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**A 2011 Social Accounting Matrix for the West Bank with detailed representation of households and labour accounts**

## WORKING PAPER

# A 2011 Social Accounting Matrix for the West Bank with detailed representation of households and labour accounts

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## Abstract

A detailed Social Accounting Matrix (SAM) for the West Bank is developed for the year 2011. The data used to build the SAM are obtained from various official sources in Palestine, mainly the Palestinian Central Bureau of Statistics. Major data sets include the Palestinian national accounts, the supply and use table, the balance of payments, the labour force survey data, the expenditure and consumption survey data, the economic survey report, the living standards report and the demographics report. The SAM provides data on 49 activities, 83 commodities, 110 households, 59 production factors and 58 tax accounts. Driven by the specificity of the West Bank economy, this SAM has several features including the classification of the households and labour accounts according to the workplace (West Bank, Israel and rest of the world), which in turn considers associating each household and each labour category with their eligibility to work in Israel. In addition to dividing the labour force into eligible and not eligible to work in Israel, the SAM also considers various eligibility levels. Other features of the SAM include the separation of transactions with Israel from those with the rest of the world as well as the separation of taxes collected domestically from those collected by Israel on behalf of the Palestinian National Authority. Furthermore, this SAM takes proper account of the compensation of labour for the self-employed and of household income from unincorporated capital. It also includes an account for non-profit organisations serving households and a *Zakat* account, which is introduced for the first time in SAM literature.

**Key words:** Social Accounting Matrix, agriculture, labour, trade, Palestine

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## Acknowledgements

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# List of acronyms

| Acronyms | Definition |
| --- | --- |
| BoP | Balance of Payments |
| CGE | Computable General Equilibrium |
| COGAT | Coordination of Government Activities in the Territories / Ministry of Defence, State of Israel |
| GDI | Gross Disposable Income |
| GDP | Gross Domestic Product |
| GNI | Gross National Income |
| GISHA | Legal centre for freedom of movement |
| GTAP | Global Trade Analysis Project |
| ILO | International Labour Organization |
| IMF | International Monetary Fund |
| ISIC | International Standard Industrial Classification |
| LFS | Labour Force Survey |
| MoF | Ministry of Finance / Palestinian National Authority |
| NA | National Accounts |
| NPISH | Non-Profit Institutions Serving Households |
| OECD | Organization for Economic Cooperation and Development |
| PCBS | Palestinian Central Bureau of Statistics |
| PECS | Palestinian Expenditure and Consumption Survey |
| PNA | Palestinian National Authority |
| RoW | Rest of the World |
| SAM | Social Accounting Matrix |
| SUT | Supply and Use Table |
| UN COMTRADE | United Nations Commodity Trade Statistics |
| US$ | United States of America Dollar |

# 1  Introduction

## 1.1 Background

A social accounting matrix (SAM) is a comprehensive database, which encompasses information about the economic and social structure of a country or a region in a given time period that is usually a year (Thorbecke, 2000). The SAM is an accounting system, in which data are displayed in a single-entry matrix format (Pyatt and Round, 1985). It explicitly shows the interconnection between the structure of production in the economy and the distribution of factor income to households as well as the relationships between all institutions (households, enterprises, government, and trade partners) in the economy (Akkemik, 2012). A SAM is a square matrix, where each account is depicted by a row and a column. The SAM accounts refer to productive sectors, economic agents and institutions in the economy and if data are available, it can be disaggregated at the desired level. The accounting principle requires that for each SAM account income equates expenditure (Croes and Rivera, 2015).

In addition to providing a useful framework to display information and give a snapshot of an economy, a SAM is also used as a benchmark in economic modelling to assess the socioeconomic impact of different policies (Breisinger *et al.*, 2009). Since the development of the first SAM for the United Kingdom by Stone in 1962, SAMs have been constructed and used extensively for policy analysis in developing countries (Round, 2003). However, only a few SAMs have been developed for Palestine. The first SAM for Palestine was developed by the World Bank for the year 1998 with a focus on trade (Astrup and Dessus, 2001). Its distinctive feature is the inclusion of four trade partners: Israel, the countries having a free trade agreement with Israel, the members of the Arab league, and the rest of the world. It includes 31 activities/commodities, one household account and one government account. Another SAM was developed by Missaglia and Valensisi (2010) for the year 2006, which focusses on trade and considers two foreign partners (Israel and the rest of the world), a single production sector, two household groups and two factor types. A recent SAM for Palestine was compiled by Bayar (2013) for the reference year 2011. It comprises 16 activities/ commodities, one factor labour, one factor capital, one aggregated household and one account for government. It includes 12 tax accounts with only income tax disaggregated by origin (from Palestine and from abroad). Two trade partners (Israel and rest of the world) are also considered.

The 2011 SAM presented here is developed as part of a project focusing on assessing the impact of the economic integration of agricultural and labour markets between Israel and the West Bank. The project's main objective is to analyse the potential benefits of removing border restrictions for households and the agricultural sector. To study the economy-wide effects of removing the restrictions, a regional computable general equilibrium model for the West Bank and Israel will be developed and SAMs for the two regions are needed. To this end, a SAM for Israel has already been developed (Siddig *et al.*, 2011) and now a SAM for the West Bank is also elaborated. Since the movement of products and labour between the

Gaza strip and Israel has been completely banned since 2007, this SAM focuses only on the West Bank and does not include the entire Palestinian territory. As the project's main target is to analyse the distributional effects of integrated agricultural and labour markets, the SAM is well disaggregated with respect to the agricultural sector, labour and household accounts.

The year 2011 is selected as the base year because of data availability. Moreover, the year 2011 was a relatively "normal year" with stable political situation between Israel and Palestine, Therefore, it could serve as basis for policy simulations. A top-down approach as suggested by Reinert and Roland-Holst (1997) is followed in the construction of the 2011 West Bank SAM. To begin with, a macro SAM including only 15 accounts is assembled and estimated. This macro SAM, which is consistent with the national accounts data, is then disaggregated into a full SAM comprising 371 accounts. The remaining part of this chapter presents the structure and the main features of the SAM. In the second chapter, the construction of the macro SAM is described in detail. The third chapter presents the selection of the micro SAM accounts, the processing of the raw data, the disaggregation of the macro SAM entries and finally the estimation of the full SAM. In chapter four, the structure of the West Bank economy in 2011 is provided in light of the SAM.

## 1.2 Structure of the SAM

A common way of depicting the value transactions within an economy is to present them in a circular flow diagram. Figure 1 illustrates the circular flow diagram for the value transactions in the West Bank. In this diagram, expenditures made by one account are incomes for another account. Therefore, all income and expenditure flows are accounted for and the circular flow is closed. A SAM is a numerical representation of the transactions depicted in the circular flow diagram. It presents the information in a matrix form, where economic sectors and institutions are represented each by one account. Incomes to each account appear along the account's row, while expenditures appear along its column. Hence, a cell entry in the matrix represents a particular transaction within the economy flowing from the column account to the row account.

For the construction of the West Bank 2011 SAM, a standard SAM structure depicted in Table 1 is used. Table 1 displays the West Bank economy in a 15x15 matrix representing the major (aggregated) accounts and transactions. The accounts included are: commodities, margins, activities, factors of production, households, enterprises, Non-profit institutions serving households (NPISH), government, taxes collected domestically and taxes collected by the Israeli government on behalf of the Palestinian National Authority (PNA), saving-investment, and foreign accounts differentiating between Israel and the rest of the world.

**Figure 1*:* Circular flow diagram**



The figure is a circular flow diagram showing economic flows between: Factor markets, Enterprises and Households, NPISH, Government, Productive Activities, Savings / Investment, Commodity markets, Margins, and Israel / Rest of the world.

Labeled flows include: Factor income from / to abroad, Depreciation, Transfers from / to abroad, Factor income, Transfers, Transfers / Donations, Factor costs, Factor tax, Consumption, Direct taxes, Transfers, Private savings, Consumption, Transfers / Budget support, Production tax, Consumption, Indirect taxes, Public savings, Foreign savings, Sales income, Intermediate demand, Investment demand, Margin payment / receipt, Import / Export.

Legend:
- Institutions
- Markets
- Activities
- Margins
- Saving / investment

Source: Own illustration.

## Table 1: SAM structure

| | | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Commodity | Margins | Activities | Factors — Labour | Factors — Capital | Households | NPISH | Enterprise | Government | Domestic tax | Tax Israel | Investment | Foreign sector — Israel | Foreign sector — RoW | Total |
| 1 | Commodity | | Margins | Intermediate inputs | | | Private consumption | NPISH consumption | | Government consumption | | | Investment demand | Exports to Israel | Exports to the RoW | Total demand |
| 2 | Margins | Margins | | | | | | | | | | | | | | Total margins |
| 3 | Activities | Market output | | | | | | | | | | | | | | Activity income |
| 4 | Factors — Labour | | | Labour compensation | | | | | | | | | | Compensation of employee from Israel | Compensation of employee from abroad | Labour income |
| 5 | Factors — Capital | | | Capital and Land compensation | | | | | | | | | | | Capital income from RoW | Capital income |
| 6 | Households | | | | Labour income to households | Unincorporated capital income | Inter-household transfers | NPISH transfers to households | Dividends | Government transfers to households | | | | | Transfers to households from RoW | Household income |
| 7 | NPISH | | | | | | | | | | | | | | Transfers to NPISH | NPISH income |
| 8 | Enterprise | | | | | Capital return to enterprise | | | | Transfers to enterprises | | | | | | Enterprise revenue |
| 9 | Government | | | | | | | | Investment profit | | Domestic tax revenue | Tax clearance | | | Foreign grants | Government income |
| 10 | Domestic tax | Indirect taxes | | Production taxes | Factor tax | | Income tax | | Corporate tax | | | | | | | Domestic tax revenue |
| 11 | Tax Israel | Indirect taxes | | | Factor tax | | | | | | | | | | | Total tax clearance |
| 12 | Investment | | | | | Depreciation | Household savings | | Enterprise savings | Government savings | | | | Current account balance | Current account balance | Savings |
| 13 | Foreign sector — Israel | Imports from Israel | | | | | | | | | | Collection fee and retained payroll tax | | | | Exchange outflow from Israel |
| 14 | Foreign sector — RoW | Imports from the RoW | | | Labour compensation to abroad | Capital payment to abroad | Household transfers to the RoW | | | | | | | | | Foreign exchange outflow |
| 15 | Total | Total supply | Total margins | Activity expenditures | Labour expenditures | Capital expenditures | Household expenditures | NPISH spending | Enterprise spending | Government expenditures | Domestic tax revenue | Collected tax revenue | Investment | Foreign exchange inflow | Foreign exchange inflow | |

Source: Own compilation.

## 1.3 Main features of the 2011 West Bank SAM

The current West Bank SAM has several distinctive features. Compared to the existing SAMs developed for Palestine, this SAM is different in various aspects mentioned as follows:

1.  It focuses on the West Bank while other SAMs consider the entire Palestinian territory.

2.  It is much more disaggregated as it comprises 371 accounts. Such a level of detail enables the user to aggregate this SAM to one or more alternative classifications.

3.  It includes 83 commodity groups and 49 activity sectors. The separation between activities and commodities allows for an activity to produce several commodities and for a commodity to be produced by several activities. It also enables the valuation of income and expenditure flows in the activity accounts at producer prices, while the flows in the commodity accounts are valued at market prices.

4.  It recognises the importance of the agricultural sector in the West Bank through its explicit representation of agriculture by eight commodities and four activities.

5.  It provides comprehensive information on transaction costs represented by three margin accounts respectively for wholesale, retail trade and transport.

6.  It includes a separate account for the non-profit institutions serving households (NPISH). These institutions play a significant role in the West Bank economy, which heavily rely on services they provide. The NPISH are depicted in the SAM as both an institution and a productive sector to highlight their role in providing services.

7.  To the best of our knowledge, this SAM is the first to explicitly include an account for *Zakat,* which is a religious transfer payment that flows voluntarily from rich to poor households.

8.  It differentiates 59 factor classes and 110 household groups. This high disaggregation of factor and household accounts aims at providing a good basis for the analysis of distributional effects of trade integration as well as changes in the factor markets.

9.  It exhibits both the indirect and income tax revenue collected by Israel on behalf of the PNA. In addition, it explicitly accounts for the collection and processing fee that is levied by Israel on all gross clearance revenue collected on behalf of the PNA as well as the retained payroll tax collected on Palestinians working in Israel that is not transferred to the PNA.

10. This SAM is also innovative as it takes proper account of the remuneration of labour for the self-employed. Conventionally, the labour share of value added has only included the compensation of employees across sectors. However this measure suffers from a very big limitation, because it omits the contribution of the self-employed to labour income (Guerriero, 2012). Different approaches have been developed to adjust for this omission

and are summarized in Gollin (2002). However, most of these approaches do not fit the case of the West bank. Finally, it was decided to calculate the self-employment remuneration using the earning differentials between wage workers and self-employed as estimated in Gindling *et al.* (2016).

