

# MOROCCO COUNTRY PROGRAMME

Morocco in Global Value Chains: Results  
and Statistical Recommendations from  
the Integration of Morocco in the Trade  
in Value Added Database

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*Morocco in Global Value Chains: Results and statistical  
recommendations from the integration of Morocco in the  
Trade in Value Added Database*

*Prepared by the OECD Statistics and Data Directorate*



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## *Resumé*

La division internationale du processus productif dans les chaînes de valeur mondiales (CVM) remet en question notre vision de l'économie mondiale. Comprendre le fonctionnement des CVM et leur impact sur la performance économique est essentiel pour déterminer les meilleures politiques en termes d'efficacité et de réduction des risques. La base de données Échanges en Valeur Ajoutée (TiVA, en Anglais) de l'OCDE et de l'OMC facilite l'analyse des CVM. Elle mesure le commerce en termes de valeur ajoutée afin de fournir de nouvelles perspectives sur les relations commerciales entre économies et le processus de création de valeur.

### ***Principaux résultats de l'intégration du Maroc dans les CVM***

Dans le cadre du programme Pays Maroc-OCDE, le Maroc a été intégré dans la base de données TiVA<sup>1</sup> ainsi que dans les estimations de TiVA « Nowcast »<sup>2</sup> (données disponibles jusqu'en 2014). Le chapitre 1 de ce rapport présente les premières principales conclusions, issues de cette base de données, concernant l'intégration du Maroc dans les CVM. Il explique, entre autres, que:

- Les chaînes de valeur mondiales sont de plus en plus importantes pour l'économie marocaine: en 2014, 27% de la valeur ajoutée produite au Maroc dépendait de la demande finale étrangère. Certaines des plus importantes industries manufacturières exportatrices du Maroc, telles que le textile, les produits chimiques et l'automobile, exportent plus de 80% de la valeur ajoutée qu'ils produisent.
- Les importations sont fondamentales pour ces succès à l'exportation: le contenu étranger des exportations marocaines a progressivement augmenté depuis le milieu des années 1990, jusqu'à environ 25%. Également, 44% des produits intermédiaires importés sont utilisés dans les exportations - avec des parts beaucoup plus élevées (60-80%) pour le textile et les pièces de véhicules automobiles, illustrant bien le caractère contre-productif du protectionnisme.
- En termes de valeur ajoutée, les industries de services contribuent de manière significative à la valeur ajoutée nationale exportée par le Maroc, tirée en grande partie par le tourisme. Cependant, la part totale des services dans la valeur ajoutée exportée des produits manufacturés est inférieure à la moyenne de l'OCDE, ce qui indique une marge de progrès possible en termes de compétitivité des industries domestiques de services et de renforcement des liens entre fournisseurs nationaux et exportateurs de produits manufacturés.

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<sup>1</sup> <http://www.oecd.org/fr/echanges/mesurerlecommerceenvaleurajoutee.htm>

<sup>2</sup> <http://www.oecd.org/fr/echanges/stats-echanges/tiva-nowcast.htm>

- Enfin, comme pour la plupart des autres pays, la base ÉVA montre que les États-Unis sont une destination des exportations marocaines plus importante en termes de valeur ajoutée que dans les statistiques commerciales brutes traditionnelles. L'importance de la France et de l'Espagne en tant que partenaires commerciaux, tout en restant significative, est réduite à la fois pour les exportations et les importations. L'Allemagne et la Chine apparaissent comme des sources d'importations plus importantes en termes de valeur ajoutée.

### ***Recommandations en vue d'améliorer les statistiques nationales***

Pour s'assurer de l'exactitude des analyses des CVM au Maroc, facilitée par une intégration de haute qualité du Maroc dans la base TiVA, les données à fournir sont particulièrement volumineuses et strictes. Dans le cadre du Programme Pays Maroc-OCDE, la Haute Commission du Plan (HCP) et l'Office des Changes du Maroc ont fourni de nombreuses données requises - notamment les tableaux des ressources et des emplois, les agrégats et les statistiques détaillées du commerce des marchandises et des services - aidée par plusieurs ateliers techniques qui ont été organisés. L'OCDE a ensuite examiné l'exhaustivité de ces données, leur qualité (en termes de méthodologie de compilation) ainsi que leur cohérence interne et externe.

Cette analyse, présentée dans le rapport d'examen des données d'entrée de TiVA (voir chapitre 2), a conclu que les séries chronologiques des tableaux de ressources et d'emplois 1998-2015 du Maroc sont de bonne qualité et suffisantes pour être intégrées dans la base de données TiVA OCDE-OMC. En particulier, les données marocaines pour l'année de référence 2007, qui incluaient les matrices de marges détaillées et le tableau des emplois pour les importations requises, répondent aux normes pour produire des estimations ÉVA de haute qualité. De plus, les données pour l'année de référence 2014, à paraître en 2019, seront au moins aussi exhaustives. En outre, les données publiques sur le commerce des marchandises surpassent celles de nombreux autres pays en termes de niveau de détail (10 chiffres), de dimensions disponibles, et de variables supplémentaires (notamment liées au traitement), ce qui en fait une source de données très précieuse.

Cela dit, un certain nombre d'améliorations possibles ont été identifiées pour que les données du Maroc intègrent au mieux la base ÉVA. Elles ont été reportées dans l'outil de suivi développé par l'OCDE pour évaluer les progrès du Programme Pays Maroc-OCDE. Grâce aux efforts concertés de la HCP et de l'Office des Changes, plusieurs étapes ont déjà été mises en œuvre; tandis que d'autres font partie du futur programme de travail des deux institutions. La mise en place de certaines initiatives, sur une base annuelle continue, peut toutefois nécessiter des ressources supplémentaires. En particulier, il a été recommandé:

- Les tableaux d'emplois et de ressources marocains devraient mieux s'aligner sur la classification sectorielle de TiVA, en particulier dans le secteur des services aux entreprises, où une ventilation plus détaillée est fortement encouragée, compte tenu de son importance croissante dans l'économie marocaine. La HCP a accepté d'étudier la possibilité de fournir cette information supplémentaire à l'OCDE et l'a envoyée depuis, tandis que les prochains tableaux pour l'année de référence 2014, dont la publication est prévue pour 2019, seront développés en utilisant les dernières classifications sectorielles.
- Des informations plus détaillées sur quelles industries importent quels produits («tableaux des emplois des importations»); et sur les coûts de transport et de vente, liés aux produits et services fournis au consommateur final («matrices de

marge»), pour chaque produit et industrie, serait très utiles pour améliorer l'intégration du Maroc dans TiVA. Ces tableaux sont actuellement en cours de production pour la nouvelle année de référence (2014) et dans ce cadre, la HCP évaluera la faisabilité d'un tel travail pour d'autres années.

- Les données sur les dépenses des non-résidents par produit (importantes pour l'analyse de la valeur ajoutée générée par le tourisme et pour le processus de construction de TiVA) ne sont pas disponibles dans les tableaux d'emplois et de ressources nationaux mais elles sont produites régulièrement dans le cadre des statistiques du Compte Satellite du Tourisme. Des informations agrégées sur les produits ont été mises à la disposition de l'OCDE et il est recommandé de présenter des détails supplémentaires dans les versions ultérieures des tableaux d'emplois et de ressources nationaux.
- Le commerce des services par pays partenaire est d'une importance capitale pour TiVA. Le résultat des travaux en cours de l'Office des Changes du Maroc pour développer ces données est très attendu afin que les estimations actuellement utilisées par l'OCDE puissent être remplacées par des chiffres officiels.
- Tandis que TiVA se concentre sur l'analyse de la valeur ajoutée générée par les CVM, il est possible d'étendre les analyses à l'emploi. Cela nécessiterait des informations sur l'emploi (de préférence les heures travaillées, ou les ETP) conformément à la classification actuelle des industries dans les tableaux des emplois et des ressources. Les tableaux de l'année de référence 2007 incluent déjà ces données, mais des informations plus récentes augmenterait la pertinence de telles analyses. Il est recommandé d'inclure cette information dans les tableaux de l'année de référence 2014 et d'explorer, de même, la possibilité de fournir ces données pour les années intermédiaires, afin de faciliter l'étude de l'impact des CVM sur l'emploi.
- Enfin, il a été recommandé d'explorer la possibilité de présenter des ventilations plus détaillées (c'est-à-dire de développer des tableaux des emplois et des ressources étendus (« extended SUTs »)), afin de mieux comprendre le rôle des différents types d'entreprises dans les CVM. Les discussions sont arrivées à la conclusion qu'il serait possible d'explorer une répartition entre les entreprises de transformation et de non-transformation pour les industries où ces groupes sont importants, en commençant par une étude pilote pour le textile. L'échange de (micro) données entre la HCP et l'Office des Changes est important pour soutenir une telle analyse, et l'idée a été bien accueillie par les deux organisations. Il est donc recommandé de développer les mécanismes pour cette interaction.



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## *Executive Summary*

The international fragmentation of production in global value chains (GVCs) challenges the way we look at the global economy. Understanding how GVCs work and how they affect economic performance is essential for determining which policies help derive the greatest benefits, and reduce the risks. The OECD-WTO Trade in Value Added (TiVA) database facilitates analysis of GVCs by measuring trade in value-added terms to generate new insights about the commercial relations among economies and the process of value creation.

### ***Main results of the integration of Morocco in GVCs***

As part of the Morocco-OECD Country program, Morocco was integrated in the TiVA database<sup>3</sup> as well as in the TiVA Nowcast Estimates<sup>4</sup> (with data up to 2014). Chapter 1 of this report documents the first main findings regarding the integration of Moroccan in GVCs that can be derived from this database, including, amongst others:

- Global value chains are increasingly important for the Moroccan economy: in 2014, 27% of the value added produced in Morocco (GDP) was dependent upon foreign final demand, with some of the most important manufacturing exporting industries in Morocco, such as Textiles, Chemicals, and Motor vehicles, exporting more than 80% of the value added that they produce.
- Imports are fundamental for these export successes: the foreign content of Morocco's exports has gradually increased since the mid-1990 up to around 25%. Likewise, 44% of imported intermediate products are used in exports – with much higher shares (60-80%) for textiles and motor vehicle parts, well illustrating the counter-productive nature of protectionism.
- In value added terms, the services industries contribute significantly to the domestic value added exported by Morocco, driven in large part by tourism. The total share of services in the exported value added of manufactured products however is below the OECD average, indicating potential scope for improving the competitiveness of domestic services industries and in fostering stronger links between domestic services providers and manufacturing exporters.
- Finally, as is the case in most other countries, the TiVA data show that the US is a more important destination of Moroccan exports in value added terms than observed in the traditional gross trade statistics. The importance of France and Spain as trading partners, while still significant, is reduced both for exports and

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<sup>3</sup> <http://www.oecd.org/trade/measuring-trade-in-value-added.htm>

<sup>4</sup> <http://www.oecd.org/trade/its/tiva-nowcast.htm>

imports. Similarly, Germany and China emerge as more important sources of imports in value added terms.

### ***Recommendations towards improved national statistics***

To facilitate the high quality inclusion of Morocco in TiVA and to ensure that the insights on the role of GVCs for Morocco are accurate, the input data requirements for TiVA are voluminous and stringent. In the course of the Morocco-OECD Country Program, several technical workshops were organised, and Morocco's Haute Commission du Plan (HCP) and Office des Change have provided many of the requested input data, including Supply-and-Use tables, National Accounts main aggregates, and detailed merchandise and services trade statistics, which have subsequently been reviewed by the OECD for completeness and level of detail, quality (in terms of compilation methodology) and internal and external consistency.

This review, documented in the TiVA Input Data Review Report (see chapter 2), concluded that Morocco's 1998-2015 time series of SUTs are of good and sufficient quality for integration into the OECD-WTO TiVA database. Especially the Moroccan data for the benchmark year 2007, which included the required detailed margin matrices and import use table, meets the standards required for producing high quality TiVA estimates, and it is anticipated that the data for benchmark year 2014, to be released in 2019, will be of at least the same standards. In addition, the publicly available data on merchandise trade surpass that of many other countries in terms of level of detail (10 digits) and additional dimensions and variables (notably related to processing), which makes this a very valuable data source.

