Mexico</b>	725.8	271.7	69.1	0.25	34.0
<b>Türkiye</b>	1,320.4	613.6	275.9	0.45	23.6

Sources: OECD Trade in Employment Database, OECD National Input-Output Tables 2018, Jordanian Department of Statistics Census of Economic Establishments 2018, Authors' calculations based on Jordanian Department of Statistics National Input-Output Table 2018; Jordanian Department of Statistics Employment and Unemployment Survey 2018, Jordanian Department of Statistics Census of Economic Establishments 2018, ILO STAT database.



## ► 5. Conclusions

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It is well established that Jordan's GTL industry plays a key role in Jordan's export economy, but less attention has been given to the sector's contribution to other aspects of the economy. This research brief goes beyond export performance to provide a more comprehensive overview of the sector's contribution to the Jordanian economy. Our analysis shows that the industry's DVA is relatively high, both compared to the Jordanian manufacturing sector as a whole and when benchmarked against export-oriented GTL industries in low and middle-income countries. Importantly, the industry has succeeded in combining this relatively high level of DVA with a high rate of export growth suggesting that it has been able to make a substantial contribution to GDP while remaining globally competitive.

While a considerable proportion of industry DVA accruing to labour is currently remitted abroad, it is notable that the Government of Jordan's recently launched Economic Modernization Vision aims to increase the proportion of Jordanians employed in the sector, suggesting that the proportion of DVA retained in the country may increase over the coming years. This analysis also shows that Jordan's garment, textile and leather industry has considerable economic linkages to other sectors in Jordan's economy, particularly the real estate sector, road transportation sector and the machinery, equipment and furniture manufacturing sector. As has been shown, these linkages have considerable indirect employment effects.

Today, Jordan's GTL industry continues to grow and upgrade. In 2023, the production of textiles in the country is set to expand considerably due to the recent establishment of a large fabric mill in the north of the country. Whereas the textile subsector has historically played a small role in Jordan's GTL industry (see **Figure 1, page 3**), its future growth is likely to shape several aspects of the sector's economic characteristics including its capital intensity, indirect employment effects and the intermediate inputs it requires. As the Jordanian GTL industry evolves, it will be important to continue monitoring how this sector contributes to the national economy – an undertaking which has been greatly facilitated by the recent development of publicly available national input-output tables for Jordan. This source of data will become increasingly policy relevant as Jordan's DoS makes progress toward its goals of publishing current input-output tables on an annual basis and streamlining their production to make them available in a timelier manner. Beyond the GTL industry, this brief demonstrates the utility of this newly available data source for enhancing evidence-based economic policymaking in Jordan.



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## ► Annex 1 : Data and Methodology

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- ▶ The Jordanian Department of Statistics' (DoS) national input-output tables and Industry Survey 2018 were the primary data source for the Jordanian DVA calculations and to describe the economic linkages between the GTL industry and other economic sectors in the country.
- ▶ National input-output tables for Bangladesh, Cambodia, China, India, Indonesia, Malaysia, Mexico, Pakistan, Sri Lanka, Türkiye and Viet Nam published by the Asian Development Bank and the OECD were used to calculate the DVA for the GTL industries in those countries.
- ▶ Data on income and corporate tax rates was extracted from relevant Jordanian tax legislation and used to derive estimates for the share of DVA accruing to the Jordanian government. The legislation in question is: Income Tax Law No. 34 of 2014; Income Tax Regulation for Development Zones No. 122 of 2009 issued pursuant to the Development Zones Law No. 2 of 2008; Income Tax Regulation for Development Zones No. 125 of 2016 issued pursuant to the Investment Law No. 30 of 2014.
- ▶ The Better Work Jordan Worker Survey 2019 was used to estimate worker remittances in the industry. It is a representative survey of production workers in Jordan's export-oriented garment industry fielded in June 2019 with a sample size of 1,731 workers. It provides comprehensive data on production workers in Jordan's export-oriented garment industry, including on migrant worker remittances and a host of demographic variables.
- ▶ The official estimate for the share of foreign investment in Jordan's garment and textile industry for 2011, as provided by the Jordan Investment Board, was used to derive estimates for the returns to capital accruing to foreign investors. It is worth noting that this estimate has not been recalculated since 2011. However, industry experts report that the composition of investment stock in the sector did not change significantly over the seven year period 2011-2018 and this figure can therefore be used to arrive at a cautious estimate of the returns to capital accruing to foreign investors.
- ▶ The indirect employment estimates for Jordan's GTL sector draw on the DoS national input-output table 2018, labour force data from DoS' Employment and Unemployment Survey 2018, labour force data from the DoS Census of Economic Establishments 2018 and ILOSTAT data on the size of the labour force in Jordan.
- ▶ Data on total sectoral employment for China, India, Indonesia, Mexico, and Türkiye as well as estimates of sectoral direct and indirect employment embodied in exports for these countries were obtained directly from the OECD Trade in Employment database.
- ▶ Data on sectoral exports for China, India, Indonesia, Mexico, and Türkiye were obtained from OECD national input-output tables.