11. This SAM also recognizes that households derive income from unincorporated capital. Household activity is often disregarded as it usually refers to small-scale, informal and non-market activity (Round, 2003). Household activity includes both family enterprises (which employ family members) and micro enterprises (which hire employees). The income earned by such activity clearly represents both returns to labour and to capital. The extent to which earlier SAMs have taken proper consideration for household income from unincorporated capital is unclear in most cases. But this problem is explicitly tackled in constructing this SAM.

12. It is based on the most recent set of data available about the structure of the West Bank economy, consumption and expenditure behaviour of households and the structure of the labour force. The reference year for this SAM is 2011.

This SAM provides data for 59 production factor groups including 57 labour groups, one factor capital and one factor land. The labour factor is well disaggregated in order to capture the participation of the West Bank workforce in different labour markets and to allow for analyses in this area of great importance for the PNA. Domestic labour is first disaggregated by workplace considering that Palestinians are employed in the domestic labour market, the Israeli labour market or the rest of the world (other than Israel). Labour employed in the domestic market (inside the West Bank) is further disaggregated by activity sector and according to their qualification to obtain a work permit in Israel. This detailed disaggregation allows for the simulation of various degrees of relaxing the restrictions on labour movement between Israel and the West Bank.

Households are extensively disaggregated so as to allow assessing the distributional effects of various policies and political decisions. The SAM provides data on 110 household groups classified according to consumption quintiles, the skill level and the workplace of household members. Tax accounts are also well disaggregated in order to capture the different sources of government revenue. In total, 58 tax accounts are incorporated, among which 46 are factor use taxes, six are commodity taxes, two are direct taxes, one is factor income tax and one is production tax. The last two accounts refer to the tax revenue that is not transferred by Israel to the PNA. The factor and commodity taxes are separated according to the authority collecting them, whether it is the PNA or the Israeli administration. This separation is of particular importance because taxes collected domestically by the PNA constitute direct government income whereas taxes collected by Israel may be temporarily withheld and thus not constitute direct government income.

The SAM differentiates between two foreign partners: Israel and the rest of the world. This differentiation aims at depicting the fact that Israel is the main trade partner of the West Bank

and the existence of a customs union between Israel and the West Bank vis-à-vis third countries.

It is worth noting that East Jerusalem is not included in this SAM as the main data sources used, which are the national accounts and the balance of payments do not include it. Moreover, from a theoretical point of view, the East Jerusalem economy is more connected to the Israeli economy than to the rest of the West Bank. Therefore, it makes more sense to exclude it from a West Bank SAM.

## 2   Constructing the macro SAM

This chapter describes the process followed in constructing the macro SAM. First, it states the sources of data, then it presents the structure of the SAM. Next, the steps followed to generate the unbalanced prior macro SAM are described, and finally, the program used to estimate a final balanced macro SAM is presented.

### 2.1 Data sources

The information used to compile the prior macro SAM is derived from different sources, with the Palestinian Central Bureau of Statistics (PCBS) being the main data source. Other data sources include the Palestinian Ministry of Finance, the United Nations Commodity Trade Statistics (UN Comtrade), the International Monetary Fund (IMF) and the Coordination of the Government Activities in the Territories (COGAT – Israeli Ministry of Defence). PCBS data include the national accounts, the supply and use table, the balance of payments, the labour force survey data, the expenditure and consumption survey data, the economic survey report, the living standards report and the demographics report. Not all these datasets were available for the reference year of 2011. Therefore, some adjustments have to be made to obtain a consistent SAM. The key set of data to which all the other sources are compared to is the West Bank national accounts of 2011. Data on government revenue and expenditure are derived from the annual fiscal statement of the PNA published by the Ministry of Finance. Detailed information on import and export of goods are derived from the UN Comtrade database.

### 2.2 Assembling the prior macro SAM

This subsection presents the data sources as well as the procedures followed to derive the values for each entry of the macro SAM. Cells of the SAM are identified as shown in table 1 by their row number (from 1 to 15) and column letter (from A to O). The Cell carrying the value of total intermediate inputs, for instance, is identified in Table 1 by (1, C). This section is organised by cell entry of the macro SAM, starting with the top row (Row 1), covering all its cells from (1,B) to (1,N), then it moves to the second row and so on until the last cell in the bottom row (Row 15). The resulting prior macro SAM (in Million US$) is presented in table 2.

*(1, B) Margins*

This entry includes trade and transport margins. Its value stems from the West Bank Supply and Use Table (SUT) of 2004 (PCBS, 2014a) and is scaled up using the National Accounts (NA) for the West Bank for the reference year 2011 (PCBS, 2014b) by assuming that margins are a constant share of production cost in trade and transport sectors.

*(1, C) Intermediate inputs*

This entry reports the demand for intermediate inputs by the productive activities. Its value is computed by summing up the sectoral intermediate consumption, which is provided in the NA for the year 2011 (PCBS, 2014b).

*(1, F) Household Consumption*

The value of household consumption in 2011 is derived from the NA (PCBS, 2014b).

*(1, G) NPISH consumption*

The value of NPISH consumption demand is taken from the 2011 NA (PCBS, 2014b).

*(1, I) Government consumption*

The value of total government consumption demand stems from the 2011 NA (PCBS, 2014b).

*(1, L) Investment demand*

The total value of gross fixed capital formation and change in inventories are from the 2011 NA (PCBS, 2014b).

*(1, M) Exports to Israel*

Total export from the West Bank to Israel is computed in several steps (Table 3). First, the share of Israel in total Palestinian export is derived from the UN Comtrade database (UN Comtrade, 2015). This share is applied to the total export from the entire Palestinian territory so as to come to the value of total Palestinian export to Israel. As no export from the Gaza strip was allowed to be sold in Israel in 2011 because of the blockade, the calculated value for total Palestinian export to Israel is attributed to the West Bank.

*(1, N) Exports to the rest of the world*

Total export of goods and services from the West Bank is taken from the 2011 NA (PCBS, 2014b). The value for export from the West Bank to the rest of the world is computed by subtracting export to Israel from total West Bank export (see Table 3).

*(2, A) Margins*

Total value of trade and transport margins paid by all commodities is reported in this cell. It equals the value paid to trade and transport commodities, displayed in the cell (1, B).

*(3, A) Market output*

This is the value of total domestic output computed by summing up the output of individual production sectors according to the 2011 NA (PCBS, 2014b).

*(4, C) Labour compensation*

Labour compensation is the part of labour in the total value added. It includes in addition to the compensation of employees, the compensation for own account workers' labour. The compensation of employees is computed by multiplying the average wage in the West Bank in 2011 by the number of wage workers (see Table 4). The data used are based on the labour force survey report of 2011 (PCBS, 2012a). The labour compensation of own-account workers is computed by multiplying the number of own account workers by their average earning (see Table 4). This average earning is calculated by adding to the average wage of wage workers the earning premium associated with self-employment in the Middle East and North Africa region, which is derived from Gindling et al. (2016).

*(4, M) Compensation of employees working in Israel*

This is the total value of labour income earned by Palestinians working in Israel. Its value is taken from the balance of payment (BoP) of 2011 (PCBS, 2016a). Because Gazan workers were banned from working in Israel in 2011, the total value of compensation of employees from Israel is attributed to the West Bank.

*(4, N) Compensation of employees working in the rest of the world*

First, the total compensation of employees from the rest of the world is computed for the entire Palestinian territory by subtracting the compensation of employees received from Israel from the total compensation of employees, using the 2011 BoP (PCBS, 2016a). Based on a PCBS expert guess, it is assumed that only a small fraction of the compensation of employees from the rest of the world accrues to the West Bank. In fact, besides Israel only a few West Bank workers commute to Jordan for work, while several Gazan workers commute to Egypt for work. Thus, 20% of the total compensation of employees from the rest of the world is assumed to accrue to the West Bank.

*(5, C) Capital and Land Compensation*

This is the part of value added accruing to factors capital and land. It is computed by subtracting the labour compensation from the total value added (see Table 4). Total value added itself is computed by summing up the sectoral value added from the 2011 NA (PCBS, 2014b). The part of land compensation in this aggregate is derived from the Palestinian Expenditure and Consumption Survey (PECS) of 2011 (PCBS, 2014c) and is scaled up to the entire West Bank population.

*(5, N) Capital income from the rest of the world*

The value of investment income from the rest of the world for the entire Palestinian territory stems from the 2011 BoP (PCBS, 2016a). The share that accrues to the West Bank is derived by applying to the total value the share of the West Bank in the total number of establishments in Palestine. Data on establishments is provided by the establishment census (PCBS, 2012b).

*(6, D) Household income from labour*

Household income from factor labour in the macro SAM is total labour income net of factor taxes and of labour compensation paid to the rest of the world.

*(6, E) Household income from unincorporated capital and land*

The household income from land is computed from the 2011 PECS (PCBS, 2014c) and is scaled up to the entire West Bank population. The household income from unincorporated capital is the part of the net capital income directly received by households. The net capital income is computed by adding to capital compensation (5, C) the investment income received from abroad (5, N) and subtracting the investment income paid to abroad (14, E) and depreciation (12, E). The share of net capital income that accrues to households is computed based on the share of unincorporated businesses in the West Bank economy. According to Fjeldstad and Zagha (2002), the share of unincorporated businesses in the West Bank is about 76%.

*(6, F) Inter-household transfers*

These are transfers paid to households from other households, including the religious transfers to poor households (*Zakat*). The aggregate value of these transfers is derived from the 2011 PECS (PCBS, 2014c) and is scaled up to the entire West Bank population.

*(6, G) NPISH transfers to households*

Total transfers made by non-profit institutions to households is derived from the 2011 PECS (PCBS, 2014c) and is scaled up to the entire West Bank population.

*(6, H) Household income from dividends*

Income to households from enterprises is computed as a share of the net enterprise income before savings. The enterprise net income is computed by adding to capital return to enterprise (8, E) transfers received from the government (8, I) and subtracting the dividends paid to the government (9, H), and corporate taxes (10, H). The share of enterprise net income distributed in dividends to households is computed based on the example of the Paltel Group in 2009-2010 (Larudee, 2012). The Paltel Group was the major telecommunication company in Palestine over that time period and shared 65% of its profit as dividends. Accordingly, that share is also applied to the net enterprise income in the macro SAM so as to come to the value of enterprise payments to households as dividends.

*(6, I) Government transfers to households*

This entry includes all kinds of transfers made by the government to households, namely pensions, gratuities, allowances, etc. Total value of government transfers for the entire Palestinian territory is taken from the Ministry of Finance's fiscal development and macro performance report (MoF, 2012a). This value is adjusted for the West Bank, using the share of the West bank in the total number of households in the Palestinian territory. The number of households stems from the demographics report (PCBS, 2011).

*(6, N) Transfers to households from the rest of the world*

The value of transfers (remittances) from the rest of the world for the entire Palestinian territory stems from the 2011 BoP (PCBS, 2016a). The share that accrues to the West Bank is derived by applying to the total value the share of the West Bank in the total number of households in the Palestinian territory (PCBS, 2011).

*(7, N) Transfers to NPISH from the rest of the world*

Non-profit institutions serving households are funded by international organizations and foreign donors. The value for this entry is computed by summing up NPISH consumption (1, G) and NPISH transfers to Households (6, G).

*(8, E) Enterprise income from capital*

Capital return to corporate enterprises is computed using the share of corporate businesses in total businesses in the West Bank based on Fjeldstad and Zagha (2002). Accordingly, corporate share of capital net income is about 24%.

*(8, I) Transfers to enterprises by government*

This is the value of subsidies transferred by the government to private enterprises. It is taken from the annual financial report of the Ministry of Finance (MoF, 2012b).

*(9, H) Investment profit accruing to government*

This entry shows the total value of dividends received by the government from enterprises in which it owns stocks. This value is taken from the Ministry of Finance's fiscal development and macro performance report (MoF, 2012a).

*(9, J) Domestic tax revenue*

Domestic tax revenue received by the government includes the indirect taxes (10, A), production taxes (10, C), factor taxes (10, D), income tax on households (10, F) and corporate tax on enterprises (10, H); all collected by the PNA. Data for these cells are obtained from the annual financial report of the Ministry of Finance (MoF, 2012b).

*(9, K) Tax clearance with Israel*

This includes all taxes collected by the Israeli administration that are transferred to the PNA. It comprises the indirect taxes levied on goods and services imported by the West Bank from and via Israel (11, A) and factor income tax levied on West Bank workers employed in Israel and its settlements (11, D).

*(9, N) Foreign grants*

Foreign grants to the government in the context of the West Bank usually take the form of budget support. The value of transfers to the government sector from the rest of the world for the entire Palestinian territory stems from the 2011 BoP (PCBS, 2016a). The share that accrues to the West Bank is derived by applying to the total value the share of the West Bank in the total Palestinian population (PCBS, 2011).