That said, a number of areas for improvement were identified to further enhance the quality of Morocco's integration into TiVA, and these were included in the Monitoring Tool developed by the OECD to evaluate progress on the recommendations of the Morocco-OECD Country Program. Due to the concerted efforts of HCP and the Office des Changes, several steps have already being implemented; while others are part of the future Program of Work of the two institutions. Several aspects may however require additional resources to support their development and continued annual availability. In particular, it was recommended that:

- Moroccan SUTs should better align with the TiVA industry classification, in particular with respect to the business services sector, where a more detailed breakdown is strongly encouraged given its growing importance in the Moroccan economy. HCP agreed to investigate the scope for providing OECD this additional information and this has since been received, while the forthcoming tables for benchmark year 2014, scheduled for release in 2019, will be developed using the latest industry classifications.
- More detailed information on which industries import which products ('import use tables'); and on the transport and sales costs, for each product and industry, associated with bringing products and services to the final consumer ('margin matrices'), on an annual basis would be highly beneficial to improve the quality of Morocco's integration into TiVA. These tables are currently being produced for the new benchmark year (2014) and in this process, HCP will investigate the possibilities and implications to produce such information for other years.
- Information on non-resident expenditures by product (important both for the analysis of the value added generated by tourism, and for the process of

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constructing TiVA) is not available in the national SUTs but data *are* produced regularly in the context of the Tourism Satellite Account statistics. Aggregated product information was made available to OECD and it is recommended to develop additional detail in subsequent releases of the national SUTs.

- Trade in services by partner country are of vital importance to TiVA. The result of ongoing work by Morocco's Office des Changes to develop these data is highly anticipated so that the currently included estimates made by the OECD can be replaced with official figures.
- While TiVA is focused on analysing the value added generated via GVCs, it is possible to extend the analyses to employment. This would require information on employment (preferably hours worked, or FTEs) in line with the current SUT industry classification. The 2007 benchmark SUT tables already include these data but more recent information would further enhance the policy use of such analyses. It is recommended to include this information in the new benchmark tables and to explore the feasibility of making the data available as well for the intervening years, to assist the potential to investigate the impact of GVCs on jobs.
- Finally, it was recommended to explore the possibility to develop more detailed breakdowns (i.e. developing extended SUTs), in order to develop further insights into the role of different types of firms in GVCs. Discussions suggested that it would be feasible to explore a breakdown between processing and non-processing firms for those industries where these groups are important, starting with a pilot study for textiles. The exchange of (micro) data between the HCP and the Office des Changes is important to support such analysis, and was welcomed by both organisations. It is therefore recommended to develop the mechanisms for this interaction.



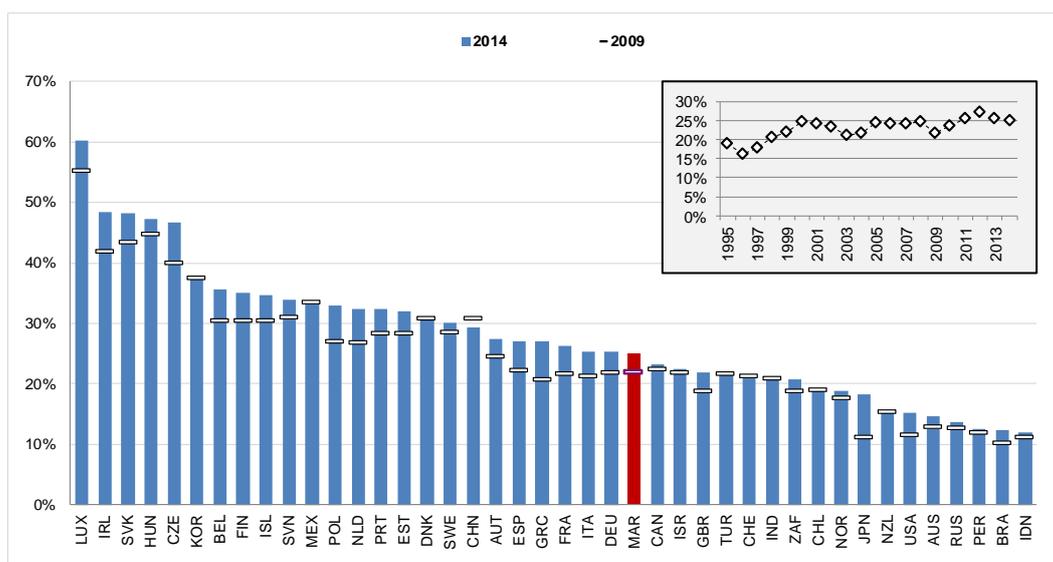
## 1. Morocco in Global Value Chains: first results

### 1.1. The role of foreign and domestic value added in exports

The foreign content of Morocco's exports has gradually increased since the mid-1990, but has since the early 2000s remained relatively stable at around 25.0%. Although fully recovering from the crisis-induced decline in 2009, when the foreign value added dropped to 21.8% in 2009 (Figure 1), the foreign content of Moroccan exports declined in the most recent years for which data is available. This partly reflects the global slowdown of international trade, driven by lower commodity prices and domestic upgrading in emerging markets.

**Figure 1. Foreign value added content of gross exports by country**

Percent, 2009 and 2014 (right insert = time series for Morocco).

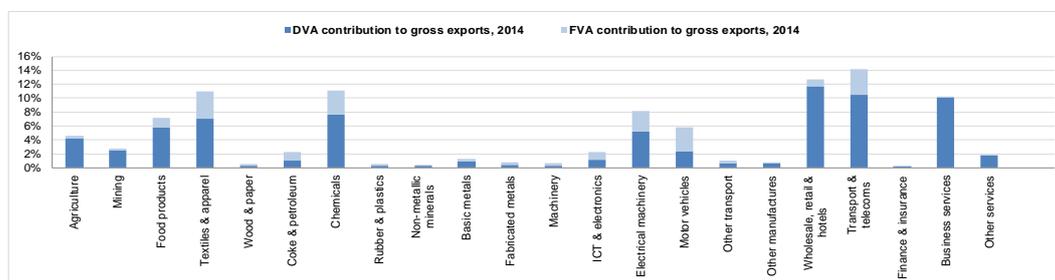


Source: OECD Trade in Value Added and Trade in Value Added Nowcast databases.

The direct exports by Wholesale, Retail & Hotels industry generated the greatest source of domestic value added in 2014 ((both direct and upstream), which accounted for 11.7% of the total value added of exports. The next most important industries were Transport & Telecoms (accounting for 10.4% of exported value added), Business Services (10.2%), Chemicals (7.6%), and Textiles (6.%) (Figure 2).

**Figure 2. Morocco's industry share of domestic and foreign value content of gross exports**

As a percentage of total gross exports, 2014.

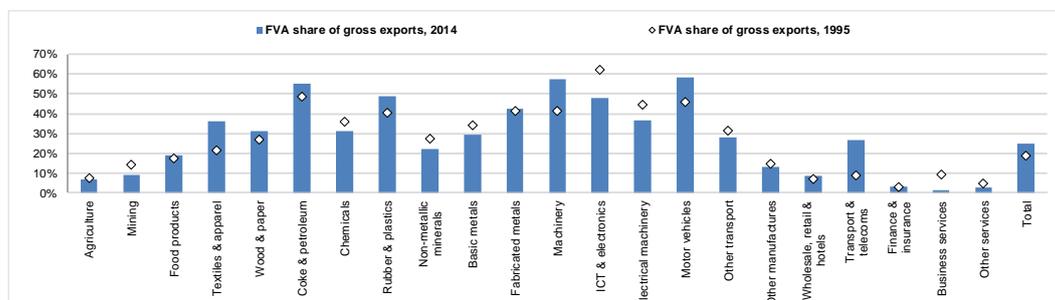


Source: OECD Trade in Value Added and Trade in Value Added Nowcast databases.

The three Moroccan industries with highest *foreign* value added shares in their exports in 2014 were Motor vehicles, Machinery, and Coke & petroleum (see Figure 3). More than half of gross value that was exported by these industries consisted of imported value added (58.5%, 57.6%, and 55.2% respectively), higher than in 1995. Also the exports by those manufacturing industries that contribute substantively to Moroccan exports and the Moroccan economy, such as Textiles and Chemicals, demonstrate significant foreign value added content. .

**Figure 3. Morocco's foreign value added content of gross exports**

As a percentage of total gross exports, 1995 and 2014.

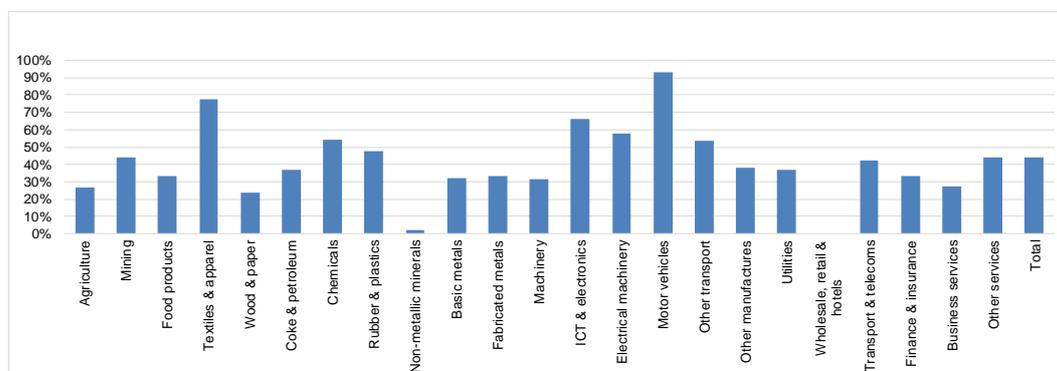


Source: OECD Trade in Value Added and Trade in Value Added Nowcast databases.

Figure 4 further illustrates the relevance of imports for exports by showing that 44% of the imports of intermediate products and services by Morocco are subsequently embodied in exports. This share is lower however compared to most OECD countries (50.2) (Figure 3). The products with the highest shares of imports of intermediate products that are subsequently used for exports are Motor vehicles, Textiles & apparel and ICT & electronics, at 93.2%, 77.6% and 65.9% respectively.

**Figure 4. Morocco's imported intermediate inputs used for exports, by import category**

Percent of intermediate imports, 2014.



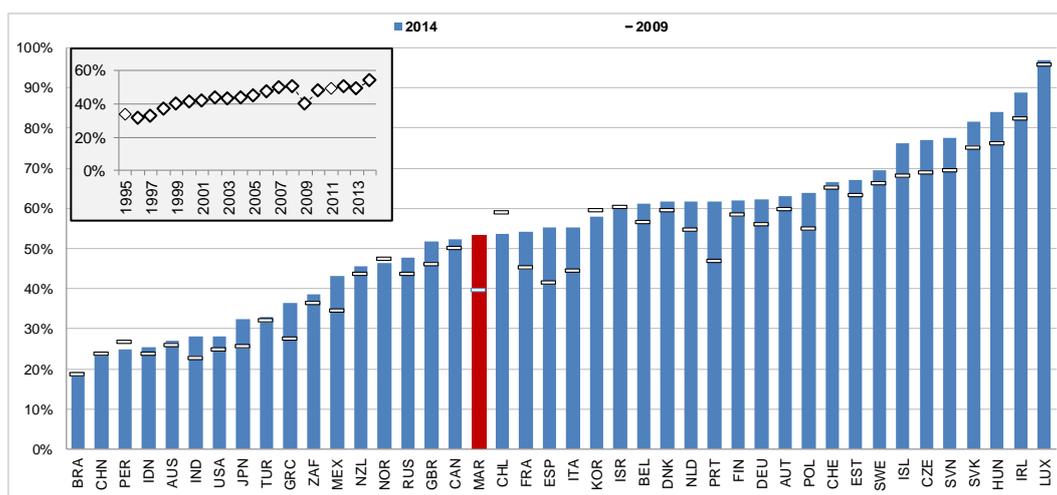
Source: OECD Trade in Value Added and Trade in Value Added Nowcast databases.

## 1.2. The destination of domestic value added produced in Morocco

Since the mid-1990s, and increasingly larger share of the Moroccan manufacturing is dependent upon foreign markets. Of the total domestic value added produced by the manufacturing sector in Morocco, 53.4% was destined for foreign final demand in 2014 (i.e. not for domestic consumption), higher than the equivalent pre-crisis of 2008 (49.9%) (Figure 5). Still, this remains lower when compared to most OECD countries, where in 2014 on average 59.3% of domestic manufacturing value added ends up in foreign final demand.