**1. DVA as a share of production output** was calculated as follows:

- a. For Jordan's GTL industry, this is calculated as gross value added as a share of total output for sector C2C in the Jordanian Industrial Classification, as presented in the Jordanian DoS' national input-output tables.
- b. For Jordan's manufacturing sector excluding the GTL industry this is calculated as gross value added as a share of total output for the following sectors in the Jordanian Industrial Classification: C19; C1A; C1B; C1C; C1D; C1E; C20; C21; C23; C2A; C2B. As above, this data is presented the Jordanian DoS' national input-output tables.
- c. For the comparator countries of Bangladesh, Cambodia, China, India, Indonesia, Malaysia, Pakistan, Sri Lanka, and Viet Nam this is calculated as gross value added as a share of total output for sectors C4 and C5, as presented in the Asian Development Bank's harmonized national input-output tables.
- d. For the comparator countries of Mexico and Türkiye this is calculated as value added at basic prices as a share of output at basic prices for sector D13T15, as presented in the OECD's harmonized national input-output tables.

**2. The components of DVA adjusted by income and corporate taxes** for Jordan's GTL industry were calculated as follows:

$$\text{Labour share of DVA} = \frac{DVA_c - T_i}{V_x}$$

Where  $DVA_c$  is the component of DVA representing compensation of employees,<sup>24</sup>  $T_i$  is the estimated value of income tax paid by employees and  $V_x$  is total output.<sup>25</sup>

$$\text{Capital share of DVA} = \frac{DVA_g - T_c}{V_x}$$

Where  $DVA_g$  is the component of DVA representing gross operating surplus/ mixed income<sup>26</sup> and  $T_c$  is the estimated value of corporate tax on profits paid by firms.

$$\text{Government share of DVA} = \frac{DVA_t + T_i + T_c}{V_x}$$

Where  $DVA_t$  is the component of DVA representing taxes on production.

24 Corresponding to D1 in the System of National Accounts 2008.

25 Corresponding to P1 in the System of National Accounts 2008.

26 Corresponding to the sum of B2g and B3g in the System of National Accounts 2008.



**3. Income tax paid by employees** in the GTL industry is estimated based on contemporaneous tax rates as set out in the Jordanian Income Tax Law No. 34 of 2014 (valid from 1/1/2015 to 31/12/2018) combined with data on wages in the textile and garment industry. Articles 9-11 of the Income Tax Law No. 34 of 2014 state that the tax-free allowance for single individuals is 12,000 JOD annually and 24,000 JOD for those with dependents. In addition, there are further tax-free allowances for education, healthcare, rent and housing mortgage interest of up to 4,000 JOD annually. Thereafter, income tax rates are equal to 7% for the first 10,000 JOD of income; 14% for the next 10,000 JOD of income and 20% thereafter.

According to the Better Work Jordan Worker Survey 2019, the average annual salary of production workers in Jordan's export-oriented garment industry was 2,699.40 JOD. Frederick (unpublished)<sup>27</sup> estimates that production workers comprise 70-85 percent of workers in the sector. According to her research, a further 5 percent are supervisors earning 3,000-3,600 JOD annually. She estimates that a further 10-25 percent of workers in the sector are in knowledge intensive/ service occupations earning 6,000-12,000 JOD annually.

Although Frederick's figures are estimates, they can be validated against wage data from the Jordan Labour Market Panel Survey (JLMPS) 2016, the most recent JLMPS at the time of writing. Unfortunately, the JLMPS 2016 does not provide representative wage data for GTL industry workers, as the sample only contains 32 workers employed in this sector. It does, however, provide wage data for workers in Jordan's manufacturing sector more broadly (n = 589). According to the JLMPS, the median annual wage for workers in Jordan's manufacturing sector in 2016 was 3,600 JOD. At the 75th and 90th percentile, this figure stands at 4,800 and 7,200 JOD respectively. All three figures fall far below the 2018 tax-free allowance for both single individuals and those with dependents. Thus, income tax paid by employees in Jordan's GTL industry during 2018 is estimated to be negligible and set at zero in the DVA calculations presented in our analysis.