*(10, A) Domestic indirect taxes*

This encompasses various tax instruments, namely a value added tax, excise taxes and customs duties. Their values for the entire Palestinian territory are derived from the annual financial report of the Ministry of Finance (MoF, 2012b). Adjustments are made in order to derive their values for the West Bank. For the VAT, the share of the West Bank in total the Palestinian value added is used as a weight factor. For customs duties, the share of the West Bank in the total Palestinian import is used as a weight factor, and for excise taxes, the share of the West Bank in final consumption is used. Data on value added, import and final

consumption are taken from the NA (PCBS, 2014b). The initial values obtained at the end of this process are adjusted to match the total indirect tax value displayed in the 2011 NA (PCBS, 2014b).

### *(10, C) Production taxes*

The total value for tax on production activities is computed by taking the tax rate from the 2004 SUT (PCBS, 2014a) and applying it to the tax base (total activity output) of 2011 taken from the 2011 NA (PCBS, 2014b).

### *(10, D) Domestic factor taxes*

The value of factor use tax is derived from the annual financial report of the Ministry of Finance (MoF, 2012b) and adjusted for the West Bank by removing the share of the Gaza Strip. This is done by applying the share of West Bank workers in the total number of Palestinian workers to the total value of factor use tax collected in the domestic market. The workforce data stem from the 2011 labour force survey report (PCBS, 2012a).

### *(10, F) Income tax*

The value of direct tax paid by all households in Palestine is derived from the annual financial report of the Ministry of Finance (MoF, 2012b). The income tax paid by households in the West Bank is derived by multiplying the total value by the share of households in the West Bank in the total number of Palestinian households. Household numbers stem from the demographics report (PCBS, 2011).

### *(10, H) Corporate tax*

Corporate tax paid by enterprises is derived from the annual financial report of the Ministry of Finance (MoF, 2012b) and adjusted for the West Bank. The adjustment parameter used is the share of the West Bank in the total number of establishments on the Palestinian territory. Data on establishments is provided by the establishment census (PCBS, 2012b).

### *(11, A) Indirect taxes collected by Israel*

Indirect taxes collected by Israel include customs duties, VAT on imports and excise tax on petroleum. These taxes are collected on Palestinian imports from or via Israel.[1] Details on the value of taxes collected by Israel on behalf of the PNA are reported in the Ministry of Finance's fiscal development and macro performance report (MoF, 2012a). Since the values in the report apply to the entire Palestinian territory, adjustments are made to derive the share of the West Bank. The adjustment consisted in applying to the total value the share of the West Bank in total clearance revenue, which was 97% in 2011 (MoF, 2012b). An additional sub account of this entry is the 3% percent collection and processing fee that is levied by Israel on all gross clearance revenues (Kanaan *et al.*, 2012).

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[1]   The Palestinian Authority could only reclaim customs duties on goods that were directly imported by Palestinian firms via Israel. Goods imported to Israel and re-exported by Israeli companies to the Palestinian territories are not eligible for re-claiming of customs duties (Fjeldstad and Zagha, 2002).

*(11, D) Factor tax on payroll for West Bank workers employed in Israel*

The Israeli administration collects on behalf of the PNA factor tax on Palestinian labour employed in Israel. According to the Paris Protocol, Israel is bound to transfer 75% of payroll taxes collected from Palestinians working in Israel proper and 100% of taxes collected from Palestinians working in the Israeli settlements (IMF, 2014). Two sub accounts are created, one for tax revenue accruing to the PNA and one for the tax revenue retained by Israel. The payroll tax revenue that is transferred by Israel to the PNA is reported in the annual financial report of the Ministry of Finance (MoF, 2012b). As no Gazan worker was employed in the Israeli economy in 2011, the total payroll tax transferred by Israel is attributed to the West Bank. With regard to the payroll tax revenue retained by Israel, it is estimated using the number of work permits delivered by Israel to Palestinians in both Israel proper and the settlements in 2011 (COGAT, 2011) to come to the share of Israel proper in the transferred payroll tax revenue. Then, the 25% of the gross payroll tax collected from Palestinians working in Israel proper are calculated and assigned to the relevant sub account.

*(12, E) Depreciation*

Depreciation in the West Bank economy in 2011 as a share in value added is derived from the economic survey report (PCBS, 2012c). This share is applied to the total value added taken from the 2011 NA (PCBS, 2014b) to come to the final value for this entry.

*(12, F) Household savings*

Gross domestic savings in 2011 are taken from the NA (PCBS, 2014b) and the share of private savings in total savings is derived from the IMF report on macroeconomic development and outlook (IMF, 2014). Private savings comprise household savings and enterprise savings. Thus, total private savings are computed and household savings are derived by subtracting the enterprise savings (12, H) from total private savings.

*(12, H) Enterprise savings*

Enterprise savings are computed based on the example of Paltel Group over 2009-2010 (Larudee, 2012), where the company kept 35% of its profit as savings. That share is applied to the net enterprise income to arrive at the enterprise savings in the macro SAM.

*(12, I) Government savings*

Gross domestic savings in 2011 stem from the NA (PCBS, 2014b) and the share of public savings in total savings is derived from the IMF report on macroeconomic development and outlook (IMF, 2014). This share is applied to gross domestic savings to come to the government savings in 2011.

*(12, M) Current account balance with Israel*

This value is computed as residual in the Israel account.

*(12, N) Current account balance with the rest of the world*

This value is computed as residual in the rest of the world account.

*(13, A) Imports from Israel*

The total import value for the entire Palestinian territory in 2011 is displayed in the NA (PCBS, 2014b). The share of Israel in total Palestinian import is derived from the UN Comtrade database (UN Comtrade, 2015). As 97% of the tax revenue collected by Israel accrues to the West Bank (MoF, 2012a), it is reasonable to assume the same share for the West Bank in total import from Israel. Using this adjustment share, the total import of West Bank from Israel is computed (Table 3).

*(13, K) Collection and processing fee and payroll tax not transferred to the PNA*

This entry includes the 3% collection and processing fee levied by Israel on all gross tax revenues collected on behalf of the PNA as well as the payroll tax collected on West Bank workers employed in Israel that is not transferred to the PNA. Their values are calculated based on the Ministry of Finance's fiscal development and macro performance report (MoF, 2012a).

*(14, A) Imports from the rest of the world*

The total import value of the West Bank in 2011 is obtained from the NA (PCBS, 2014b). The import value from the rest of the world is computed by subtracting the value of import from Israel from the total import value (Table 3).

*(14, D) Labour compensation paid to the rest of the world*

The total value of labour compensation paid abroad is computed by subtracting the net compensation of employees from abroad, taken from the 2011 NA (PCBS, 2014b), from the gross compensation of employees received from abroad (4, N).

*(14, E) Capital payment to the rest of the world*

Capital payment to the rest of the world is computed by subtracting from the gross capital income received from abroad (5, N) the net capital income from abroad that is derived from the 2011 NA (PCBS, 2014b).

*(14, F) Household transfers to the rest of the world*

Household transfers to the rest of the world from the West Bank are derived by subtracting from the gross transfers received from abroad by households (6, N), NPISH (7, N) and government (9, N) the net current transfer from abroad that is derived from the 2011 NA (PCBS, 2014b).

## 2.3 Estimation of a balanced macro SAM

A cross entropy program is used to estimate a balanced macro SAM from the prior SAM of Table 2. The cross entropy program is a technique to estimate the cells of a consistent SAM assuming that the initial data are inconsistent and measured with error (Robinson and McDonald, 2006). The estimation philosophy is Bayesian and interactive. The entropy approach used treats every cell in the SAM as being specified with an error support set whose weights are estimated. There is a prior, which is specified for each error distribution.

Additionally, fixed constraints are achieved by setting standard errors to zero. The cross entropy program used was developed by Robinson and McDonald (2006).

For the estimation process, constraints are imposed on the prior SAM such that row sums and corresponding column sums must equal. Additionally, relevant macro totals from the 2011 NA are fixed so that the final SAM reproduces these figures. For the estimation of the 2011 West Bank macro SAM, fixed totals are GDP, total savings, net current transfers from abroad, government, NPISH and household consumption, investment demand, intermediate inputs, market output and depreciation. The estimated balanced macro SAM is shown in Table 5.

## 2.4 Differences between the prior and the final estimated macro SAM

A major outcome of the balancing and estimation procedure is the increase of the labour income from Israel. This result was expected as no constraint was put on that corner of the SAM in the estimation process using the cross entropy program. No constraint was actually put on that, because the prior used for the labour income from Israel that is derived from the balance of payment is in our opinion too small. In fact, the initial value for labour income from Israel only accounts for 15% of the total labour income in the economy (cell "6, D"). Given other official statistics from the Labour Force Survey report (PCBS, 2012a), the share of the West Bank working population employed in Israel is 14% and average wage in Israel is double (91% higher) the average wage in the domestic West Bank market. Therefore, one would expect the share of labour income from Israel to be roughly 28% of the total labour income in the West Bank. In the final estimated SAM, this share has increased to 23%, which looks closer to the expectation. Nevertheless, adopting this new figure alters some macroeconomic estimates such as the net factor income from abroad, the gross national income (GNI) and the gross disposable income (GDI). The net factor income from abroad deviates from the national accounts value by 71%, while the GNI and the GDI deviate respectively by 6% and 5%. However, in the estimation process we fixed GDP, net current transfers from abroad and total savings to their values in the national accounts.

Beside the labour income from Israel, other entries also changed, but with no effect on the macro aggregates. This is the case for imports and exports, where the gross figures slightly depart from their initial values, but the net export remains the same in both the prior and the final SAM. This is also the case for transfers between households, NPISH and the government with the rest of the world, where the gross values changed, but the net remains constant. The same happens for individual components of domestic savings (households, enterprise and government savings), but total savings are kept constant. Finally, a noticeable change took place in government transfers to households and in foreign savings (current account balance). However, these values were either residuals or taken from sources that were not consistent with the national accounts in the first place

.

**Table 2: Unbalanced prior macro SAM for 2011** (in Million US$)

| Incomings \ Outgoings | | A Commodity | B Margins | C Activities | D Labor | E Capital | F Households | G NPISH | H Enterprise | I Government | J Domestic tax | K Tax Israel | L Invest-ment | M Israel | N RoW | O Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Commodity | | 2055.4 | 4543.9 | | | 7459.8 | 188.5 | | 1852.4 | | | 1754.3 | 1553.7 | 95.7 | 19503.7 |
| 2 | Margins | 2055.4 | | | | | | | | | | | | | | 2055.4 |
| 3 | Activities | 11117.5 | | | | | | | | | | | | | | 11117.5 |
| 4 | Labor | | | 3868.2 | | | | | | | | | | 662.8 | 14.8 | 4545.8 |
| 5 | Capital | | | 2703.7 | | | | | | | | | | | 72.5 | 2776.2 |
| 6 | Households | | | | 4490.6 | 1722.6 | 60.2 | 7.4 | 289.2 | 570.6 | | | | | 423.4 | 7563.9 |
| 7 | NPISH | | | | | | | | | | | | | | 195.9 | 195.9 |
| 8 | Enterprise | | | | | 543.8 | | | | 0.1 | | | | | | 543.9 |
| 9 | Government | | | | | | | | 44.7 | | 317.6 | 1101.9 | | | 457.6 | 1921.9 |
| 10 | Domestic tax | 216.2 | | 1.7 | 38.3 | | 7.1 | | | 54.3 | | | | | | 317.6 |
| 11 | Tax Israel | 1127.6 | | | 9.6 | | | | | | | | | | | 1137.3 |
| 12 | Investment | | | | | 446.5 | -218.1 | | 155.7 | -183.2 | | | | 1742.2 | 293.5 | 2236.5 |
| 13 | Israel | 3923.3 | | | | | | | | | | 35.4 | | | | 3958.7 |
| 14 | RoW | 1063.7 | | | 7.2 | 63.3 | 419.1 | | | | | | | | | 1553.4 |
| 15 | Total | 19503.7 | 2055.4 | 11117.5 | 4545.8 | 2776.2 | 7728.2 | 195.9 | 543.9 | 2239.8 | 317.6 | 1137.3 | 1754.3 | 3958.7 | 1553.4 | |

Source: Own compilation.

**Table 3: West Bank trade with Israel and the rest of the world**

| | a | b | c | d | e | f | g |
|---|---|---|---|---|---|---|---|
| | | | | | | Value of WB trade with (in Mill. US$) | |
| | West Bank (WB) in Mill. US$ | Palestinian Territories (PT=WB+GS) in Mill. US$ | Share of Israel in PT trade (%) | Total value of PT trade with Israel in Mill. US$ (b*c) | Share of WB in PT trade with Israel (%) | Israel (d*e) | RoW (a-f) |
| Exports | 1,649.40 | 1,799.40 | 86.35 | 1,553.73 | 100 | 1,553.73 | 95.67 |
| Imports | 4,987.00 | 5,723.20 | 70.67 | 4,044.67 | 97 | 3,923.32 | 1,063.67 |

Sources. a, b : national accounts (PCBS, 2014b); c: UN Comtrade database (UN Comtrade, 2015) ; e : GISHA (2015) and MoF (2012a).