**Figure 5. Manufacturing domestic value added in foreign final demand by country**

Percent of total manufacturing value added, 2009 and 2014 (left insert = time series for Morocco).

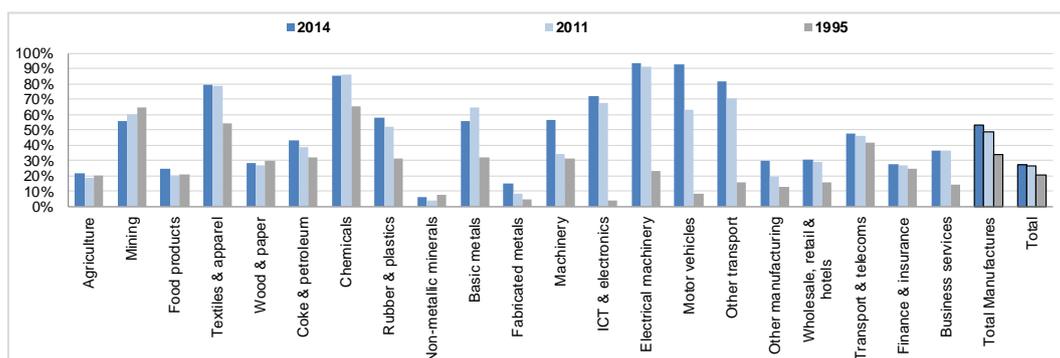


Source: OECD Trade in Value Added and Trade in Value Added Nowcast databases.

Looking at the total economy level (i.e. including non-manufacturing industries), 27.2 % of Morocco's domestically produced value added was driven by foreign final demand. Significant differences exist however cross industries: whereas Electrical machinery (93.4%) and Motor vehicles (93.0%) had the highest level of export orientation in Morocco, following strong growth since the mid-1990s, very low shares were observed in Non-metallic minerals (6.2%) and Fabricated metals (14.9%) (Figure 6).

**Figure 6. Morocco's domestic value added in foreign final demand**

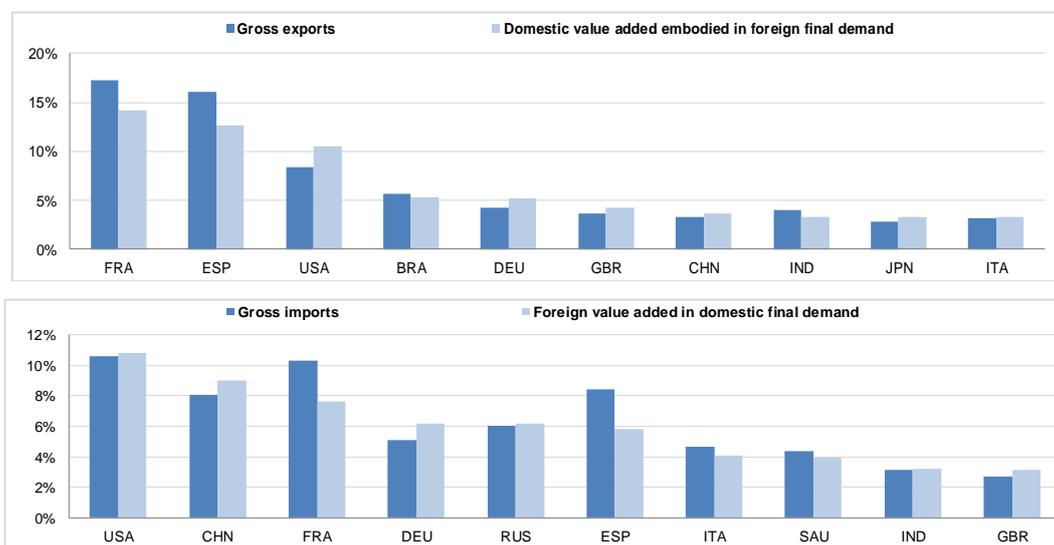
Percent of value added by industry, 1995, 2011, and 2014.



Source: OECD Trade in Value Added and Trade in Value Added Nowcast databases.

**Figure 7. Morocco's exports to and imports from main partner countries**

Percent of total gross and value added exports (top) and imports (bottom), 2014.



Source: OECD Trade in Value Added and Trade in Value Added Nowcast databases.

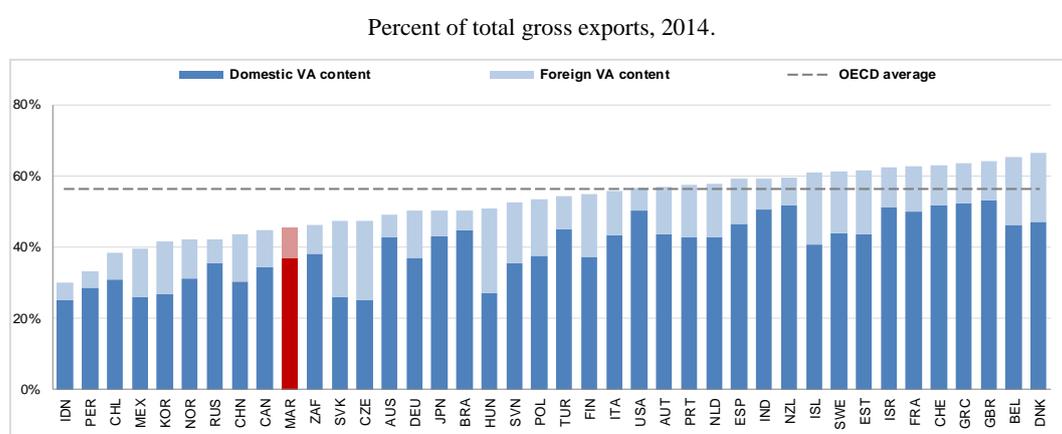
Examining the geographical breakdown of trade flows, France (17.3%), Spain (16.0%) and the United States (8.4%) were the three most important Moroccan export market destinations in gross terms. However, in value-added terms, the relative importance of the is top three changes, with the US becoming more important (10.5%) while the shares of France (14.2%) and Spain (12.6%) are smaller (Figure 7, top). Also when looking at the

origin of imports, it is clear that France and Spain are less important in value added terms than in gross trade. Instead, products consumed in Morocco contain relatively more value added from Germany, China and the USA (Figure 7, bottom).

### 1.3. The importance of services

In 2014 the share of services in the exported value added of Morocco was 45.6%, which is substantively higher than the share of services in gross trade statistics (39.3%) but still below the OECD average of 55.5%. Of the total services value added embodied in Morocco's exports, 18.7% reflected foreign content, below the equivalent OECD average of 27.5% (Figure 8).

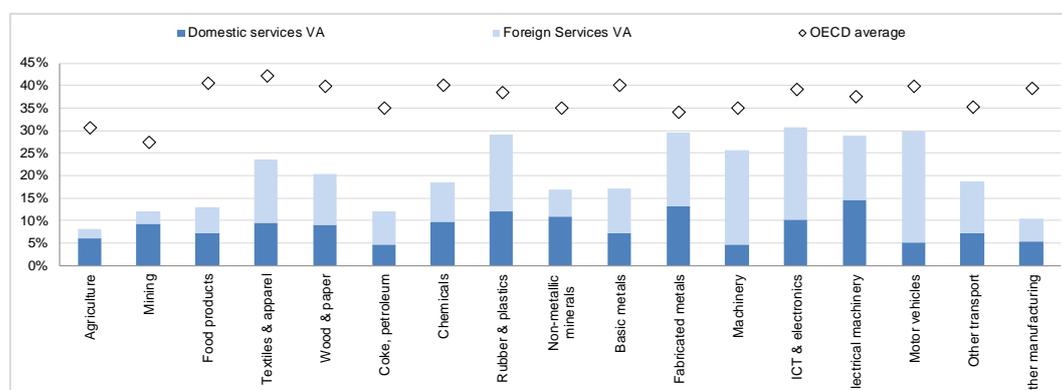
**Figure 8. Services content of gross exports by country, gross and value-added terms**



Source: OECD Trade in Value Added and Trade in Value Added Nowcast databases.

At the individual sectoral level, the services content of exports was highest in ICT & electronics (30.6%), Motor vehicles (29.8%) and Fabricated metals (29.5%) (Figure 9), although these values are still lower than the OECD average. The share of imported services value added content is higher for manufacturing than for the economy as a whole.

**Figure 9. Morocco's Services content of gross exports, by exporting industry and service category (% of gross exports by industry, 2014)**



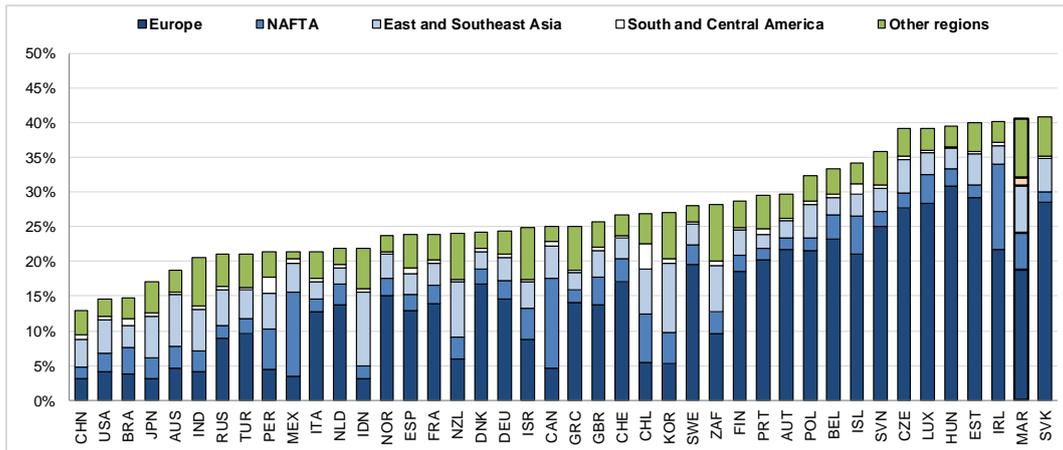
Source: OECD Trade in Value Added and Trade in Value Added Nowcast databases.

## 1.4. The origin of Moroccan domestic final demand

In 2014, 40.6% of Morocco's total final domestic demand reflected foreign content, of which nearly half was sources from Europe (18.9 percentage points (pp)), followed by East and Southeast Asia (6.8 pp) and NAFTA (5.3 pp) (Figure 10).

**Figure 10. Foreign value added content of domestic final demand in selected countries**

By source region, 2014.



Source: OECD Trade in Value Added and Trade in Value Added Nowcast databases.