**4. Corporate tax on profits paid by firms** in the GTL industry is estimated based on contemporaneous tax rates combined with sectoral data on: 1) Consumption of fixed capital (DoS Industry Survey 2018)<sup>28</sup>; 2) Gross operating surplus/ mixed income (DoS National Input-Output Table 2018)<sup>29</sup>; 3) Value of exports (DoS National Input-Output Table 2018)<sup>30</sup>; 3) Total output (DoS National Input-Output Table 2018).<sup>31</sup>

According to the laws governing taxation of enterprises in development zones (Article 22, Development Zones Law No. 2 of 2008; Article 4, Development Zones Income Tax Regulation No. 125 of 2016), the export-oriented GTL industry is subject to a corporate tax rate of 5 percent on profits. According to the Article 11 of Income Tax Law No. 34 of 2014, the domestic GTL industry is subject to a corporate tax rate of 14 percent on profits.

The corporate tax on profits paid by firms in the GTL industry calculated as follows:

$$((DVA_g - i_{se} - CFC) \times \left(\frac{e}{V_x}\right) \times T_{ce}) + ((DVA_g - i_{se} - CFC) \times \left(1 - \frac{e}{V_x}\right) \times T_{cd})$$

27 Frederick, S. (unpublished). Jordan's Apparel Industry and Institutional Context. Better Work Jordan.

28 Corresponding to P51c in the System of National Accounts 2008.

29 Corresponding to the sum of B2g and B3g in the System of National Accounts 2008.

30 Corresponding to P61 in the System of National Accounts 2008.

31 Corresponding to P1 in the System of National Accounts 2008.



Where  $DVA_g$  is the component of DVA representing gross operating surplus/ mixed income,  $i_{se}$  is the income of self-employed individuals,  $CFC$  is consumption of fixed capital,  $e$  is the value of exports,  $V_x$  is total output,  $T_{ce}$  is the corporate tax rate for the export-oriented sector, and  $T_{cd}$  is the corporate tax rate for the domestic sector. The income of self-employed individuals is assumed to be negligible and set at zero.

**5. Remittances** sent by migrant GTL workers to their home countries are estimated based on sectoral data for: 1) Total compensation of employees, <sup>32</sup> disaggregated into employers' social contributions<sup>33</sup> and wages/ salaries <sup>34</sup> (DoS Industry Survey 2018); 2) Migrant share of employment (DoS, Census of Economic Establishments 2018); 3) Remittances by migrants (estimate based on Better Work Jordan Worker Survey 2019); 4) Migrant pay relative to domestic labour compensation (estimate based on Better Work Jordan Worker Survey 2019). <sup>35</sup>

Migrant worker respondents in the Better Work Jordan Worker Survey report that they remit 64.2 percent of their wages to their home country. The gross monthly wages of migrant workers and Jordanian workers were compared using a t-test. Because the variance in gross monthly wages between the two groups of workers was found to be unequal ( $p < 0.000$ ), we employed a Welch's t-test. We find no statistically significant differences in gross monthly wages for the two groups ( $t = -0.12419$ ,  $p = 0.9012$ ).

Given that the migrant employment share is 56.0 percent and 64.2 of migrant worker wages are remitted, we can calculate that 64.0 percent of wages and salaries paid in the sector are retained in Jordan. It should be noted that all employer social contributions are retained in Jordan by Jordanian law.

**6. Data on intermediate inputs** consumed by the GTL industry were obtained directly from the DoS National Input-Output Table 2018.

**7. The indirect employment** effects of the GTL industry are estimated by calculating the employment multiplier using the Leontief inverse, obtained from the Jordanian Department of Statistics National Input-Output Table 2018 combined with labour force data aggregated to match the Input-Output table, from three sources: 1) the Jordanian Department of Statistics Employment and Unemployment Survey 2018, 2) Jordanian Department of Statistics Census of Economic Establishments 2018, and 3) ILO STAT database.. By applying the input-output model in the equation below, we can measure the total employment ( $\hat{f}$ ), both direct (created in the industry  $i = C2C$  garment industry) and indirect (created in other Jordanian economic sectors), embodied in final demand  $\hat{y}$  of industry  $j$ , through the Leontief Inverse  $(I - A)^{-1}$ .

$$\text{Total employment} = \sum_{i,j}^n \hat{f} (I - A)^{-1} \hat{y}$$

$$\text{Indirect employment} = \sum_{i \neq j}^n \hat{f} (I - A)^{-1} \hat{y}$$

**8. Similarly, direct and indirect employment embodied in GTL exports** are estimated by applying the input-output model presented above to GTL industry exports, rather than final demand.

32 Corresponding to D1 in the System of National Accounts 2008.

33 Corresponding to D12 in the System of National Accounts 2008.

34 Corresponding to D11 in the System of National Accounts 2008.

35 It is worth noting, however, that migrant garment workers in Jordan work significantly longer hours than Jordanian workers.

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