**Table 4: Disaggregation of value added**

| a | b | c | d | e | f | g | h | h | i | j |
|---|---|---|---|---|---|---|---|---|---|---|
| Number of employed in WB | Number of wage workers | Number of own account workers a-b | Average annual wage per wage worker (in US$) | Total compensation of employees (in Mil. US$) b*d | Earning premium for self-employment in the MENA | Average annual earning per own account worker (in US$) d*(1+f) | Total labour compensation of own account workers (in Mil. US$) c*g | Total labour compensation (in Mil. US$) e+h | Total Value added (in Mil. US$) | Gross operating surplus (in Mil. US$) i-h |
| 534,192 | 342,468 | 191,724 | 6,374.215 | 2,182.965 | 37.9% | 8,790.042 | 1,685.262 | 3,868.226 | 6,573.600 | 2705.374 |

Sources. a, b, c, d, i: labour force survey report (PCBS, 2012.b);  f: Gindling et al. (2016);  i: national accounts (PCBS, 2014b).

**Table 5: Estimated and balanced final macro SAM (in Million US$)**

| Incomings \ Outgoings | A Commodity | B Margins | C Activities | D Labour | E Capital | F House-holds | G NPISH | H Enterprise | I Govern-ment | J Domestic tax | K Tax Israel | L Invest-ment | M Israel | N RoW | O Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Commodity | | 2055.4 | 4543.9 | | | 7459.8 | 188.5 | | 1852.4 | | | 1754.3 | 1556.2 | 95.1 | 19505.7 |
| 2 Margins | 2055.4 | | | | | | | | | | | | | | 2055.4 |
| 3 Activities | 11117.5 | | | | | | | | | | | | | | 11117.5 |
| 4 Labour | | | 3792.5 | | | | | | | | | | 1119.7 | 15.3 | 4927.5 |
| 5 Capital | | | 2779.4 | | | | | | | | | | | 84.9 | 2864.3 |
| 6 Households | | | | 4871.9 | 1816.5 | 60.2 | 7.4 | 285.9 | 367.1 | | | | | 370.7 | 7779.6 |
| 7 NPISH | | | | | | | | | | | | | | 195.9 | 195.9 |
| 8 Enterprise | | | | | 547.9 | | | | 0.1 | | | | | | 548.0 |
| 9 Government | | | | | | | | | 46.1 | 319.5 | 1104.1 | | | 551.0 | 2020.8 |
| 10 Domestic tax | 216.3 | | 1.7 | 38.9 | | 7.1 | | 55.5 | | | | | | | 319.5 |
| 11 Tax Israel | 1127.9 | | | 9.7 | | | | | | | | | | | 1137.6 |
| 12 Investment | | | | | 446.5 | -207.3 | | 160.5 | -198.9 | | | | 1279.1 | 274.4 | 1754.3 |
| 13 Israel | 3921.6 | | | | | | | | | | 33.5 | | | | 3955.0 |
| 14 RoW | 1067.0 | | | 7.1 | 53.4 | 459.7 | | | | | | | | | 1587.3 |
| 15 Total | 19505.7 | 2055.4 | 11117.5 | 4927.5 | 2864.3 | 7779.6 | 195.9 | 548.0 | 2020.8 | 319.5 | 1137.6 | 1754.3 | 3955.0 | 1587.3 | |

Source: Own compilation.

# 3   Constructing the micro SAM

The micro SAM developed for the West Bank for the year 2011 has 371 accounts. This chapter describes the disaggregation of the macro SAM entries and the processing of the raw data conducted to estimate the micro SAM.

## 3.1 Selection of micro SAM accounts and disaggregation criteria

Five macro SAM accounts are further disaggregated. These are: activity, commodity, margins, labour and household accounts. In the following line the disaggregation criteria and the resulting micro SAM accounts are presented.

### 3.1.1 Activity

The disaggregation of activities is mostly based on the West Bank SUT of 2004 (PCBS, 2014a), which follows the International Standard Industrial Classification (ISIC Rev. 3). The SUT provides for 55 activity accounts of which two are zero accounts. Among the remaining 53, there are five financial accounts, with one reserved for imputed banking charges. This account has no production but uses intermediate inputs. For convenience and due to the focus on the real economy, all five financial activities were merged into one. Similarly, the sewage account has no production but uses some intermediate inputs. Therefore, it was merged with the activity water and electricity production, which is the only activity producing a sewage commodity in the SUT. As a result, the SAM has 48 sectors, of which 4 are agricultural sectors, 2 are mining sectors, 20 are manufacturing sectors, and 22 are service sectors. In addition to these sectors, one activity is introduced for non-profit institutions serving households (NPISH). The NPISH are depicted in the SAM in two ways: as institution and as activity. As an institution, they consume commodities and make transfers to households. However, NPISH also provide services and pay productive factors. Thus, there is the need to create an activity to capture this dimension of NPISH. The concordance table between the 55 SUT sectors, the 49 SAM activity accounts and two standard classifications (ISIC Rev.3 and GTAP) is illustrated in appendix 1.

### 3.1.2 Commodity

The disaggregation of commodities is also based on the West Bank SUT of 2004 (PCBS, 2014a). The SUT provides for 97 commodity accounts, out of which ten are zero accounts. Among the remaining 87, the four financial accounts are grouped into one and the sewage account is merged with the water account for the reasons developed above. As a result of this process, there are 83 commodity groups in the SAM with the possibility for each commodity to be produced by more than one activity. The SAM differentiates between 8 agricultural products, 2 mining products, 40 manufacturing products and 33 services. Appendix 2 shows the concordance between the 97 SUT accounts and the 83 SAM accounts.

### 3.1.3 Margins

The disaggregation of margins is also derived from the West Bank SUT of 2004, which provides for three types of margins: wholesale, retail sale and transport margins.

### 3.1.4 Factors

The 2011 SAM for the West Bank includes 59 factor groups, among which 57 are labour-groups, one is the factor capital and one is the factor land (Figure 2). Labour is first disaggregated between foreign and domestic labour. Domestic labour is further differentiated by workplace among those working inside the West Bank, those employed in Israel and those working in the rest of the world. This criterion aims at capturing the participation of the domestic workforce in different labour markets, with the internal domestic market employing most of the working population, while the Israeli market also employs a significant share (Figure 3). The labour groups are further disaggregated by skill level, which distinguishes between low and high skilled workers based on the number of years of education with the cutting edge set at 12 years of formal education. Workers with higher education (more than 12 years of schooling) are considered as skilled. This classification is consistent with the International Labour Organization (ILO) classification (ISCO-08), which has four skill levels with the highest two reserved for workers who visited a higher educational institution (ILO, 2012). Following this criterion, 71% of the working population are low skilled and 29% are high skilled (PCBS, 2014d).

Domestic labour groups employed in the domestic labour market are further disaggregated by employment sectors. Six employment sectors are considered in the 2011 Labour Force Survey data (LFS) (PCBS, 2014d), namely: agriculture, manufacturing, construction, commerce and hotels, transport, and services. The main employer in the West Bank economy is the service sector, followed by commerce and hotels (Figure 4). Domestic labour groups employed in the domestic labour market are additionally differentiated by gender and qualification for work permit in Israel. According to the 2011 LFS, 25% of the working population employed in the domestic market is composed of females, while 75% are males (PCBS, 2014d). Only male workers are further classified according to qualification for a work permit in Israel as the share of female workers employed in Israel is negligible (1%) (PCBS, 2012b).

The work permit policy was introduced in Israel in the early 2000s in order to control and restrict the access of Palestinian labour to Israel (Etkes, 2012). The work permit is granted based on personal and civil status criteria presumably associated with a lower likelihood for Palestinian workers to be involved in attacks against Israelis. These criteria differ over time according to the intensity of the conflict between the two regions. At the height of the second Palestinian uprising (2000-2004), the main requirements were to be married with children, and be above the age of 34 years (Etkes, 2012). West Bank workers meeting these high requirements are classified as highly qualified for a work permit. In a period of low conflict like in 2014, the main criteria were to be married, and be above the age of 23 years (COGAT, 2014). West Bank workers only fulfilling these criteria are categorized as weakly qualified for

a work permit. The remaining workers are classified as unqualified for a work permit in Israel. Based on these criteria, 53% of the working population employed in the domestic labour market are unqualified, 15% only meet the weak qualification requirements and 32% are highly qualified (PCBS, 2014d).

West Bank workers employed in Israel are further classified according to their permit situation. Among them, 62% work with a permit, while 38% do not have any work permit (PCBS, 2016b). Domestic labour employed in the rest of the world is also differentiated according to qualification for a work permit in Israel. This criterion is relevant when it comes to simulating the switch of employment from the rest of the world to Israel in case the mobility of Palestinian labour to Israel is eased. Based on this criterion, 55% of the working population employed in the rest of the world are unqualified for a work permit in Israel, 14% meet the weak qualification requirements and 31% meet the high requirements (PCBS, 2014d). Appendix 3 shows the list of the labour groups with the respective proportions of the total working population.

**Figure 2: Distribution of West Bank working population by workplace**
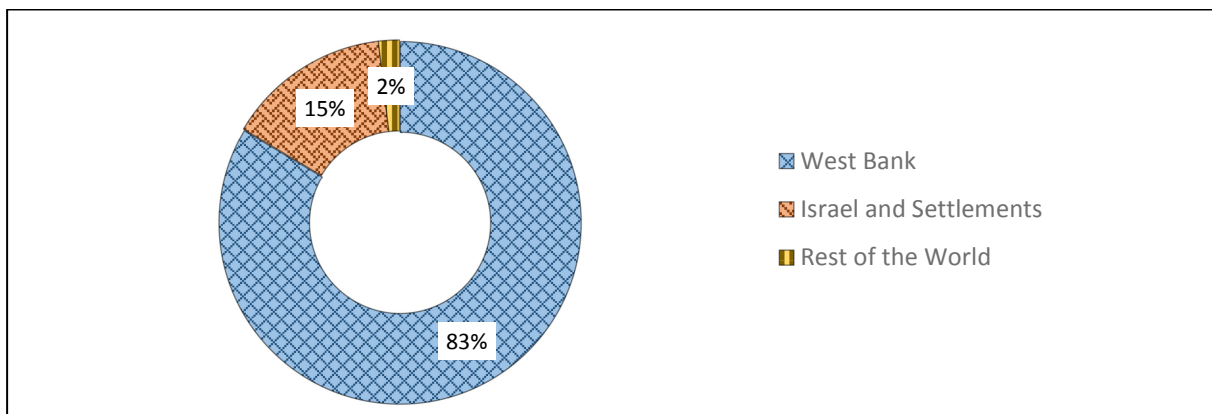


Source: PCBS, 2014d.

**Figure 3: Distribution of the working population employed in the domestic market**
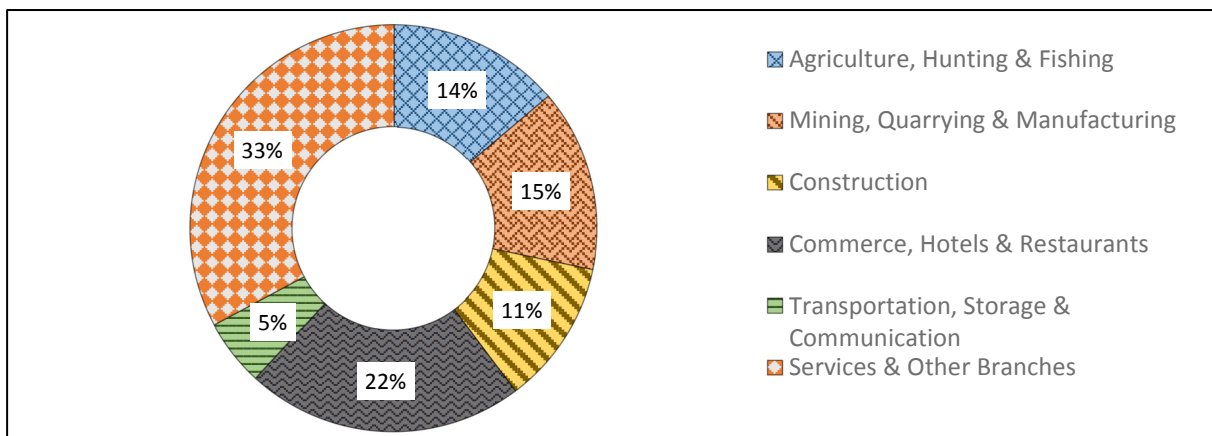


Source: PCBS, 2012a.