## 1.5. Industry profiles: Textiles and Chemicals

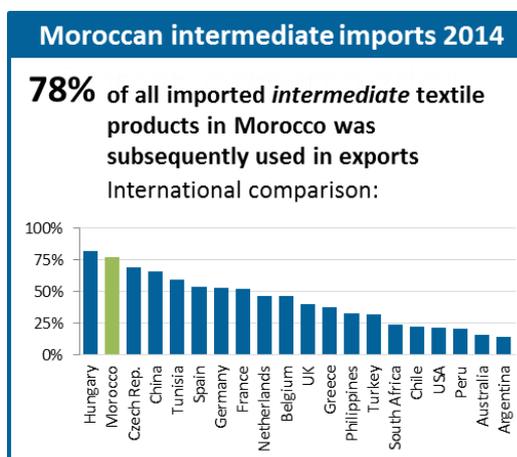
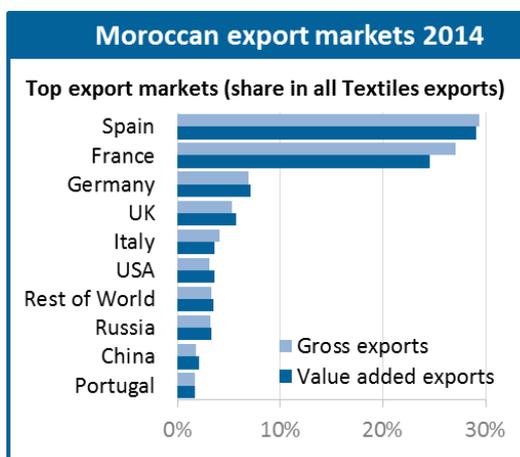
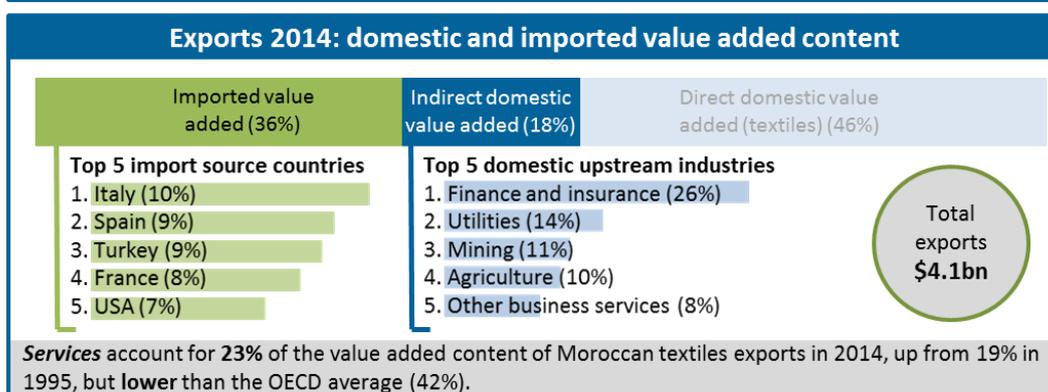
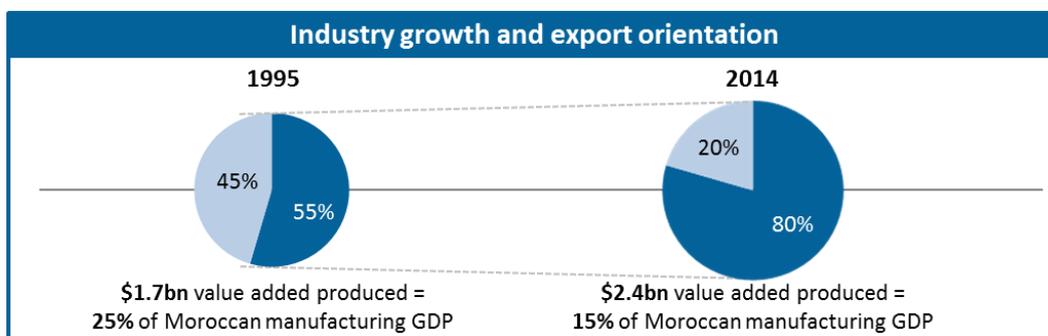
The textiles industry and chemicals industry are among the most prominent exporting manufacturing industries in Morocco. This section reviews their integration into domestic and Global Value Chains in more detail, illustrating how, at the industry level, some of the more generic conclusions for the Moroccan economy discussed above combine into a narrative that provides new perspectives on these industries.

### *Moroccan Textiles Industry in Global Value Chains*

The overall size of the Moroccan textiles industry in value added terms grew from USD1.7 bn in 1995 to USD 2.4bn in 2014 (accounting for 15% of manufacturing GDP). The industry has a very high export orientation with 80% of value added generated to meet foreign demand. Total of gross exports amounted to USD 4.1bn in 2014, 36% of which reflected imported content, with Italy, Spain and Turkey among the top source countries of value added. Further underlining the importance of imports for export success is the fact that 78% of imported intermediate textile products (e.g. yarn, fabric) is subsequently used in exports, illustrating the counterproductive impact of trade barriers and the importance of trade facilitation.

In addition, exports also contain 18% of indirect domestic value added – i.e. value added produced by upstream suppliers of goods and services included in, or necessary for, the export of textiles. Financial services, utilities and mining (i.e. petroleum products) are the core supplying industries. The role of upstream services overall, certainly compared to other OECD countries and textile exporters in the region (Tunisia, Turkey), remains very low at 23% of exported value added, pointing to strong potential for further domestic

upgrading in support of export competitiveness. Core export markets for Moroccan textile products in value added terms do not deviate much from those in gross figures, given that most textiles are final products (finished garments) directly exported to final consumer markets (Spain and France).

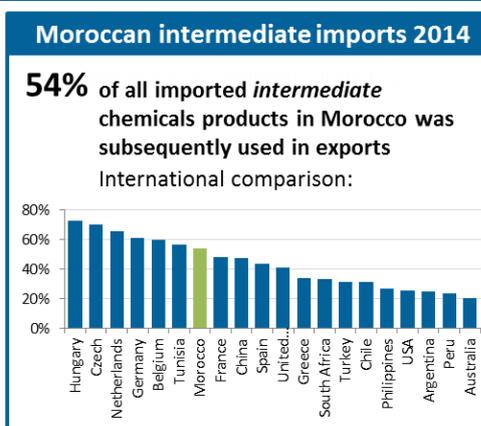
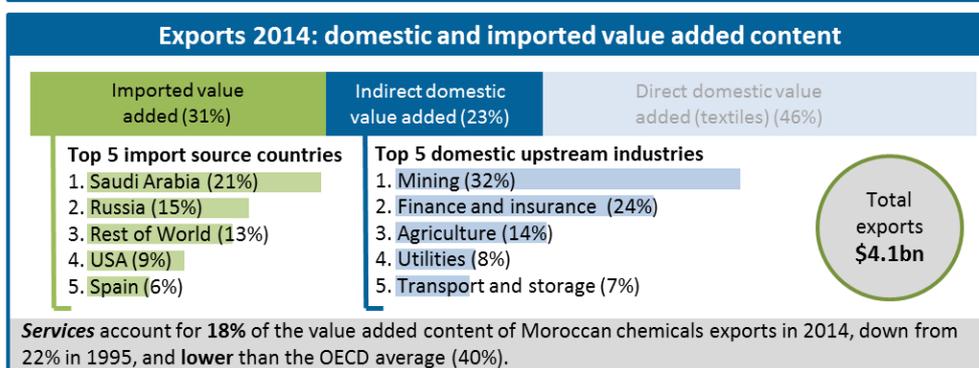
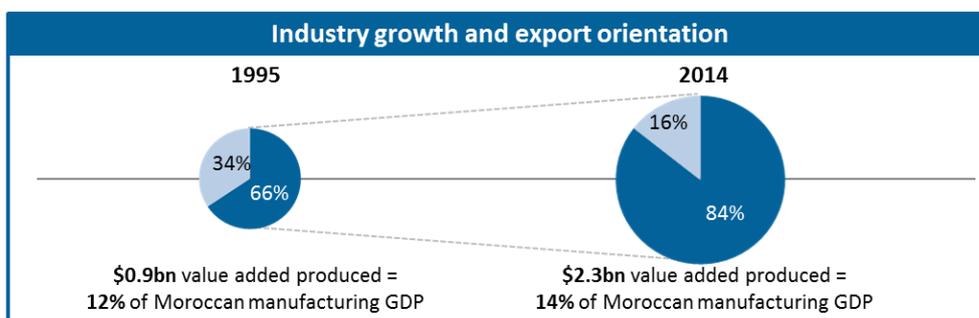


### Moroccan Chemicals Industry in Global Value Chains

The overall size of the Moroccan chemicals industry grew strongly from USD 0.9bn in 1995 to USD 2.3 bn in 2014 (14% of manufacturing GDP). Export orientation is very high, with 84% of value added generated by the Moroccan chemicals industry – dominated by phosphates – destined for exports. The industry exported a total of USD 4.1bn in 2014, 31% of which reflected imported value added. Saudi Arabia, Russia and the US are among the top source countries of value added embodied in Moroccan chemicals exports, reflecting the importance of petroleum and energy inputs. Further

underlining the importance of imports for export success is the fact that 54% of imported intermediate chemicals products was subsequently used in exports, illustrating the counterproductive impact of trade barriers and the importance of trade facilitation.

In addition, exports also contain 23% of indirect domestic value added – i.e. value added produced by upstream suppliers of goods and services included in, or necessary for, the export of chemicals. Mining (obviously), finance and insurance, and agriculture (likely for other chemicals than phosphates) are the core supplying industries. The role of upstream services overall, certainly compared to other OECD countries, remains very low at 18% of exported value added, pointing at strong potential for further domestic upgrading in support of export competitiveness. Given that an important part of Moroccan chemical products are intermediate products (e.g. phosphate acid, fertilizer), which may be used in downstream stages in global value chains, the final markets for value added produced in the Moroccan chemicals industry differ quite strongly from the immediate export counterparts: in particular Brazil, India and France are much less important in value added terms, while the US and countries not yet in TiVA (Rest of World) gain in importance.



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## 2. TiVA Input Data Review Report

### 2.1. Introduction

As part of the continued efforts to enlarge the number of countries in the OECD-WTO Trade in Value Added (TiVA) database, and as part of the OECD-Morocco country program, OECD and Morocco have engaged in a collaboration to review, and develop the capacity where necessary, the data required to integrate Morocco into the TiVA database. The first step towards this goal was a 3-day Technical Workshop on Integrating Morocco in TiVA (14 – 16 December 2015 in Rabat), where statisticians from Morocco (from the Haute Commission du Plan and the Office des Changes) and OECD discussed in detail the data requirements, and the national data availability and compilation practices (see Annex 1 for the complete agenda). Following this workshop, the OECD received additional statistics from the Moroccan authorities in two batches (July 2016 and June 2017).

This chapter was presented to HCP, the Office des Changes and coordinating policy makers as a separate document in the Fall of 2017, and as such reflects the situation at that time. Subsequent discussions have led to several important improvements and a work plan towards implementation, as described in the Executive Summary.

The following sections describe and review the data as received, supplemented with information obtained from the workshop presentations, and assesses how they match with the main requirements for TiVA. It discusses i) Supply and Use Tables (SUTs) and other national accounts data; ii) statistics on international trade statistics in goods and in services; iii) the national and international consistency of the data received; iv) preparation of Moroccan data for integration in TiVA and v) initial results based on national tables.

### 2.2. Main conclusions and recommendations

The data that OECD has received from the Moroccan Authorities is generally of good quality and provides sufficient levels of detail required for integration into TiVA, even if further detail with respect to the role of services industries in the Moroccan economy would be very beneficial. As this summary of the review shows, a few additional outstanding requests for data remain that would further improve the quality of the data going forward.

#### *2.2.1. Supply and use tables*

HCP has provided supply and use tables for the years 1998-2015, in basic prices and in purchaser's prices, with detailed conversion columns to allow for a change between the two price bases. All tables include 41 products and industries. The availability of such a long and consistent time-series is very helpful to analyse structural change in the Moroccan economy over time, and Morocco is one of the few non-OECD countries able

to provide such long time series. The data are also fully consistent with the published National Accounts aggregates. In addition, further details were provided for the benchmark year 2007 (margin matrices, import flow matrix) that were vital for the integration of Morocco into TiVA, also for all other years.

While the data are sufficient to integrate Morocco into TiVA at this stage, there are a number of areas where supplementary data, if made available, could significantly improve the quality of TiVA estimates with respect to supply and use tables:

*Strongly recommended*

- Additional industry breakdowns. An important drawback of the Moroccan Supply and Use tables is their moderate level of detail in terms of products (41) and industries (41), creating significant difficulties to align with the 34 TiVA industries, especially in the area of (business) services. For example, Moroccan industry K00: Immobilier, location et services rendus aux entreprises converts to no less than 4 TiVA industries. The industry represents 12% of Moroccan GDP (making it the second largest after Agriculture) and is growing in relevance, but in the absence of any further information, TiVA currently includes only very coarse estimates for these industries. An SUT with more detailed industry or product breakdowns, in particularly for services, would therefore be highly recommended.
  - If it is not possible to provide one or more SUTs with more detailed industry or product breakdowns, it would be highly desirable if Morocco could provide enterprise statistics by detailed ISIC 2-digit (services) industry, including at least production (output) and value added, and ideally imports and exports, for as many years as possible, to improve the estimates of the affected services industries.
  - In addition, considering the move of the TiVA towards the most recent ISIC Rev 4 industry classification, and given that the conversion from ISIC Rev.3 (currently in Morocco and in TiVA) to ISIC Rev.4 is far from straightforward, Morocco is highly recommended to also move, in the medium term, their National Accounts statistics and Supply and Use tables to this most recent classification, as also proposed by the SNA 2008.
- Import flow matrices for non-benchmark years. Import flow matrices that describe which industries (and end use categories) use which imported products are vital for the creation of an international input-output table from which the TiVA indicators are derived. For Morocco, such an import use matrix is only available for the benchmark year 2007. While methods are available (and used by OECD) to estimate import use matrices, the structural information included in these estimates will by necessity reflect the 2007 situation and are therefore limited in their capacity to capture structural change. Considering the change in composition of imported products in Morocco in recent years, this is an important limitation.
  - In addition, further methodological information on how merchandise trade statistics (in e.g. the Moroccan External Trade database, which includes information on end use) are converted to National Accounts concepts would be highly beneficial.

*Strongly encouraged*

- Complementary tables on trade margins, transportation margins, net taxes (taxes less subsidies) by product and use category, for more recent SUT years, where available. Morocco should be commended on their provision of separate tables of intermediate use of trade margins, transport margins, non-deductible VAT, and other taxes and subsidies, for the 2007 benchmark SUT. Although not absolutely essential, similar information for trade margins, transportation margins and net taxes, for any other SUT years would be highly desirable, as would the inclusion of final use categories (as opposed to only intermediate use) in these tables.
  - If this is not possible, it would be highly desirable that Morocco provided breakdowns of any other SUTs (before and after 2007) in purchasers' and basic prices.
  - If this also is not possible, it would be at least helpful to have separate columns for wholesale and retail trade margins, or two offsetting negatives (wholesale and retail separately) in the trade margins column.
- Time-series (ideally, 1995-2015, but as long as possible) of purchases abroad by residents and purchases in Morocco by non-residents, by product. Although the 2008 System of National Accounts does not explicitly request that countries provide separate estimates of these data by product, it is clear that their provision can significantly improve the interpretability and usefulness of TiVA estimates by creating a clear distinction between cross-border trade and tourism (which is also treated as trade in the national accounts SUTs system). Typically, in most countries, these expenditures are only provided as single items that are added to imports and household final consumption (in the case of Moroccan expenditures abroad) and deducted from household final consumption and added to exports (in the case of tourists expenditures in Morocco). Breakdowns of these estimates do appear to be available according to the presentations provided at the workshop (based on the Tourism Satellite Accounts). These estimates, or data from the tourism satellite accounts, should be transmitted to the OECD.

*Desirable*

- SUTs for earlier years. Should supply and use tables be available for earlier years prior to 1998, these should also be transmitted to the OECD if possible. Note however that it is not unprecedented that earlier years are not available, and given the strong focus of policy making on current and recent periods, this will not be overly limiting.

**2.2.2. Time series of value added and gross output by industry**

Value added by industry is available in the time series of SUTs for 1998-2015 (for 41 industries). These data appear of good quality, are consistent with the overall National Accounts aggregates and match the data available in the UN databases. Gross output by industry is not provided explicitly but can be derived from intermediate consumption and value added from the SUTs for the same years and industries.

*Strongly encouraged*

- Time series for 1995-1997 of value added and gross output by industry, at least at the 41 industry level. In addition, as already discussed above, more detailed information on value added and output, for e.g. all 2-digit ISIC Rev 3 industries, (in particular services), would be highly beneficial.

**2.2.3. Time series of main aggregates of National Accounts**

Data for the main aggregates of National Accounts in the latest 2008 SNA standard have been received from 2007 onwards, and according to the SNA 1993 standards from 1998-2006. No national accounts data were received for earlier years (1995-1997). Given that for these years, SUTs are also not available, these National Accounts main aggregates are especially important as they are a key input for developing estimates for these years.

*Strongly encouraged*

- Time series (1995-2006 or as long as possible) of main aggregates of National Accounts in SNA 2008. Although similar data should be available and downloadable from the UN national accounts database, which maintains key aggregates for nearly all economies, it would be preferable to receive the necessary information from Morocco (not least because UN data often contain breaks in series). As such Morocco are asked to provide 2008 SNA compliant estimates of total imports (preferably broken down by goods and services), exports (again broken down by goods and services), final consumption by households, NPISH, general government final consumption, gross fixed capital formation, valuable and changes in inventories.

**2.2.4. International Trade**

Information about merchandise trade is extensive and detailed, and includes special series on imports and exports by the customs procedure codes used for identifying the gross flows of goods related to inward and outward processing, with and without change in ownership, which very few countries are able to provide and for which Morocco should be commended for making this publicly available. In addition, information on imports by country of consignment (as opposed to country of origin) was received for 2014, which helped resolve several (though not all) trade asymmetries.

However, with respect to trade in services statistics, the current lack of information on trading partners (both for exports and imports) means that OECD will have to make estimations and use assumptions in constructing bilateral estimates of trade in services for integration into TiVA. That being said, it should be noted that many, particularly non-OECD countries find themselves in a similar situation, and like Morocco are working to improve on their current situation. With this in mind, the following recommendations apply in the area of trade statistics:

*Strongly encouraged (in the short term) and strongly recommended for the long term*

- Trade in services, by services category and trading partner country. From the workshop, we understood that the Office des Changes is currently developing a geographical breakdown for all services categories using a newly developed enterprise survey. Given the importance of these data, Morocco is strongly

encouraged to provide these estimates to the OECD as soon as they are available. In the absence of such data the OECD will necessarily need to estimate these flows with partners. That being said, some perspective is needed here. Trade in services remain relatively insignificant compared to goods, and moreover the situation is not dissimilar to many (generally non-OECD) economies already included in TiVA.

### *Desirable*

- Merchandise trade in second hand capital goods, waste and scrap: If the amounts involved are large, data that separate international trade in second hand capital goods (e.g. second-hand cars, aircraft, ships) from similar goods that are new (not second hand) would be very useful to properly link trade flows with production and value added. Similarly, data that separate out international trade in waste and scrap (e.g. computers that are traded for recycling) by product would be useful for the same reason. The very detailed (10-digit) merchandise trade statistics in the Moroccan External Trade Database help identify some of these flows but do not seem to systematically cover all capital goods.

## 2.3. Review of Moroccan National Accounts Data

The first set of main input statistics required for inclusion in TiVA are Supply and Use tables as well as annual National Accounts main aggregates. Since Morocco has, commendably, produced Supply and Use Tables on an annual basis from 1998 to 2015, all with a moderate amount of detail by product (41) and industry (41), there is only a very limited need for an additional separate time series on value added and gross output per industry – the data are included by definition in SUTs and are only requested by OECD to help produce time series of SUTs if these are not available or to produce further breakdowns by industry.

Morocco compiles and disseminates its national accounts statistics, including supply and use tables, using the most recent methodological standards, i.e. the 2008 System of National Accounts, starting from the 2007 base year. Statistics for earlier years are produced according to the SNA 1993 standards. Morocco also follows the international recommendations by using the establishment as the statistical unit underpinning the National Accounts data.

### *2.3.1. Supply and use tables: structural characteristics*

All Moroccan SUTs, from 1998 onwards, are available with 41 products and 41 industries, which are defined as (aggregations of) international classifications, namely CPA and ISIC Rev 3, respectively. This could be considered to be a *moderate* level of detail, and it should be noted that ***the match of Moroccan SUT industries to the (current) 34 TiVA industries is not perfect***, and that ***matches of the current format to future TiVA industries will be worse***.

At the moment, it is not possible to align all activities in a way that satisfies the 34 industry TiVA requirements. Of particular concern in this respect is the single Moroccan industry classification for “K00: Immobilier, location et services rendus aux entreprises”, which corresponds to no less than four TiVA industries (Real estate activities; Renting of machinery and equipment; Computer and related activities; Research and development and other Business Activities). This lack of detail is problematic not only in light of the

substantial and growing role of these services in the Moroccan economy (accounting for 12% of Moroccan GDP in 2015, making it the second largest industry after agriculture), but also because TiVA analyses consistently show that domestic services industries, even if they do not export themselves, are vital for the integration of other (manufacturing) industries into Global Value Chains. More detailed insights as with respect to the types of services that are produced will be therefore not only relevant in and of themselves for policy analysis, but also to allow for a better understanding of manufacturing export performance.

Likewise, although less relevant for TiVA per se, the industries “MN0: Éducation, santé et action sociale”, as well as OP0: Autres services non financiers” cover two TiVA industries each (respectively, *Education* and *Health and social work*; and *Other community, social and personal services* and *Private households with employed persons*).

In 2018, the TiVA system itself will move to the ISIC Rev 4 industry classification, and OECD is aiming to expand the number of industries as well, partly reflecting the ongoing collaboration with regional TiVA initiatives in Europe, North America and the Asia-Pacific. Given that the conversion from ISIC Rev.3 to ISIC Rev.4 is far from straightforward, Morocco is highly recommended to also move, in the medium term, their National Accounts statistics and Supply and Use tables to this most recent classification, as also proposed by the SNA 2008.

Prior to moving to the new classifications however, Morocco is strongly encouraged to consider the scope for reviewing their current 41 industry breakdown in future releases of their National Accounts. Ideally this would be achieved by splitting industries where relevant, so that users interested in a longer comparable time series are still able to do so at the 41 industry level. Statistics from the Annual Enterprise survey<sup>5</sup> that is carried out in Morocco, that may provide additional detail for value added and output (even if not aligned with national accounts concepts), in particular for services industries and products, would also be very helpful and Morocco is encouraged to make these data available to the OECD if possible.

One cannot discount the possibility that the current 41 industry classification may reflect the need to preserve confidentiality of firms in some cases. If so then it may not be possible to produce the required industry split. However, in this case, additional breakdowns in the *product* dimension may be feasible and will be very helpful to develop reasonably high quality estimations by OECD. Therefore Morocco is asked to confirm if confidentiality restrictions do indeed have an impact on the level of industry aggregation so that an action plan can be developed with the OECD for the future. If confidentiality is not an issue, Morocco is strongly encouraged to ensure the appropriate level of activity breakdown in their production of future supply-use tables.

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<sup>5</sup> For example, the *Enquête Nationale sur les Structures Économiques 2015*, or the *Enquête HCP après des Entreprises*.

**Table 1. Morocco National Accounts Statistics: general overview**

Type of information	Status in Morocco
Product classification	41 products, aggregation towards CPA. More product detail would be highly beneficial, in particularly if an expansion of the number of industries is not feasible
Industrial classifications	41 industries, using an aggregation of ISIC Rev 3. Overall, a good conversion to current the TiVA industries can be made, with the very important exception of K00-Other business services. In addition, although not essential for TiVA, at present not enough detail in provided in industries 'Education, health and social work', and 'other non-financial services'. Conversions towards future versions of TiVA, which will be based on ISIC Rev 4, will be more problematic
Time series of value added and of output by industry	Yes, in the Supply and Use tables for 1998-2015, by 41 industries (see however above for the note on insufficient industry breakdowns).
Time series main aggregates National Accounts	The SUTs provide sufficient information from 1998 onwards. Aggregates for 1995-1997, in particular to the extent that they diverge from, or have more industry detail than available in, the UN National Accounts databases, would be vital for improved inclusion in TiVA for these earlier years.

It is important to note that good quality time series of value added and output estimates are primarily necessary to create an estimated time-series of supply-use tables for those countries where such information does not exist. For Morocco, given the long time series of SUTs that are available, such details would therefore only be relevant for the years 1995-1997, in particular if in that period important structural changes have occurred. Commendably, the availability of annual time series means that Morocco is already much ahead of many other countries in not this respect. To estimate the economic structure of the Moroccan economy for the remaining missing years, the OECD has developed approaches that make maximum use of trade data (which is more detailed) to ensure that any assumptions on the estimated supply-use tables derived by the OECD have a minimal impact on TiVA estimates (in particular the import content of exports) in and of themselves.

In this respect, while it is certainly strongly encouraged to produce a time series of value added and output for the 1995-1997 period with a level of industry breakdown that meets the TiVA requirements, it is also recognised that doing so may not be possible in earlier periods as the underlying data available in Morocco may not be available.

### **2.3.2. Supply tables**

Supply tables in Morocco are produced by HCP on an annual basis since 1998. Domestic production by product and industry is valued at basic prices, and imports by product at CIF (i.e. basic price equivalent). Information to allow for a transformation from basic prices to purchasers' prices is included in separate columns for trade margins (with a single offsetting negative entry at G00: Commerce and repairs), transport margins (with two off-setting negative entries at I01: Transport and J00: Finance and insurance), non-deductible VAT, other taxes on products, subsidies on products and taxes on imports (a column for taxes on exports is also provided but always valued at 0 throughout the period).