**Figure 4: Disaggregation of factor accounts**
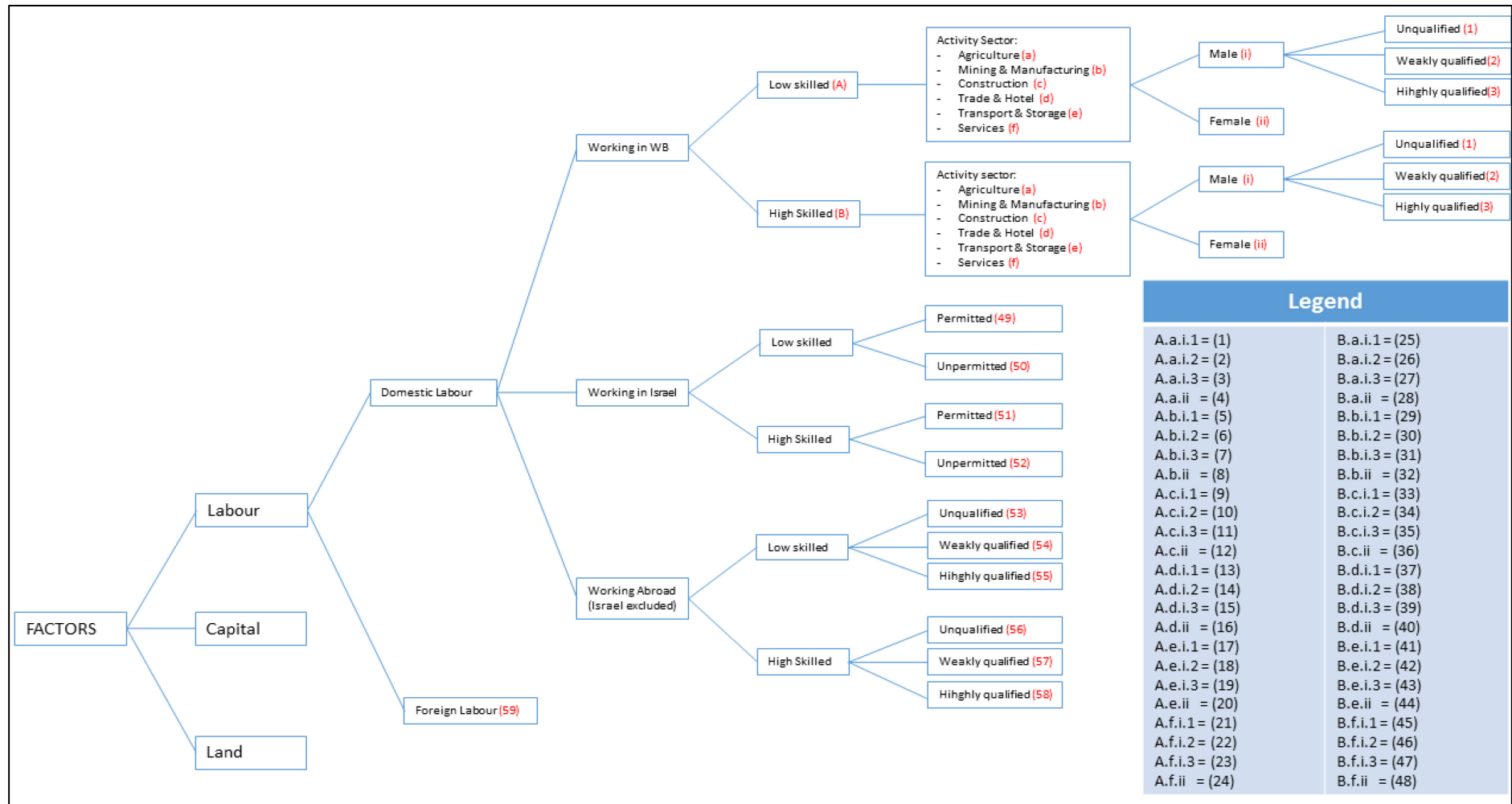


Source: Own illustration.

### 3.1.5 Household groups

Household data are derived from the Palestinian Expenditure and Consumption Survey (PECS) of 2011. Households in the SAM are disaggregated in order to incorporate sufficient detail to allow for policy analysis addressing income distribution and people's livelihoods. In this SAM, West Bank households are first disaggregated into expenditure quintiles for the purpose of cross-sectional comparisons based the living standard. The quintiles are defined based on consumption expenditure per adult equivalent. Consumption expenditure is used instead of income, as income in developing regions like the West Bank is often underreported. By contrast, consumption expenditure, which includes both goods and services that are purchased and those that are produced for one's own consumption, shows the current actual material standard of living and reflects better the long-term average well-being (Haughton & Khandker, 2009). Equivalence scales are used for household grouping, as they are constructed to reflect the economies of scale that arise from sharing some living conditions such as housing space. The consumption per adult equivalent used is based on the square root scale (OECD, 2012). This equivalence scale divides household consumption by the square root of household size.

The second differentiation level is about the average skill level of the household's active members. This criterion is introduced in order to have a good mapping between the labour groups and the household groups. Household members who are at least age 15 (minimum age to enter the active population) are selected and their average number of years of schooling is calculated. When this average at household level is lower than 12 years, the household is considered as low-skilled household; otherwise, it is considered as high skilled household. Low skilled households make up 78% of the PECS sample and are more present in the poorer quintiles than in the richer ones (Table 6).

**Table 6: Distribution of West Bank households by consumption quintiles and skill**

|  | Low skilled households | | High skilled households | |
| --- | --- | --- | --- | --- |
|  | Number of households | Share | Number of households | Share |
| Quintile 1 | 484 | 20% | 45 | 2% |
| Quintile 2 | 440 | 19% | 91 | 4% |
| Quintile 3 | 384 | 16% | 104 | 4% |
| Quintile 4 | 333 | 14% | 134 | 6% |
| Quintile 5 | 204 | 9% | 154 | 6% |
| Total | 1846 | 78% | 527 | 22% |

Source: PCBS, 2014c.

The third disaggregation level is the workplace of the household active members. Similar to the classification adopted for the factor labour, three workplaces are considered: households with members working only inside the West Bank, with at least one member working in Israel and at least one member working in the rest of the world. Less than 1% of households have

members simultaneously working in Israel and in the rest of the world. Those households were merged with households having at least one member employed in Israel. As depicted in Figure 5, about 32% of households have at least one active member employed abroad either in Israel or in the rest of the world.

**Figure 5: Distribution of households by workplace of their active members**
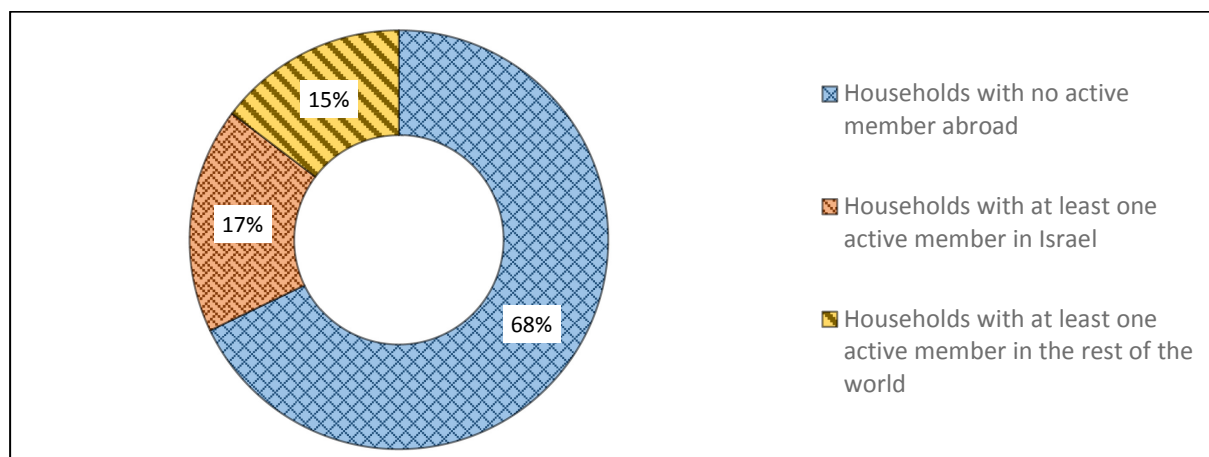


Source: PCBS, 2014c.

Finally, households are further disaggregated based on the eligibility of their active members to a work permit in Israel. Likewise, for labour classification, three qualification statuses are considered: unqualified, weakly qualified and highly qualified workers. At household level, there are nine possibilities of household composition based on the eligibility of the household's active members. However, the combinations with less than 1% of the total are merged with others, so as to come to 4 consistent combinations (Table 7).

The stratified classification of households provides for 120 households (Figure 6). However, out of these 120 groups, 20 are empty and the final SAM actually comprises 110 household groups.

**Table 7: Household classes according to number of qualified members**

| Initial combinations | | Final combinations | |
|---|---|---|---|
| Description | Percent | Description | Percent |
| No qualified member | 19.77 | No qualified member | 19.77% |
| 1 weakly qualified member | 18.85 | At least 1 weakly qualified member | 19.29% |
| 2 weakly qualified member | 0.44 | | |
| 1 highly qualified member | 56.35 | At least one highly qualified member | 56.70% |
| 2 highly qualified member | 0.35 | | |
| 1 weakly and  1 highly qualified members | 3.43 | At least 1 weakly and 1 highly qualified members | 4.24% |
| 2 weakly and  1 highly qualified members | 0.74 | | |
| 1 weakly and 2 highly qualified members | 0.05 | | |
| 2 weakly and  2 highly qualified members | 0.02 | | |
| Total | 100 | | 100 |

Source: PCBS, 2014c.

**Figure 6: Disaggregation of household accounts**
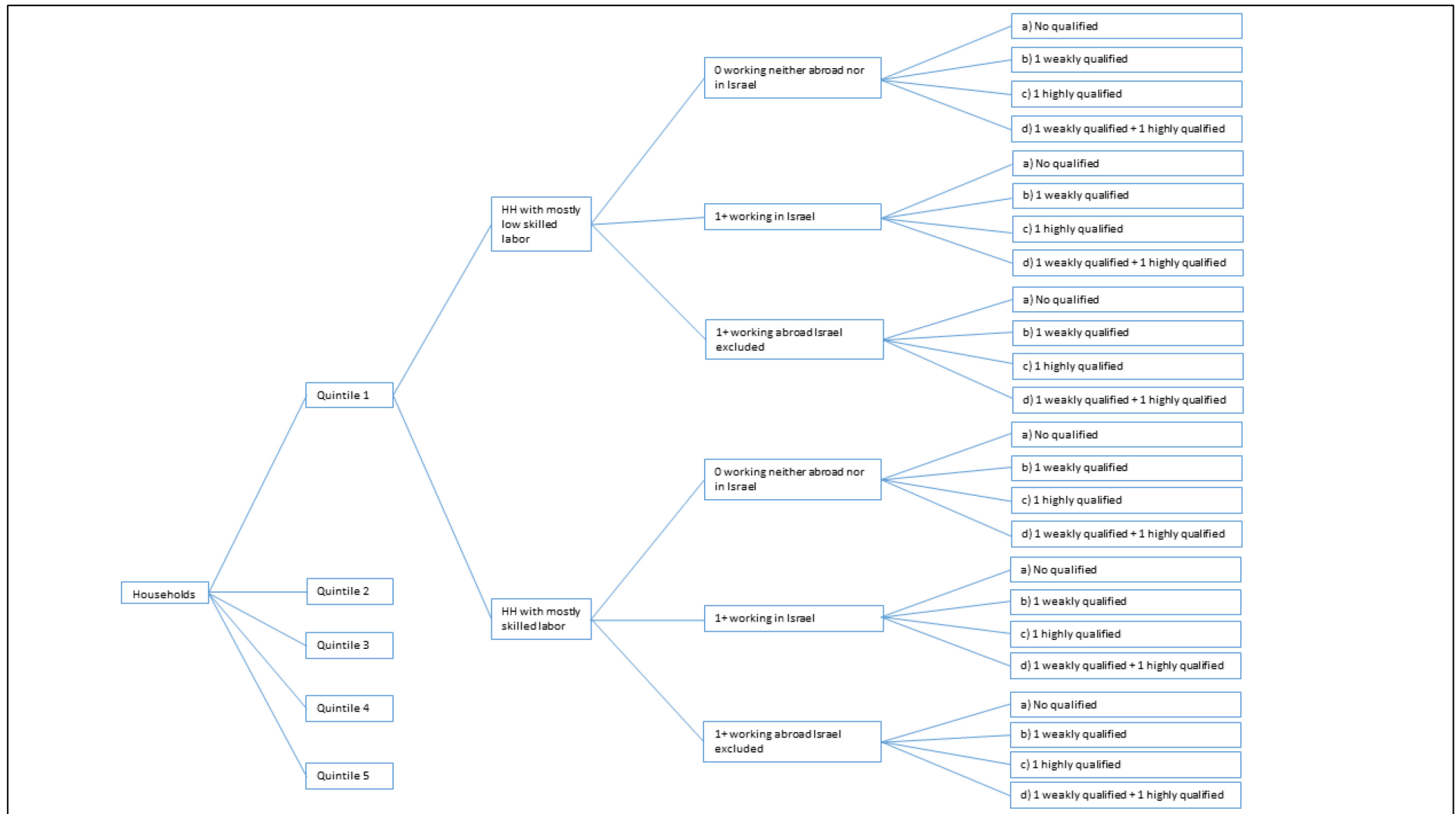


Source: Own illustration.