Overall, with these specifications, and notwithstanding the comments above concerning the need to split some activities into more detail for a full alignment with the TiVA 34 industry breakdown, **Morocco's supply tables can be considered to satisfy TiVA requirements.**

However, improvements are possible for a variety of items. First of all, the single off-setting entry in the trade margins makes it impossible to separate out wholesale margins from retail margins, which is important as these are not paid proportionally by all use categories (e.g. retail margins are principally paid by final consumers, while wholesale margins mainly by industries (intermediate use)). A simple proportionality assumption would in this case lead to biased estimates when moving from purchasers' prices to basic prices or vice-versa. It is therefore recommended that Morocco provide more information on the breakdown of this trade margin. Especially in combination with the detailed margin matrices (by product and industry) that were produced for the 2007 benchmark year, this information would provide a solid foundation for margin estimates for the non-benchmark years. Ideally, this would imply a split of the full trade margins column into two separate columns (wholesale and retail). Should this not be feasible due to data limitations, a breakdown of the off-setting negative into two components (again, wholesale and retail) would be an alternative. This breakdown may be estimated from detailed statistics on economic structure (e.g. the Moroccan enterprise survey).

In addition, it is encouraged to rename and split the current 'correction territoriale' to reflect the international practice, namely to identify *total purchases abroad by residents*, and *CIF/FOB correction* (to remove any transportation and insurance services from total imports that may have been provided by domestic producers) as separate categories. At the moments, the imports column in the supply table for the territorial correction refers to direct purchases abroad by resident *minus* the cif/fob adjustment. A column for the CIF/FOB adjustment is provided in the SUT but not filled out. It is also strongly recommended to make these elements of the Supply table available by *product*. For example, it was understood that Morocco produces detailed Tourism Satellite Accounts (TSA), which may include information on residents' expenditure abroad (totals, and ideally by product).

**Table 2. Moroccan Supply Tables, 1998-2015**

Type of information	Status in Morocco
Make matrix of product by industry in basic prices	Yes, for 41 products and industries
Columns for margins, taxes and subsidies	Yes. In particular the separation of deductible VAT and import taxes from total taxes and subsidies on products is very helpful as important differences exist in their distribution across use categories.
Imports (CIF)	Yes, for 41 products
CIF/FOB correction in the tables	Yes, but the identification of this correction can be improved (currently as 'territorial adjustment', together residents' purchases abroad) and better aligned with international standards.
Purchases abroad by residents (by product)	Totals are provided under the 'territorial adjustment', but information with a breakdown by product is not yet available. While not a core SNA requirement, such breakdowns are important for good quality TiVA estimates. The Moroccan TSA may include information.

### 2.3.3. Use tables: Total use and import use

Like the Supply tables, the Total Use tables in Morocco are produced by HCP on an annual basis since 1998. The tables are valued at purchasers' prices and cover 41 products and industries. Final demand is broken down into the main components of expenditures, including consumption of households (broken down by consumption of own account production and market transactions), NPISH (Non-Profit Institutions Serving

Households), government, capital formation, changes in inventories and exports. Changes in valuables are not separately identified but are assumed to be included in capital formation.

As of 2007, Financial intermediation services indirectly measured (FISIM) are split by industry and also allocated to household consumption, which is in line with the SNA 2008 recommendations. The separate product row 'Branche Fictive', which represented FISIM and that was available in the Moroccan SUTs prior to 2007, has therefore since remained empty. Value added by industry data are provided with breakdowns into remuneration of employees (with further details of salaries and social contributions), taxes and subsidies on production, and profits and mixed income. Overall, with these specifications, and notwithstanding the comments above concerning the need to split some activities into more detail for a full alignment with the TiVA 34 industry breakdown, **Morocco's Total Use tables can be considered to satisfy the minimum TiVA requirements.**

However, improvements can be made in several dimensions. One item that would be strongly encouraged for good quality TiVA estimates, is a separate column of *non-resident purchases in the Moroccan economy (by product)*, ideally as an 'of which' category of household final consumption. Again, the Tourism Satellite Accounts (TSA) may include this information. At the moment, totals are provided in the export column under the 'territorial adjustment', while a net total is provided in the household final consumption column that reflects the direct purchases abroad by residents *minus* the cif/fob adjustment *minus* the domestic purchases by non-residents.

Furthermore, more information about exports would be very welcome and will allow for a better integration of Morocco in TiVA. Especially the separate identification on re-exports (as an 'of which' category of exports), as well as information on the gross flows of goods involved in processing and in merchanting transactions (as well as, as discussed in section 3 below on merchandise trade, meta data on the alignment between the data by customs procedure codes in the External Trade statistics and the SUTs) would be beneficial, noting however again that not many countries currently provide this information.

***The most important challenge remains however the need to develop Import Use Tables.*** While an Import Use table has been developed for the benchmark year 2007, important structural changes in Moroccan trade patterns since that date (see section 5) imply that using the 2007 coefficients in combination with more recent statistics on imports by product may result in biased import flow matrices, and therefore, biased TiVA estimates. However, in the absence of further information, this will be the approach that the OECD secretariat will have to take out of necessity.

The 2007 import flow matrix, which breaks down the use of imports (including import duties) across industries and end use categories, would be a good model for later years. In the table, final use is broken down with more aggregated categories, including total final consumption, gross fixed capital formation and changes in inventories. Likewise, the product and industry classification mirrors that of the total use table (even if products without imports have been suppressed, as has been industry C01 (petroleum extraction), reflecting the complete absence of (information for) this industry in Morocco).

**Table 3. Moroccan Use Tables, 1998-2015**

Type of information	Status in Morocco
Valuation of use table	Purchasers' prices, for 41 products and industries
Main components of final demand (households, government, NPISH, capital formation, valuables, changes in inventories, exports FOB) available	Yes, with the exception of changes in valuables
Financial Intermediation Services Indirectly Measured (FISIM) distributed across industries	Yes, since 2007
Detailed information on import use (by product and industry)	No – for 2007 only
Non-residents' expenditure in host country, by product	Totals are available but a breakdown by product not. It is not a core SNA requirement but important for good quality TiVA estimates. The Moroccan TSA may include information.

#### 2.3.4. Detailed margin matrices

For the year benchmark year 2007, Morocco has produced not only the required import use tables, but also detailed matrices (by product *and* industry), of intermediate use of trade margins, transport margins, non-deductible VAT, and other taxes and subsidies. While the margins paid by final use categories are not specified, these can relatively easily be deducted as a residual from the available information and a not too stringent proportionality assumption. An intermediate use table at basic prices is also provided. Together, these matrices provide the structural information that is also used for other years, where such details are not available, to convert the Use table from purchasers' prices to basic prices. While the structure of the margins paid remains typically quite stable over time, Morocco is encouraged to provide such detailed tables also for at least a single more year, to ensure that any structural change is adequately reflected in TiVA.

#### 2.3.5. Input-Output tables

A symmetric Input-Output table has been provided for the year 1998, at the 35 industry level. It also includes totals for non-resident expenditures in the Moroccan economy, and for Moroccan residents' expenditures abroad (but no breakdown by product). In the absence of input-output tables for other years Morocco, these will be created<sup>6</sup> by the OECD secretariat from the national Supply and Use tables, using the Fixed Product Sales assumption. Should national tables be available, then it is *desirable* that these are made available to the OECD to facilitate the conversion and account for any national data and insights that would suggest a deviation from the Fixed Product Sales assumption.

#### 2.3.6. Time series of National Accounts main aggregates, and of value added/output by industry

For Morocco, given the availability of annual SUTs, National Accounts Main aggregates should only be necessary to produce estimates for the 1995-1997 period, as for all other years, the main aggregates can be easily observed and derived from the annual SUTs. Importantly in this context, the data in the SUTs are also internally consistent with the core national accounts (Table 4) as reported to for example UNSD. Although to some

<sup>6</sup> Note that this is the case for the current TiVA methodology. A change is envisaged to produce future TiVA inter-country Input-Output tables based on Global Supply and Use tables.

extent obvious, this is not the case for all countries, mainly due to the fact that revisions – including substantial ones – are often only integrated into the latest figures for the main aggregates while SUTs are not adjusted. In such circumstances, OECD benchmarks the national SUTs to the latest National Accounts figures to ensure full consistency of TiVA estimates with the latest national information on GDP and international trade.

For Morocco, the only part where some unclarity remains with respect to the comparison with National Accounts data is the distribution between goods and services in imports and exports, where in 2005 for example (data was not available at UN for later years), the breakdown of trade by goods and services products in the SUTs resulted in slightly different figures than reported to UNSD. It would be welcome if Morocco could further clarify this difference by indicating for example how the SUT products are classified into goods and services.

**Table 4. Comparison of Supply Use Tables (Morocco) and National Accounts (at UN), 2005 and 2014 (MAD)**

	2005		2014	
	SUT (Morocco)	NA (at UN)	SUT (Morocco)	NA (at UN)
Final consumption expenditure (FCE)	405,282	405,282	741,371	741,371
Household FCE (incl NPISH)	303,172	303,172	557,518	557,518
General government FCE	102,110	102,110	183,853	183,853
Gross capital formation	151,955	151,955	297,679	297,679
Gross fixed capital formation	145,256	145,256	272,094	272,094
Changes in inventories	6,699	6,699	25,585	25,585
Exports of goods and services	170,513	170,513	316,855	316,855
Exports of goods	100,769	99,952		N/A
Exports of services	69,744	70,561		N/A
Imports of goods and services	200,071	200,071	431,136	431,136
Imports of goods	186,904	170,636		N/A
Imports of services	13,167	29,435		N/A
Gross Domestic Product (GDP)	527,679	527,679	924,769	924,769
Total Value Added	473,956	473,956	830,734	830,734
Agriculture, hunting, forestry, fishing (A-B)	69,565	69,565	107,605	107,605
Mining, Manufacturing, Utilities (C-E)	102,227	102,227	191,056	191,056
Manufacturing (D)	78,650	78,650	151,149	151,149
Construction (F)	31,522	31,522	52,571	52,571
Wholesale, retail, restaurants, hotels (G-H)	69,417	69,417	98,760	98,760
Transport, storage and communication (I)	34,522	34,522	56,226	56,226
Other Activities (J-P)	166,703*	166,703	324,516	324,516

*Note:* \* means including FISISM (neg).

*Source:* HCP and UN (where 2014 is latest year available).

Likewise, time series of National Accounts Value Added and Gross Output statistics by industry are less of a required input when, as in Morocco, annual SUTs are published in which these data are by definition included. Morocco has also provided a separate time series for value added and gross output by industry but since the industries in this dataset were aggregated at a higher level than in the national SUTs, this information provided limited additional insights. However, in light of the importance to provide further detail on certain industries in the SUTs, notably for services, if information on value added and

gross output are available for more detailed industries, Morocco is encouraged to share it with OECD.

#### 2.4. Review of Moroccan international merchandise trade statistics

Moroccan international merchandise trade data are collected, compiled and disseminated by the Office des Changes (OC). The statistics are compiled according to the latest international standards (International Merchandise Trade Statistics: Concepts and Definitions 2010; IMTS2010). In recent years, in particular important improvements have been made towards moving to the internationally recommended General Trade System (as opposed to the Specific Trade System used in the past) by ensuring that the statistical territory covered by the merchandise trade statistics includes all areas (including e.g. export processing zones, since 2005) that are part of the economic territory of Morocco. Since 2014, the statistics fully comply with this international recommendation. Data are publicly available by at least the 6-digit HS product level, but also according to a variety of other product classifications, including the ones used in the National Accounts (the NCN).

Customs records remain the main data source for merchandise trade statistics, although the information is supplemented with additional information from large (public and private) traders that benefit from a special treatment under customs. No thresholds are applied in the collection of the customs data. In line with recommendations, imports are recorded at CIF valuation with partner countries attributed by country of origin, while exports are valued at FOB and by the country of last known destination. Supplementary information has been sent to OECD that describe imports also by country of consignment, which is very helpful in resolving asymmetries between merchandise trade statistics reported by Morocco and those reported by partner countries on trade with Morocco (illustrated in more detail below).

An additional very useful element in the Moroccan data, which is not commonly available in other countries, is the breakdown by different customs regimes under which products are imported to and exported from Morocco. In combination with both HS and NCN classifications that are also available in the Moroccan External Trade database (as well as partner country), this provides a particularly rich source of trade information, allowing for very detailed analyses of Moroccan international trade flows, and for the creation of bridge tables from Moroccan imports and exports to the products recorded in SUTs. As an example, Table 5 below provides a breakdown the trade for HS Chapter 85 (Electrical machinery and equipment) by National Accounts Product and by customs procedure code.