### 3.2  Disaggregation and processing of the raw data

This section describes the steps followed to move from each entry of the macro SAM to its corresponding disaggregated cells (or sub-matrices) in the micro SAM and shows how the raw data are processed. The approach followed is similar to that followed for the macro SAM. We refer to each entry of the macro SAM by (row, column) as reflected in Table 1.

*(1, B) Margins*

In the micro SAM, trade margins appear as payments from wholesale and retail trade margin accounts to the commodity accounts wholesale and retail trade services respectively. Transport margins appear as payment from the transport margins account to the commodity account Transportation by road. The initial values are derived from the 2004 SUT (PCBS, 2014a).

*(1, C) Intermediate inputs*

The intermediate input matrix is derived by summing up the input demand by activity and commodity for all economic agents in the economy except the NPISH. The input demand of NPISH is sorted by commodity and aggregated over activities and assigned to the activity account "anpish". The initial values stem from the 2004 SUT (PCBS, 2014a). Next, these initial values are adjusted to match the 2011 NA values (PCBS, 2014b). The NA provides for 20 activity sectors. In a first instance, the NA sectors are mapped to the 49 SAM activity accounts. Subsequently, for the SAM activity accounts with one-to-one mapping to NA activity sectors, the shares across commodity accounts are kept constant and only the total is updated to the total input demand of that sector in the NA. In case of a mapping between one NA sector and several SAM activity accounts, the shares across activities and commodities are kept constant and the total is updated to the total input demand in the NA.

*(1, F) Household Consumption*

Initial values for the household consumption matrix are derived from the 2011 PECS (PCBS, 2014c). In the PECS, commodities are grouped based on the classification of individual consumption according to purpose. First, the commodity groups in the PECS are mapped to the SAM commodity accounts. For each household group, total consumption by commodity group is calculated. However, the initial values derived from the raw data were, to a certain degree, flawed. In fact, aggregated food expenditure made up only 12.4% of all households' consumption expenditures, while the living standards report (PCBS, 2012d) shows for the year 2011 that food expenditure makes up 34% of all household consumption expenditure in the West Bank. Therefore, the initial values derived from the raw data are adjusted using the living standards report (PCBS, 2012d).

*(1, G) NPISH consumption*

NPISH institutions mostly consume services namely education, health and social work, recreational, and business services. The initial values are derived from the SUT of 2004 (PCBS, 2014b).

*(1, I) Government consumption*
The initial values for government consumption are derived from the SUT of 2004 (PCBS, 2014b).

*(1, L) Investment demand*
Initial values for Gross Fixed Capital Formation (GFCF) and change in inventories are taken from the 2004 SUT (PCBS, 2014b).

*(1, M) Exports to Israel*
The initial values for total export from the West Bank to abroad (Israel included) by commodity are derived from the SUT of 2004 (PCBS, 2014b). Detailed information on export by destination is derived from the UN Comtrade database (UN Comtrade, 2015). However, commodities in this database are listed according to the Harmonized System (HS) classification. Therefore, a concordance table between the HS classification and the 83 SAM commodity accounts is established first. Next, export to Israel and to the rest of the world by commodity is calculated and the share of Israel in the total export for each commodity is derived. These shares are applied to the initial values so as to come to the export to Israel by commodity. Since the UN Comtrade database only lists goods but not services, for the commodity accounts associated with goods, the share of Israel in total export is explicitly applied, while for accounts associated with services, the average share of Israel in total export is used instead.

*(1, N) Exports to the rest of the world*
The disaggregated export of goods and services from the West Bank to the rest of the world (Israel excluded) is computed by subtracting for each commodity account the value of export to Israel from the total value of export derived from the SUT (PCBS, 2014b).

*(2, A) Margins*
Income to margin accounts comes mostly from agricultural products and manufacturing commodity accounts. The initial values are derived from the SUT (PCBS, 2014b).

*(3, A) Market output*
The "Make matrix" is derived by summing up the market output by activity and commodity for all economic agents in the economy except the NPISH. The market output of NPISH is sorted by commodity and aggregated over activities and assigned to the activity account "anpish". The initial values are derived from the SUT of 2004 (PCBS, 2014b). Next, these values are updated to match the 2011 NA figures (PCBS, 2014b). The NA provides data for 20 activity sectors. In the first instance, the NA sectors are mapped to the 49 SAM activity accounts. Subsequently, for the SAM activity accounts with one-to-one mapping to NA activity sectors, the shares across commodity accounts are kept constant and only the total is updated to the total market output of each sector based on the 2011 NA. In case of a mapping between one NA sector and several SAM activity accounts, the shares across activities and commodities are kept constant and the total is updated to the total market output in the NA.

*(4, C) Labour compensation*
The 2011 PECS (PCBS, 2014c) provides detailed information on economically active household members. The characteristics of these active household members are used to classify them along the criteria set for labour categories. The survey provides for 6 production sectors: agriculture, commerce and restaurants, construction, manufacturing and mining, transportation and communication, and services. Firstly, total income for each labour class is calculated by sector[2]. Secondly, the 6 sectors of the survey are mapped to the 49 SAM activity accounts. In case of one PECS production sector being mapped to several SAM activity accounts, the value of labour compensation earned by one labour class from that PECS sector is split equally across all SAM activity accounts. The resulting matrix of initial values is adjusted using the distribution of value added across sectors from the SUT (PCBS, 2014a) to discriminate the labour compensation across sectors. The obtained values are further adjusted to match the totals of the 2011 NA (PCBS, 2014b). As the NA only has 20 sectors, while the SAM has 49, a correspondence table between the two is established and for each sector, the total from the NA is used.

To compute the part of labour compensation paid by activity "anpish", workers employed by non-profit organizations and the United Nations Relief and Work Agency for Palestine refugees in the Near East (UNRWA) are selected from the PECS and their total income is calculated for each labour class. The obtained values are adjusted to match the share of NPISH in total value added in 2011. That share is calculated from the SUT (PCBS, 2014a), while the value added figure is taken from the 2011 NA (PCBS, 2014b).

 With regard to labour income accruing to foreign workers, as no information on sectors employing foreign labour is available, the total value of labour compensation paid to abroad from the macro SAM is split across all sectors based on their respective shares in total value added taken from the SUT (PCBS, 2014a).

*(4, M) Compensation of employees working in Israel*
The matrix of factor income from Israel stems from the 2011 PECS (PCBS, 2014c). Household members employed in Israel are classified according to the criteria defined for the corresponding labour groups. Total income by labour group for workers employed in Israel is calculated and used as starting value.

*(4, N) Compensation of employees working in the rest of the world*
Factor income from the rest of the world matrix is derived from the 2011 PECS (PCBS, 2014c). Household members are classified according to the criteria defined for the corresponding labour groups. Total income received by household members employed abroad (other than in Israel and the West Bank) is used.

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[2]    Wage data for active household members are missing in the 2011 PECS (PCBS, 2014c). Therefore, the average wage per labour class is calculated from the 2011 LFS (PCBS, 2014d) and assigned to workers belonging to the same labour classes in the PECS. Compensation of labour for the own-account workers is directly imputed in the PECS for the respective workers by adding to the average wage received by their counterparts with similar demographic characteristics who are wage workers the earning premium estimated in Gindling et al. (2016).

*(5, C) Capital and Land compensation*

Land is considered a production factor only for agricultural activities. The total land compensation is distributed over the four agricultural activities based on their respective shares in total land use. Data on land use are derived from PCBS statistics (PCBS, 2015). The initial value for capital compensation paid by each activity is the sectoral gross operating surplus derived from the SUT (PCBS, 2014a).

*(5, N) Capital income from the rest of the world*

This is investment income received from the rest of the world. It is a one-to-one account transaction. Its value is the same as in the macro SAM.

*(6, D) Household income from labour*

This submatrix stems from the 2011 PECS (PCBS, 2014c), which provides detailed information on West Bank workers and their households of origin. The initial values for this submatrix are calculated as the total income earned by economically active household members classified by labour classes and mapped to their households of origin categorized by household groups.

*(6, E) Household income from unincorporated capital and land*

This submatrix is also derived from the 2011 PECS (PCBS, 2014c), which provides detailed information on household income sources. Income derived by households from land is explicitly provided in the raw data. Capital payment to households not transiting through enterprises is the unincorporated capital income. This includes a share of the own-account workers' mixed income as well as rent from buildings. The 2011 PECS provides for households' mixed income and rent from buildings. As only a fraction of the mixed income accrues to capital and acknowledging that this fraction is higher for the rich households than it is for the poor households, it is assumed a range from 0.2 to 0.6, with 0.2 being the share of capital in mixed income for the poorest quintile and 0.6 the one for the richest quintile. These shares are applied to the total mixed income and rent from building received by households to arrive at the starting values used for unincorporated capital income for each household group.

*(6, F) Inter-household transfers*

Total transfers received by each household group from other households in the West Bank is calculated from the 2011 PECS (PCBS, 2014c). Using the consumption per adult-equivalent as a wealth indicator, the household groups are ranked from rich to poor. Subsequently, a household group with a lower rank (i.e. a poorer household) receives equal transfers from all household groups with higher ranks. Thus, the wealthiest household group makes transfers to all the others and does not receive any transfer. On the expenditure side, the size of the household group is used as a weight factor to adjust the initial values and make sure that a household group with a smaller size carries less of the burden of the transfers than a larger household group, *certeris paribus*. After this first round of adjustments, a second round of adjustments is conducted to recover the values of total inter-household transfers received by the different household groups, as this is the primal information.

With regard to *Zakat* transfers, the 2011 PECS (PCBS, 2014c) provides information on *Zakat* payment made by households. Total *Zakat* payments by household group is first calculated. The *Zakat* revenue is assumed to accrue only to the lowest income quintile households, since it is a religious transfer from rich to poor households. Again, households are ranked according to consumption per adult-equivalent, and households in the upper four quintiles make identical payments to households in the lowest quintile.

### (6, G) NPISH transfers to households
The 2011 PECS (PCBS, 2014c) includes households' income from transfers from non-governmental institutions. This information serves as proxy for the households' income from NPISH transfers. Households are sorted by group and the transfers they receive from the non-governmental institutions are calculated and used as initial values for this submatrix.

### (6, H) Household income from dividends
The initial values for this submatrix are derived from the 2011 PECS (PCBS, 2014c), which includes households' income from stocks, bonds and shares. The total income from these sources is calculated for each household group and is used as a starting value.

### (6, I) Government transfers to households
The 2011 PECS (PCBS, 2014c) includes households' income from government aid. Subsequently, the total income received by households from government transfers is calculated for each household group and is used as a starting value.

### (6, N) Transfers to households from the rest of the world
Initial values for household income received from the rest of the world are derived from the 2011 PECS (PCBS, 2014c). Households are sorted by household group and the total transfers they receive from the rest of the world is calculated for each group.

### (7, N) Transfers to NPISH from the rest of the world
This submatrix is a one-to-one transaction between the institutions "Rest of the world" and "NPISH". Hence, its value is identical to that of the macro SAM.

### (8, E) Enterprise income from capital
Capital return to corporate enterprises is a one-to-one transaction between the accounts "Enterprise" and "Capital". Therefore, the value of this transaction is identical in the micro and macro SAMs.

### (8, I) Transfers to enterprises by government
The value of subsidies transferred by the government to private enterprises is a one-to-one transaction between institutions "Enterprise" and "Government". The value of this transaction is identical to that of the macro SAM.

### (9, H) Investment profit accruing to government
The total value of dividends received by the government from fully or partially state-owned enterprises is a one-to-one transaction between institutions "Government" and "Enterprise". Hence, the value of this transaction is the same as in the macro SAM.

*(9, J) Domestic tax revenue*

Domestic tax revenue received by the government includes the indirect taxes (10, A), production taxes (10, C), factor taxes (10, D), income tax on households (10, F) and corporate tax on enterprises (10, H); all collected by the PNA. These are one-to-one transactions between the respective accounts and institution "Government". Their values are identical in the micro and the macro SAMs.

*(9, K) Tax clearance with Israel*

This includes the indirect taxes levied on goods and services imported by the West Bank from and via Israel (11, A) and tax on payroll levied on West Bank workers employed in the Israeli economy (11, D). These are also one-to-one transactions between the respective tax accounts and institution "Government". Hence, their values are identical in the micro and macro SAMs.

*(9, N) Foreign grants*

Total value of foreign grants to the government is a one-to-one transaction between the institutions "rest of the world" and "Government". Its value is the same in the micro and macro SAMs.

*(10, A) Domestic indirect taxes*

This encompasses various tax instruments, namely value added tax (VAT), excise taxes and customs duties. The initial values for the VAT and the customs duties are based on the SUT (PCBS, 2014a). The excise duties for 2011 are derived from the Ministry of Finance fiscal development and macro performance report (MoF, 2012a).

*(10, C) Production taxes*

Initial values for production tax are derived from the SUT (PCBS, 2014a).

*(10, D) Domestic factor taxes*

Initial values for tax on payroll and workforce are derived from the 2011 LFS (PCBS, 2014d). Firstly, workers employed in registered firms are selected, as registered firms are likely to pay taxes. Assuming that the tax on payroll is a fixed share of workers' income, workers are sorted by labour class and the total labour income is calculated and is used as initial value for payroll tax on each labour class.

*(10, F) Income tax*

Income tax on households stems from the 2011 PECS (PCBS, 2014c). The proxy used is household total income as income tax is proportional to the total income.

*(10, H) Corporate tax*

This is a one-to-one transaction between institution "Enterprise" and the tax account "direct tax". Its value in the macro and micro SAMs is identical.

*(11, A) Indirect taxes collected by Israel*

Indirect taxes collected by Israel include customs duties, VAT on imports and excise tax on petroleum. Initial values for customs duties are derived from the SUT (PCBS, 2014a). Initial

values for VAT are computed by applying the VAT rate of 16% (Deloitte, 2014) to the import value of each commodity account for all West Bank imports from and via Israel. The excise tax levied by the Israel is only on petroleum products (MoF, 2012a), so on the commodity account "Coke and petroleum products". The value of the excise duties is identical in both the micro and macro SAMs.

*(11, D) Factor tax on West Bank workers employed in Israel*
Similar to the tax on payroll levied on the domestic labour market, tax levied on the Israeli labour market is derived from 2011 LFS (PCBS, 2014d). Workers employed in registered businesses in Israel are sorted by labour group and the total income by labour group is used as the initial value, under the assumption that the tax paid is a fixed share of the wage.

*(12, E) Depreciation*
Depreciation is a one-to-one transaction between the accounts "Capital" and "Investment-Savings". Its value is identical in the micro and the macro SAMs.

*(12, F) Household savings*
Household savings for each household group is computed as a residual in the respective household account.

*(12, H) Enterprise savings*
Enterprise savings is a one-to-one transaction between institution "Enterprise" and "Investment-Savings" account. Its value is identical in the micro and the macro SAMs.

*(12, I) Government savings*
Government savings is a one-to-one transaction between the institution "Government" and the "Investment-Savings" account. Its value is identical in the micro and the macro SAMs.

*(12, M) Current account balance with Israel*
This is a one-to-one transaction between the institution "Israel" and the "Investment-Savings" account. Its value is identical in the micro and the macro SAMs.

*(12, N) Current account balance with the rest of the world*
This is a one-to-one transaction between the institution "Rest of the world" and the "Investment-Savings" account. Its value is identical in the micro and the macro SAMs.

*(13, A) Imports from Israel*
The initial values for total import to the West Bank from abroad (Israel included) by commodity are derived from the SUT (PCBS, 2014b). Detailed information about the West Bank's import by origin is derived from the UN Comtrade database (UN Comtrade, 2015). In this database, commodities are listed according to the Harmonized System (HS) classification. The correspondence between the HS classification and the 83 SAM commodity accounts is first established. Next, the value of import from Israel and the rest of the world is calculated for each commodity. Then, the share of Israel in the total import value is derived for each commodity. Subsequently, these shares are applied to the initial values, so as to derive the import value from Israel by commodity. However, since the UN Comtrade data are limited to

goods and do not include services, for the commodity accounts of goods, the share of Israel in total import is explicitly applied, while for commodity accounts of services the average share of Israel in total import value is used instead.

*(13, K) Collection and processing fee and payroll tax not transferred to the PNA*
This entry includes the 3% collection and processing fee levied by Israel on all gross tax revenues collected on behalf of the PNA as well as the payroll tax collected on Palestinian workers in Israel that is not transferred to the PNA. The value of this entry is identical in the macro and the micro SAMs.

*(14, A) Imports from the rest of the world*
Import of goods and services to the West Bank from the rest of the world (Israel excluded) is computed for each commodity by subtracting the value of imports from Israel from total import value by commodity.

*(14, D) Labour compensation paid to the rest of the world*
This is labour compensation received by foreign workers employed in the domestic West Bank economy. The value of the corresponding macro SAM entry is assigned to the labour group of foreign workers.

*(14, E) Capital payment to the rest of the world*
This is a one-to-one transaction between institution "rest of the world" and the factor account "Capital". Its value is identical in the micro and the macro SAMs.

*(14, F) Household transfers to the rest of the world*
The volume of transfers made by each household stems from the 2011 PECS (PCBS, 2014c) and is used as the proxy for households' transfers to the rest of the world. Households are sorted by household group and the total value of transfers they make is calculated and is used as the starting value.

## 3.3 Estimation of a balanced Micro SAM

To come to a final balanced SAM, the total of every single submatrix is first scaled up to the value of the corresponding entry in the macro SAM. Thus, the micro SAM was made consistent with the macro SAM. However, individual SAM accounts presented discrepancies. Therefore, the challenge was to remove the discrepancies in the individual SAM accounts, while keeping the consistency with the macro SAM. To achieve this goal, the SAM is estimated using the same cross entropy program used to estimate the macro SAM.

In the estimation process, macro totals such as the GDP are fixed with zero standard error. Additionally, the macro SAM totals are used as controls with zero standard errors. Moreover, individual SAM elements and account totals are also specified as controls so as to arrive at a final estimated SAM consistent with the macro SAM, balanced in every single SAM account and overall consistent with the 2011 NA (PCBS, 2014b).

### 3.4 Adjustment for domestic factor taxes

Domestic factor taxes have so far been considered as a payment from production factors to the government through the factor tax account (10, D). However, they are actually taxes on factor use by activities. Therefore, it is more intuitive to see them as a payment from activities to the government. To implement this correction, a factor tax account has been introduced for each production factor group. The initial value of factor tax paid by each production factor group is assigned to the corresponding factor tax account and split across activities based on the shares of each activity in the value added received by the respective production factor. To balance the activity and factor accounts, the values of factor tax are subtracted from the value added received by each production factor and previous payments of production factors to factor tax account are set to zero. On the government side, the values of the newly generated factor tax accounts are channelled to the government account, while the previous transaction between the government account and the old factor tax account is set to zero.

This factor tax correction is limited to the production factors used by domestic activities. Factor tax collected on West Bank workers employed in Israel is kept as factor income tax paid by the respective labour groups, since the Israeli activities are not represented in the SAM. As a result, there are 46 factor use tax accounts that are newly introduced.

## 4    Structure of the West Bank economy: observations from the SAM

### 4.1 Domestic production and input demand

Services are the dominant sector in the West Bank economy contributing to 31% of the total market output value. Agricultural production represents 8% of the total market output (Figure 7). In the agricultural sector, crop production forms 51% of the agricultural market output value, while animal production forms the remaining 49%.

**Figure 7: Domestic production by aggregated activities**
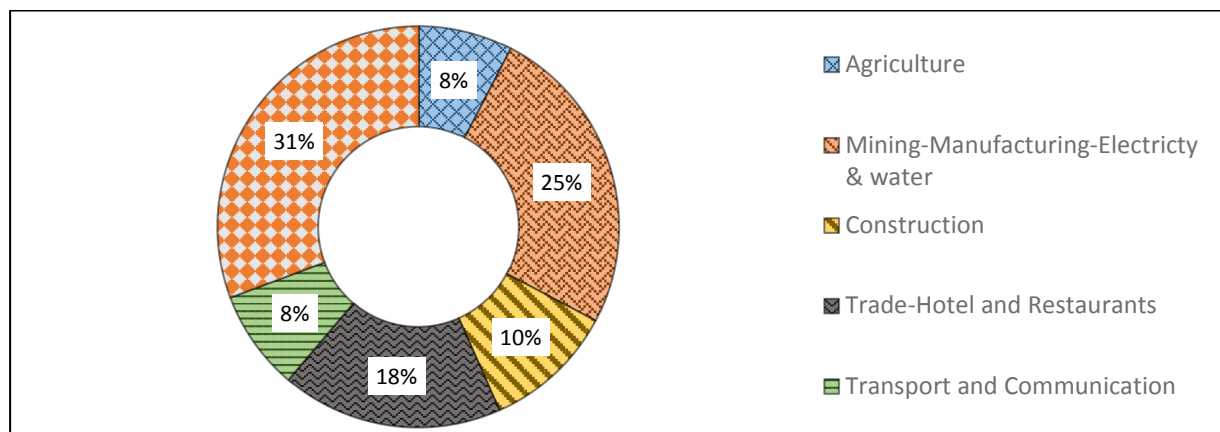


Source: 2011-SAM.

The manufacturing sector is the most intermediate input demanding sector in the West Bank economy (Figure 8). Agricultural sector accounts for 10% of the total input demand, with crop production representing 30% of the agricultural sector input demand, against 70% for the animal production.

**Figure 8: Intermediate input demand shares by aggregated activity sectors**
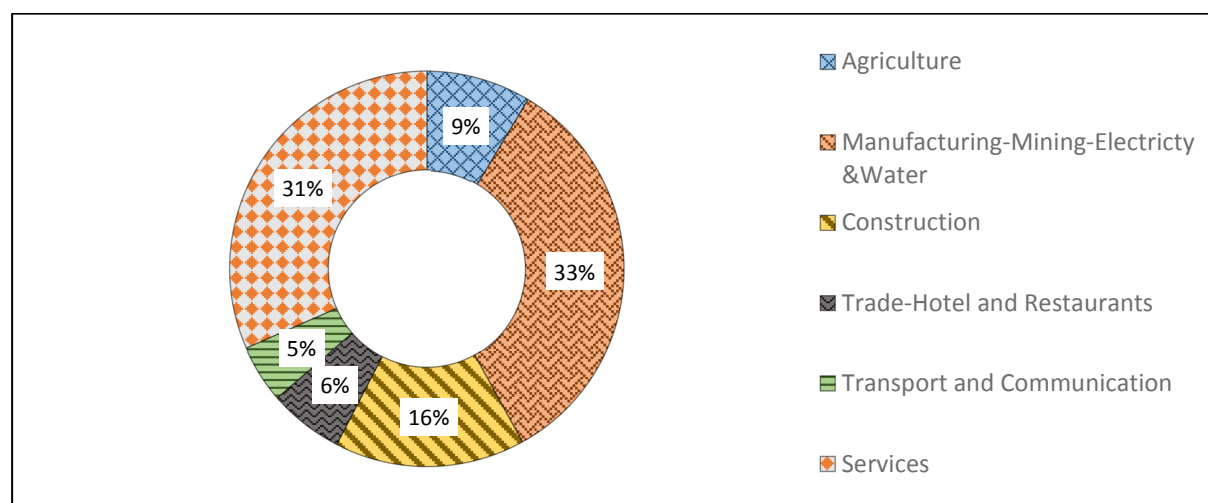


Source: 2011-SAM.

## 4.2 Production factors

The service sector accounts for 30% of the total value added, while the agricultural sector accounts only for 7% (Figure 9).

**Figure 9: Value added shares by aggregated activity sectors**
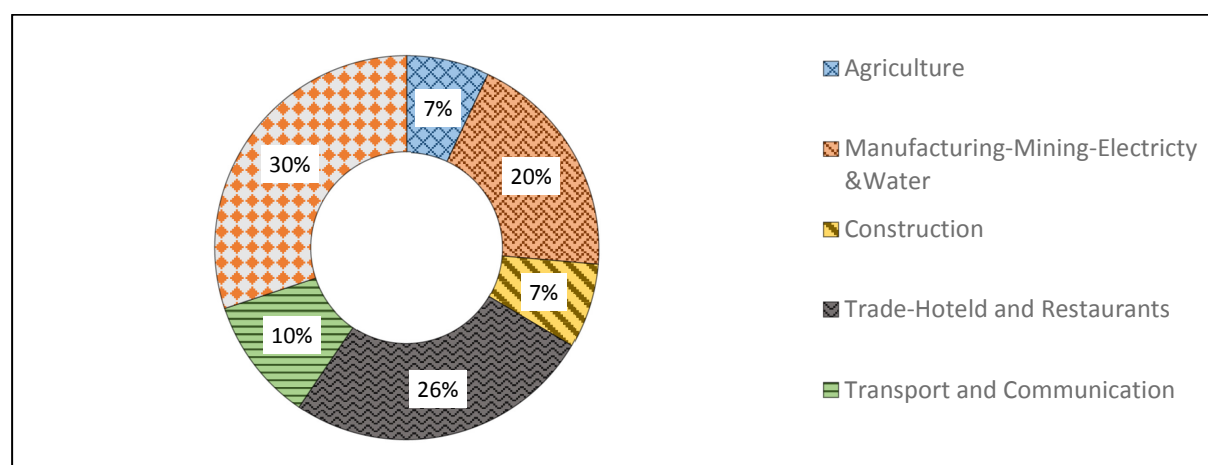


Source: 2011-SAM.

Labour accounts for 62% of the total value added net of depreciation and of production taxes. Capital makes up 38% of the net value added, while the share of land is negligible. A deeper look at the distribution of the value added across activities shows that services contribute to 44% of the total labour compensation, while trade and manufacturing contribute the most to the remuneration of capital (Table 8).