**Table 5. Breakdown of Moroccan imports and exports of HS chapter 85 (Electrical machinery and equipment), by National Accounts Product (NCN) and customs procedure codes (mln MAD)**

NCN	Exports (FOB)				Imports		
	Total	of which:			Total	of which:	
		Goods after processing with payment	Goods after processing without payment	Value added to goods after processing without payment		Imports for processing with payment	Imports for processing without payment
D24	32		1				
D25	2,356	381	45	1	1,047	1	
D26	0				419,783	413,353	5
D29	6,850	5,517	706	51	15	2	
D31	15,859,961	10,901,362	2,659,921	112,519	10,235	247	
D32	672,935	5,449	630,802	63,332	5,588,862	3,292,088	10,327
D33	1				981,741	141	26,407
OP0	657		657	65	2,284		

A comparison at the NCN total level between the data in the External Trade Statistics and those in the Moroccan SUTs did highlight that discrepancies exist – sometimes significantly so – in both the total values of exports and imports, as well as by the distribution by product. *It would therefore be desirable* to better understand the **methodology** that the **national accounts use to transform the merchandise trade data of the OC into SNA equivalents**, with a particular focus on the treatment of the different Custom Procedure Codes related to goods for processing.

Like the majority of the countries, Morocco does not systematically publish **information on re-exports**, on trade in **used products** or **in waste and scrap**. For re-exports, such information could have a significant impact on the quality of TiVA estimates for those sectors most affected. Data on (imports of) scrap and used products, allows for a better alignment of imports used in Morocco with the accounting period (and value added) in which the goods were originally produced. Likewise, information on the exports of second-hand goods allows for a better alignment with the accounting period when the value was added.

It should be noted however that some information can be obtained from merchandise trade statistics, where at the 10-digit level, certain product codes indicate that products are used ('usagé(e)s), or reflect waste or scrap (déchet). While not providing a complete or systematic picture (e.g. not all capital goods have specific codes for used products), the Moroccan data indicate for example for 2013 that 3.72% of textiles exports (HS chapter 63) consisted of used products (mainly used clothes), while 0.38% of the exports of vehicles (HS chapter 84), including e.g. cars as well as agricultural equipment, involved used goods. Likewise, Moroccan imports of Iron (HS chapter 72) consisted of 1.59% of waste, and the imports of HS chapter 63 (textiles) consist of 7.49% of waste. Should further information be available, *it would be desirable* if this could be made available to the OECD secretariat. However, considering that many other countries are also unable to provide these details, it may well be impossible for Morocco to obtain such information on its international trade, particularly given the extensive levels of details that are already available, which exceed what is produced elsewhere.

**Table 6. Moroccan Merchandise Trade Statistics**

Type of information	Status in Morocco
Available at 6-digit level Harmonised System (HS)	Yes (even at 10-digit level)
Imports both on FOB and CIF basis, at 6-digit level HS and partner, 1995-2015	Yes
Known large trade asymmetries	Yes (see above)
Concordance table between HS and SUT available	Yes (part of External Trade database)
Description of adjustments made to imports and exports of merchandise to arrive at SUT data, in particular for "Goods for processing" and "Merchandising", including sources	No
Confidential trade: Suppressing 2-digit HS chapter level instead of other 6-digit HS?	Unknown
Information on re-exports by product, origin, destination	Total re-exports are not reported, but information is on (re)exports after processing (with or without payment).
Additional information about new and old capital goods (e.g. second-hand cars)	Some information available from detailed HS codes
Additional information about waste and scrap, e.g. computers im/exported for recycling	Some information available from detailed HS codes

#### 2.4.1. Trade asymmetries

Integrating Morocco into the global supply-use table for the estimation of TiVA statistics requires a balanced view of bilateral trade statistics. This section (Tables 8, 9 and 10) reveals the major trade asymmetries for merchandise trade of Morocco using 2014 for illustration. The tables show imports (M), exports (X) and the value of the relative asymmetry (RA), which is calculated as the difference between imports and exports divided by the sum of imports and exports.

In general, certainly compared to the asymmetries in other countries, Morocco's asymmetries are relatively small. With respect to Moroccan exports, asymmetries are largest with Germany and Belgium. Specifically trade in Vehicles (HS chapter 87) generates asymmetries for these countries. Considering their proximity and the similarity in value and opposition of signs, a possible explanation is that exports from Morocco to Germany enter the EU via Belgian ports (in which case Belgium, according to its statistics reported to UN Comtrade using the EU Community Concept, has to declare the trade transaction as first point of entry into the EU). Indeed, when looking at the available data for Belgium that describes trade according to the (internationally recommended) National Concept, the asymmetry with Morocco is reduced from 217 mln USD to 45 mln.

Export asymmetries are also substantive for Electrical machinery, equipment & parts with France (337 mln USD) and Germany (-158 mln USD). Again considering these countries' proximity and position vis-à-vis Morocco, a possible explanation could be that some Moroccan exports to France may be further transported to Germany.

The largest asymmetries in Moroccan trade (in 2014) occur however on the import side, where in particular asymmetries with Spain, France and the US are substantive. The import asymmetry with the US is largely driven by mineral fuels, where Moroccan imports are much higher (768 mln USD) than mirror US exports. Imports of vehicles explains a large part of the (opposing) asymmetries with Spain and France, possible pointing at re-exports of vehicles by Spain from France to Morocco. Negative asymmetries with Spain also occur for Machinery and parts (-355 mln) and for Electrical machinery (-221 mln). For both products, substantive positive asymmetries were recorded

with France (+149 and +211 mln, respectively), indicating that Spanish re-exports may also be a relevant explanation in this case.

The data that were made available by Morocco for the year 2014 on imports by country of consignment (instead of origin) helped explain for part (but not all) of the trade asymmetries. In particular, the import asymmetries with Spain for Vehicles and for Machinery and parts were substantively reduced. However, virtually no change occurred for the largest asymmetry (with the US, regarding mineral fuels) when using data by country of consignment, and the asymmetries with France regarding Vehicles, and with Spain regarding Electrical Machinery increased substantively. Comparing the import figures by country of origin and by country of consignment, it appeared that for the latter HS product chapter, in particular imports from China and Germany, followed by the US, Mexico and Singapore were rerouted via Spain AND France, resulting in complex trade patterns and asymmetries that cannot be solved by simply moving to a system of recording trade by country of consignment.

**Table 7. Top 5 export and import asymmetries (by partner countries) for Morocco, 2014 (mln USD)**

Partner country	Asymmetry	Partner country	Asymmetry
Germany	- 430.5	Spain	-1,536.1
Belgium	- 349.8	France	1,297.0
United Kingdom	- 233.6	United States	1,184.3
Netherlands	192.9	Italy	412.1
Spain	- 171.9	Turkey	259.3

Source: calculations OECD based on UN Comtrade.

**Table 8. Top 5 partner-product asymmetries for Morocco, exports, 2014 (mln USD)**

Partner country	Product	Reported exports	Mirror imports	X-M	% RA (abs)
France	Electrical machinery, equipment & parts (85)	1,169	832	337	29 %
Germany	Vehicles (87)	225	3	222	99 %
Belgium	Vehicles (87)	105	323	- 218	207 %
Germany	Electrical machinery, equipment & parts (85)	13	171	- 158	1247 %
France	Edible vegetables, roots and tubers (7)	456	606	- 151	33 %

Source: calculations OECD based on UN Comtrade, products at HS Chapter level.

**Table 9. Top 5 partner-product asymmetries for Morocco, imports, 2014 (mln USD)**

Partner country	Product	Reported exports	Mirror imports	X-M	% RA (abs)
United States	Electrical machinery, equipment & parts (85)	1,857	1,088	768	41%
France	Vehicles (87)	898	313	586	65%
Spain	Vehicles (87)	224	668	- 444	-199%
Spain	Electrical machinery, equipment & parts (85)	521	876	- 355	-68%
Spain	Edible vegetables, roots and tubers (7)	540	761	- 221	-41%

Source: calculations OECD based on UN Comtrade, products at HS Chapter level.

## 2.5. Review of Moroccan international trade in services statistics

The Office des Changes of Morocco is responsible for the compilation of statistics on the imports and exports of services. As indicated in Table 7, the trade in services statistics are compiled according to the most recent Balance of Payments Manual (BPM6) and classifications (EBOPS2010). Since 2007, trade in services statistics also include the transactions of export processing zones and thereby cover the full resident-non-resident transactions. Quarterly and Annual statistics include breakdowns by the 12 main EBOPS services categories as well as a further breakdown of Transport (by mode of transport) and Travel (personal/business).

The current principle data source for trade in services statistics is the International Transactions Reporting System (ITRS), involving indirect reporting of international transactions by banks on behalf of their clients. While ITRS is timely and – if reporting thresholds are sufficiently low, as is the case in Morocco – cover international transactions sufficiently well, it also has a number of known drawbacks. In particular, banks may misclassify transactions, inter-company transactions with netting practices cannot be properly recorded, the geographical allocation is based on the country of settlements and not the country of transactions; transactions are recorded at the time of settlement and not accrual (important e.g. for construction and insurance services), and certain transactions are not captured at all. This is why most OECD countries have in the past 10 years moved to a system of data collection based (primarily) on enterprise surveys.

Morocco is likewise in the process of moving towards a data collection system that is based on enterprise survey, which is highly welcome and it is anticipated that this will not only improve the quality of the services trade statistics but also the level of detail in terms of services categories and partner countries.

Indeed, in addition to breakdowns by services categories, such a geographical breakdown of trade in services statistics is important inputs to the process of constructing the TiVA database. Morocco does not yet officially publish a geographical breakdown of trade in services, but it should be stressed that Morocco is not alone in this respect; many other countries currently included in TiVA are in the process of improving the quality of their trade in services statistics, in particular as regards the development of the capacity to produce bilateral breakdowns.

However, Morocco has started in 2014 to develop an enterprise survey for measuring International Trade in Services statistics, which was launched early 2016 as a pilot. The survey contains questions on partner country as well as more detailed EBOPS categories, and is used to measure all international services. Exceptions include Travel (where enterprise surveys are indeed not appropriate, and current Moroccan methodologies follow established international good practice, by using the numbers of travellers (including by purpose of travel and country of origin) in combination with a travel expenditure survey), and Government Services (where it appears that ITRS will remain the main source [to be confirmed]). The results of this survey, in particular as regards Morocco's Trade in Services partner countries, should ideally be transmitted to the OECD as soon as they are available. The exercise indicated that the asymmetries in services trade are more substantial than in the area of trade in goods – as is commonly the case in light of the greater difficulties in collecting (bilateral) trade in services data as compared to merchandise trade.

In addition, Morocco has recently compiled provisional Moroccan bilateral data for the years 2008-2010, as input for a project aimed at analysing services trade asymmetries with EU countries. Such bilateral exercises are particularly welcome and actively promoted by the OECD, because in the construction of the TiVA database, only a single figure can describe a bilateral flow between countries. While the OECD and WTO have developed a process to balance bilateral trade in services flows, resulting in a dataset that has been endorsed and used by other international agencies, ideally, the bilateral reconciliations should occur between the countries involved.

The Morocco-EU project showed that services trade asymmetries – analysed as at level of bilateral trade balances – were particularly pronounced in the category Travel, where the surplus recorded by Morocco was substantively higher than (the deficit) recorded by the EU. Partly this reflects the methodological difficulties – in this case as experienced by the EU counterparts – in correctly recording the expenditures of outward travel (i.e. travel imports). Travel exports statistics are typically higher as it is easier to survey expenditures of non-residents in the reporting economy. Likewise, confidentiality in the European data for several substantive aggregates (e.g. German Travel imports is not available) hampers the analysis of trade asymmetries. Other services categories that indicated important asymmetries involved other business services, and government services.

The Morocco-EU analysis showed that a variety of factors could explain the observed asymmetries, including inherent conceptual asymmetries due to the treatment of merchanting and of government services under BPM6, but also, importantly, differences in data collection systems: At the time, Morocco still used primarily ITRS (as opposed to enterprise surveys in most EU countries), which has a number of drawbacks in terms of data quality and in conceptual coherence with the Balance of Payments accounting framework. However as noted above, Morocco is currently also in the process of changing to surveys, which should improve the quality of the statistics.

**Table 10. Moroccan trade in services statistics**

Type of information	Status in Morocco
Methodological framework	BPM6 (since reference year 2014)
Classification system	EBOPS 2010
Breakdown by service category	Yes; main EBOPS categories + transport by mode and travel by type of traveller
Geographical breakdown	Not yet available but a survey has started
Known large trade asymmetries	Yes, with EU (e.g. travel, other business services)

## 2.6. Importance of time-series information in SUTs or national accounts by activity data

Ideally, for good quality TiVA estimates in all years, countries would be able to provide annual supply-use tables, with a substantive amount of industry and product detail. Many OECD countries are able to meet these needs in line with 2008 SNA recommendations, although many other countries currently included in TiVA are not (yet) able to do so. For TiVA this necessarily means that the OECD estimates the underlying SUTs in those years where they are not available, and provide additional breakdowns by industry when these are not provided, using, as much as possible, additional national information (e.g.

structural information from other years, or more detailed structural business and trade statistics when these are available.

As noted above, the current data submitted by the Moroccan authorities provide a consistent time series from 1998 to 2015, which is a tremendous help in producing reliable TiVA estimates and in adequately capturing structural change over time in the Moroccan economy and its integration in Global Value Chains. However, the level of industry and product detail available remains a concern, but it should be noted that many other countries included in TiVA have similar data limitations. In addition the OECD recognises that producing more detailed data, certainly for earlier years, may not be feasible. However Morocco is strongly encouraged to ensure, going forward, that their national accounts data does have the necessary level of activity detail required for TiVA (both in SUTs and national accounts data), as described above.

**Table 11. Share of industries in Moroccan GDP, 1998-2015**

	1998	2000	2005	2010	2012	2015
GDP	100.0	100.0	100.0	100.0	100.0	100.0
Import duties	3.4	3.3	2.4	1.6	1.1	0.8
Taxes on products	8.0	7.9	7.8	8.8	6.7	10.8
Gross value added	88.7	88.9	89.8	89.6	92.2	88.4
<i>Of which:</i>						
Agriculture, hunting and forestry (A00)	16.7	11.8	11.9	12.3	11.5	11.8
Fishing and aquaculture (B05)	1.2	1.5	1.3	0.7	0.8	1.0
Mining and quarrying (C01T03)	2.2	2.2	1.7	2.9	3.9	2.2
Manufacturing (D15T37)	15.9	16.3	14.9	15.6	15.2	15.9
<i>Of which:</i>						
Food and beverages (D15)	3.7	4.0	3.6	4.5	4.6	5.8
Apparel (D18)	2.5	2.5	1.8	1.2	1.2	1.0
Chemicals (D24)	2.0	1.6	1.9	2.1	1.7	1.9
Non-metallic minerals (D26)	1.2	1.1	1.2	1.7	1.7	1.7
Electrical machinery and equipment (D31)	0.3	0.6	0.9	1.0	1.2	1.1
Electricity, gas and water; waste management (E00)	2.7	2.9	2.8	1.9	1.5	2.1
Construction (F45)	3.8	4.5	6.0	5.3	5.7	5.6
Wholesale, retail trade and repairs(G00)	12.0	12.4	10.7	8.4	9.1	8.0
Hotels and restaurants (H55)	2.0	2.3	2.5	2.2	2.2	2.1
Transportation (I01)	4.4	4.1	3.4	3.6	3.5	3.6
Post and telecom (I02)	1.8	2.1	3.1	3.6	3.1	2.2
Financial and insurance activities (J00)	4.8	5.1	5.1	5.0	5.1	4.4
Business services (K00)	8.4	9.8	11.2	10.5	10.9	10.5
Public administration, education, defence (L75-MN0)	15.6	16.9	18.2	16.4	18.1	17.5
Other services (D68, D85T99)	1.4	1.5	1.5	1.4	1.4	1.4
Branche fictive*	-4.2	-4.5	-4.4			

*Note:* \* the fictive industry reflects FISIM, which since 2007 has been attributed to using industry and final demand categories. The industry codes reflect the Moroccan industry classification.

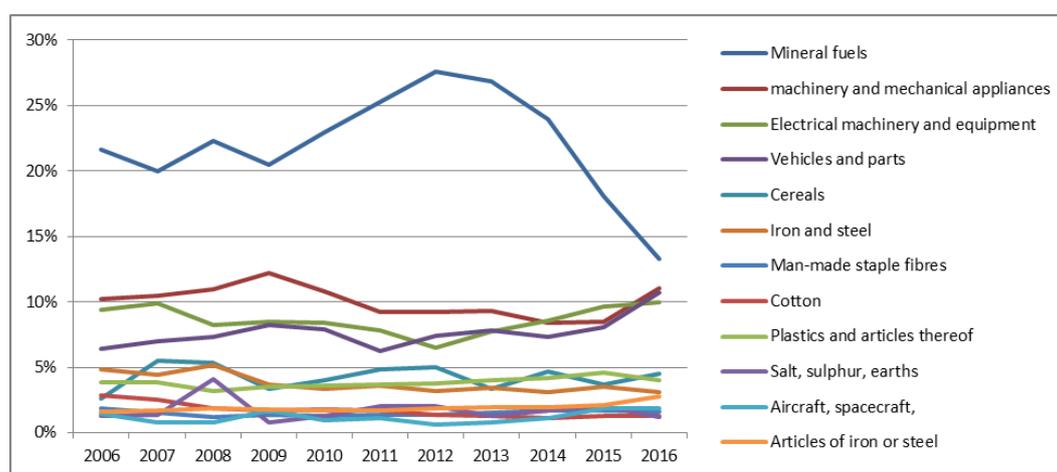
*Source:* HCP, Tableaux des Ressources et des Emplois 1998-2015

Importantly, such additional detail allows for the further and more detailed analysis of structural change over time. When statistics are aggregated at a too high a level, not only the analysis of value added and output becomes increasingly futile, but also important difficulties arise in meaningfully attributing intermediate imports to using industries, and the creation of TiVA estimates.

To illustrate this point, Table 11 above provides a simple overview of structural change in recent years. It shows the share of value added of every industry in total GDP. Important (with respect to value added) industries are agriculture, manufacturing and wholesale and retail trade. Reassuringly, where changes have occurred they have done so mostly in activities where there is a comparable level of aggregation to TiVA industries, for example in agriculture, various manufacturing industries, and construction. However relatively significant changes have also occurred in Business Services where no further detail is available, making a one-to-one match with the four TiVA industries in this sector rather difficult.

The three most important Moroccan import product groups<sup>7</sup> are *mineral fuels, machinery and mechanical appliances* and *electrical machinery, equipment and parts*. This is clearly visible in Figure 11 which shows all product groups that had a share of at least 3 percent in total Moroccan imports in at least one year during the period 2006-2016. Not surprisingly the share (and the value) of imports of mineral fuels changed moved in line with movements in oil prices. It should be noted that the most recent TiVA estimates, including for Morocco, have to some extent handled these adequately in the system by using an integrated value and volume nowcasting procedure. Other changes, such as the rising share of *vehicles and parts*, took place more gradually (and the upward swing in the share of these products in recent years is largely drive by the large change in mineral fuels).

**Figure 11. Share of product groups in total Moroccan imports**



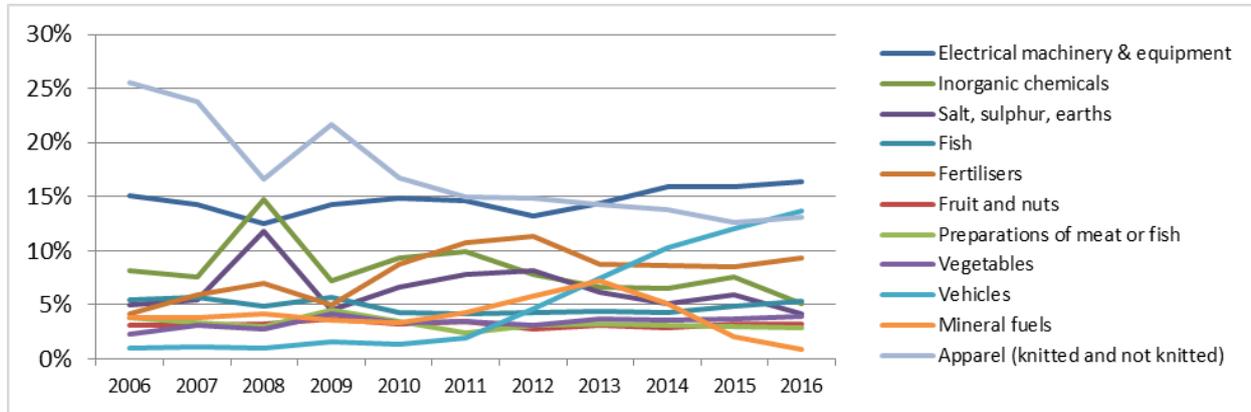
Source: UN Comtrade.

As for exports, the three most important product groups are *Electrical machinery and equipment, Apparel*, and *Vehicles*. In 2016 these three product groups represented more than 40% of Moroccan exports. Figure 12 reveals relatively significant movements in the share of these products over time: apparel, until recently the most important export product of Morocco, is less important as compared to electrical machinery and vehicles – especially the latter category gained significantly in importance for Morocco in the last

<sup>7</sup> The chapters in the Harmonised System, a commodity classification that is used worldwide.

five years. This structural change has also been captured in the most recent TiVA estimates (up to 2014), presented in more detail below, which also illustrate that these products, and the industries that produce them, depend importantly on imports.

**Figure 12. Share of product groups in total Moroccan exports**



Source: UN Comtrade.

## 2.7. Preparation of Moroccan data for integration in TiVA

Considering the data received from Morocco as reviewed above, the full integration of Morocco into TiVA required several estimations and assumptions (note that data for the years 2012-2014 was produced using a now casting methodology which is described in a separate file available online).

For 2007, the process to create an input-output table is trivial, as Morocco has provided, in essence, all of the necessary information (and indeed more information than many other countries already included in TiVA are able to provide). The main ingredients are a table of Use of domestic production in basic prices and a supply table in basic prices. Using the “fixed product sales structure assumption” yields an industry x industry input-output table with 41 industries. However, and as described above, an important limitation remains that the services industries are very highly aggregated and not sufficiently detailed for TiVA. In the absence of any further information, very simplistic assumptions have had to be imposed. For example, value added for K00: other business services was distributed across the four TiVA industries real estate, rent of equipment, ICT service, and R&D and other business services with an initial fixed distribution of 40-10-10-40, with output estimated by applying a fixed VA/GO ratio of 95%, and intermediate use attributed proportionally. The industry “Private households with employed persons” is added by setting it to have zero supply and use.

For the other years, the challenges are greater, since there is no domestic use table (only total use) in basic prices, which therefore has to be constructed from estimates for use of imports, for transport margins, trade margins and net taxes, (all by product and industry). To develop these, the structural relationships as provided for 2007 are used in combination with the totals margin columns by product. Subsequently, net taxes are deducted from the Use table in purchasers’ prices, and trade margins and transport margins are reallocated to the respective industries to arrive at a use table in basic prices. This table is then split into an initial domestic use and import use table. These tables in basic prices are then modified through a process of iteration (using the 2007 relationships

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as a pointer) via a reallocation of trade margins and transport margins, net taxes, which yields the original use table in purchaser's prices again. The estimated domestic use table is subsequently used to create an input-output table.

### *2.7.1. Extended Supply Use Tables*

Although not part of the assessment for TiVA, the OECD are already beginning to look at future developments of the TiVA database that are built around what are referred to as Extended Supply-Use tables. These tables are an important instrument designed to significantly improve the heterogeneity recorded in national supply-use tables and therefore the quality of TiVA estimates. But this is not the only reason why these extensions are important. Depending on how they are constructed, Extended Supply-Use tables also provide a means to better understand the links between trade and investment, the role of SMEs in GVCs, as well as the role of the informal versus formal sector.

As noted, the purposed of this report is not to assess Morocco's readiness for Extended Supply Use tables, however in reviewing TiVA it has been possible to gain important insights here. While data do appear to be available to undertake this work, available resources may not be. Given the importance of the work for future extensions to TiVA, Morocco may need to consider allocating greater resources to HCP for this purpose.



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