**Table 8: Distribution of value added by activity**

|  | Agri-culture | Manu-facturing | Construc tion | Trade-Hotel and Restaurants | Transport and Communication | Services | Total |
|---|---|---|---|---|---|---|---|
| Low-skilled males | 7% | 20% | 17% | 28% | 10% | 18% | 100% |
| Low-skilled females | 41% | 18% | 0% | 12% | 0% | 29% | 100% |
| High-skilled males | 2% | 7% | 6% | 16% | 4% | 65% | 100% |
| High-skilled females | 1% | 2% | 0% | 3% | 1% | 92% | 100% |
| All labour | 7% | 13% | 10% | 20% | 6% | 44% | 100% |
| All Capital | 7% | 28% | 3% | 34% | 16% | 12% | 100% |

Source: 2011-SAM.

One characteristic of the West Bank workforce is its participation in different labour markets. In addition to the domestic labour market, about 15% of the workforce is employed in Israel and 2% is employed in the rest of the world (PCBS, 2014d). As a result, 23% of the total West Bank labour income stems from Israel and 0.3% from the rest of the world. The compensation of employees received from Israel accrues mostly to low skilled labour, with permitted workers accounting for more than two thirds of the total (Figure 10).

**Figure 10: Share of compensation of employees received from Israel by labour groups**
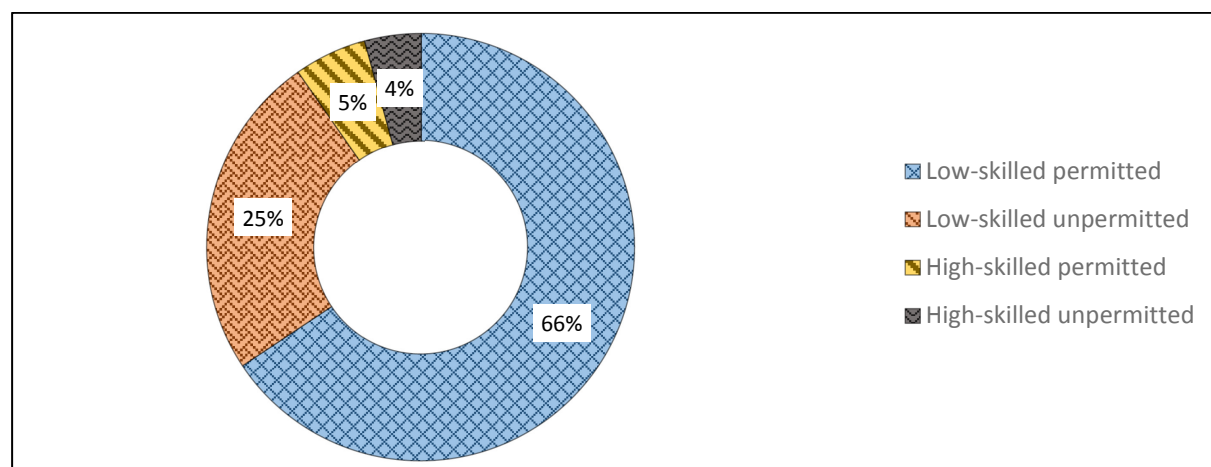


Source: 2011-SAM.

In contrast to the labour compensation received from Israel, where the low skilled labour makes up the lion's share, high skilled labour accounts for the largest share in the compensation of labour employees receive from the rest of the world (Figure 11).

**Figure 11: Share of compensation of employees received from the rest of the world**
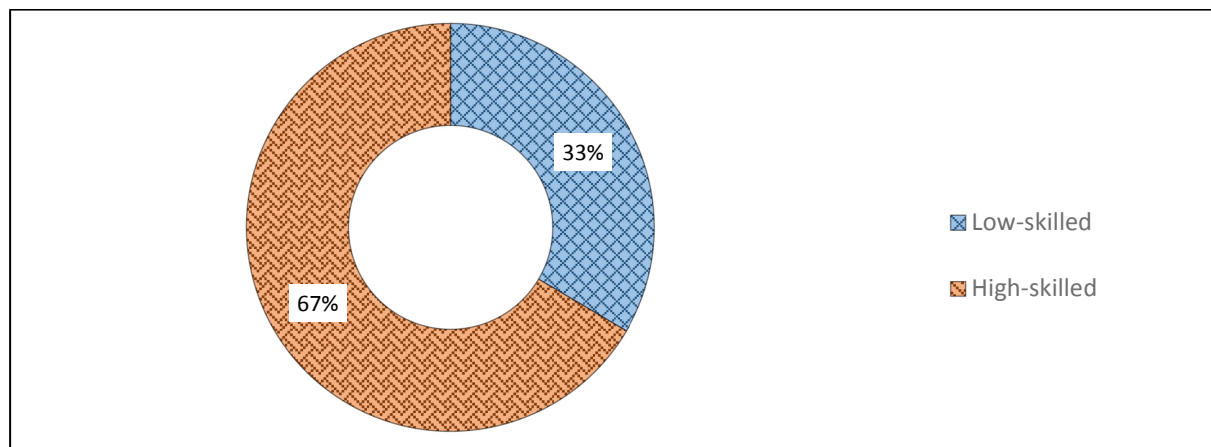


Source: 2011-SAM.

## 4.3  Household income and expenditure

Households in the West Bank derive most of their income from labour (Table 9). Capital is an important source of income, accounting for 27% of all households' income. This result highlights the large proportion of the West Bank working population that is self-employed (36%) (PCBS, 2014d). Land revenue is negligible. Transfers from the NPISH are a higher share in the income for the poorer quintiles. By contrast, remittances are a higher share of the income received by the richest quintile. Transfers from the government make up 4.7% for all household's income and their shares are high in both the top and the lowest quintiles' incomes.

**Table 9: Shares of household income by income source and household quintiles**

|  | Quintile 1 | Quintile 2 | Quintile 3 | Quintile 4 | Quintile 5 | All households |
|---|---|---|---|---|---|---|
| Labour | 82.23% | 76.16% | 65.41% | 57.13% | 49.05% | 62.58% |
| Total capital | 8.70% | 14.43% | 27.18% | 33.21% | 36.85% | 27.00% |
| Land | 0.25% | 0.17% | 0.05% | 0.07% | 0.03% | 0.09% |
| Inter-household transfers | 5.48% | 5.04% | 2.55% | 4.64% | 6.00% | 3.67% |
| NPISH transfers | 0.25% | 0.17% | 0.05% | 0.07% | 0.03% | 0.09% |
| Government transfers | 5.22% | 4.87% | 2.50% | 4.57% | 5.97% | 4.72% |
| Remittances | 2.53% | 3.63% | 4.14% | 4.12% | 7.24% | 4.76% |
| Total | 12.85% | 15.86% | 19.22% | 22.55% | 29.51% | 100.00% |

Source: 2011-SAM.

Analysing the distribution of household income from labour across the different labour groups shows that the richer the household, the less income it derives from low-skilled labour and the more income it earns from high skilled labour employed in the domestic market (Table 10). All household quintiles have members employed in Israel and in the rest of the world. However, the share of labour income from Israel is higher in the lower quintiles than in the top one. The share of labour income from the rest of the world is small for all the household quintiles.

**Table 10: Distribution of labour income to households by labour and household groups**

| Labour groups | | Quintile 1 | Quintile 2 | Quintile 3 | Quintile 4 | Quintile 5 | All households |
|---|---|---|---|---|---|---|---|
| Working in the domestic market | Low-skilled | 63.91% | 50.18% | 41.89% | 36.82% | 27.49% | 42.83% |
| | High-skilled | 14.24% | 23.41% | 33.04% | 38.46% | 54.42% | 34.07% |
| Working in Israel | Low-skilled | 20.43% | 24.28% | 23.20% | 21.01% | 14.85% | 20.56% |
| | High-skilled | 1.15% | 1.77% | 1.55% | 3.40% | 2.95% | 2.23% |
| Working in the Rest of the world | Low-skilled | 0.13% | 0.12% | 0.11% | 0.11% | 0.07% | 0.11% |
| | High-skilled | 0.14% | 0.25% | 0.21% | 0.20% | 0.23% | 0.21% |
| Total | | 100% | 100% | 100% | 100% | 100% | 100% |

Source: 2011 SAM.

Investigating the share of total capital accruing to each household group informs that more than 40% of capital income accrues to the richest quintile (Table 11). The poorest quintile mostly derives capital income from unincorporated businesses. This result confirms that poor households usually do not own stocks and shares in incorporated businesses.

**Table 11: Distribution of capital income among household quintiles**

| | Quintile 1 | Quintile 2 | Quintile 3 | Quintile 4 | Quintile 5 | Total |
|---|---|---|---|---|---|---|
| Total capital | 4.14% | 8.48% | 19.35% | 27.74% | 40.28% | 100% |
| - Unincorporated capital | 4.76% | 9.73% | 21.49% | 29.08% | 34.94% | 100% |
| - Incorporated capital | 0.24% | 0.48% | 5.81% | 19.25% | 74.22% | 100% |

Source: 2011 SAM.

More than half of government transfers go to the top two quintiles (Figure 12a). This result, when considered along with the one for household income from labour (Table 10), can be understood since a large share of the government transfers is actually made of pension payments and richer households have a higher proportion of high-skilled workers employed in the domestic market, mostly working in the public sector. All household groups receive remittances from the rest of the world. The top quintile receives almost half of all remittances, while the lowest quintile only receives 7% of it (Fig 12b).

**Figure 12: Share of income received by household groups by income source**

a. Government transfers                              b. Remittances
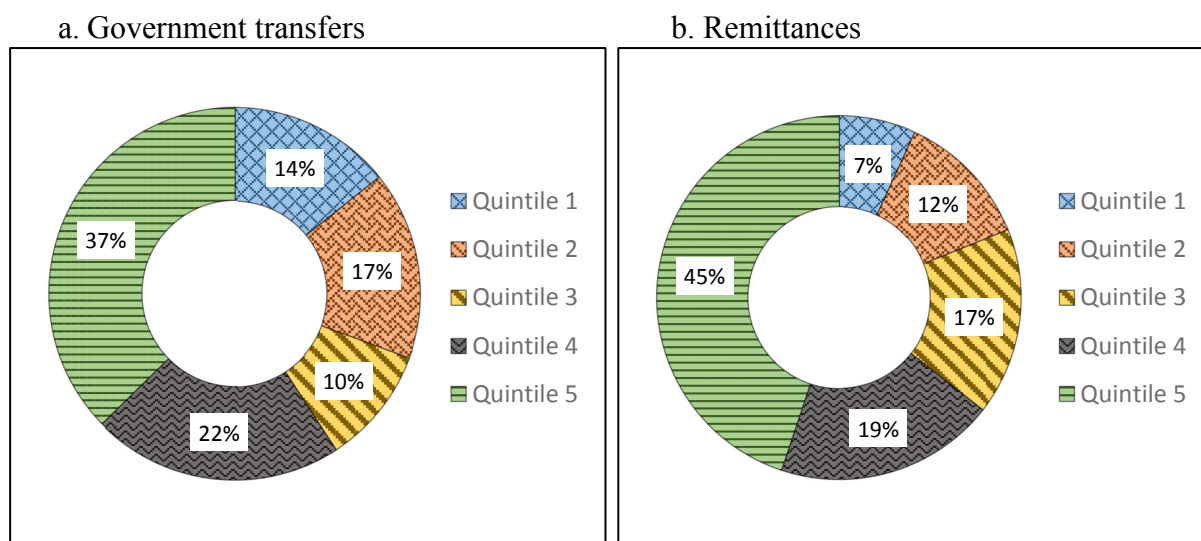


Source: 2011-SAM.

On the household expenditure side, the main expenditure line is the household consumption with on average 96% of all household total expenditures. Table 12 shows that for the top two quintiles consumption is greater than income, meaning that they have negative savings, whereas the three lowest quintiles actually have positive savings. The household savings rate is on average -3% of household total income. Gross inter-household transfers make up on average about 1% of household total expenditure, with the richest quintile having the highest share. The top quintiles make more transfers to abroad than the poorer ones. Direct tax rates on households are on average very low (0.1%).

**Table 12: Household expenditure shares**

|  | Quintile 1 | Quintile 2 | Quintile 3 | Quintile 4 | Quintile 5 | All households |
|---|---|---|---|---|---|---|
| Consumption | 71.9% | 89.9% | 92.1% | 111.6% | 100.5% | 95.9% |
| Gross inter-household transfers | 0.1% | 0.2% | 0.4% | 0.8% | 1.6% | 0.8% |
| Transfers to abroad | 2.3% | 3.6% | 3.8% | 4.7% | 10.8% | 5.9% |
| Direct tax | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% |
| Savings | 25.6% | 6.2% | 3.6% | -17.2% | -13.0% | -2.7% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% |

Source: 2011-SAM.

A deeper look at household consumption of different commodities informs that households spend one third of their consumption budget on food products and another one third on manufactured goods (Figure 13).

**Figure 13: Household consumption expenditure by aggregated commodity groups**
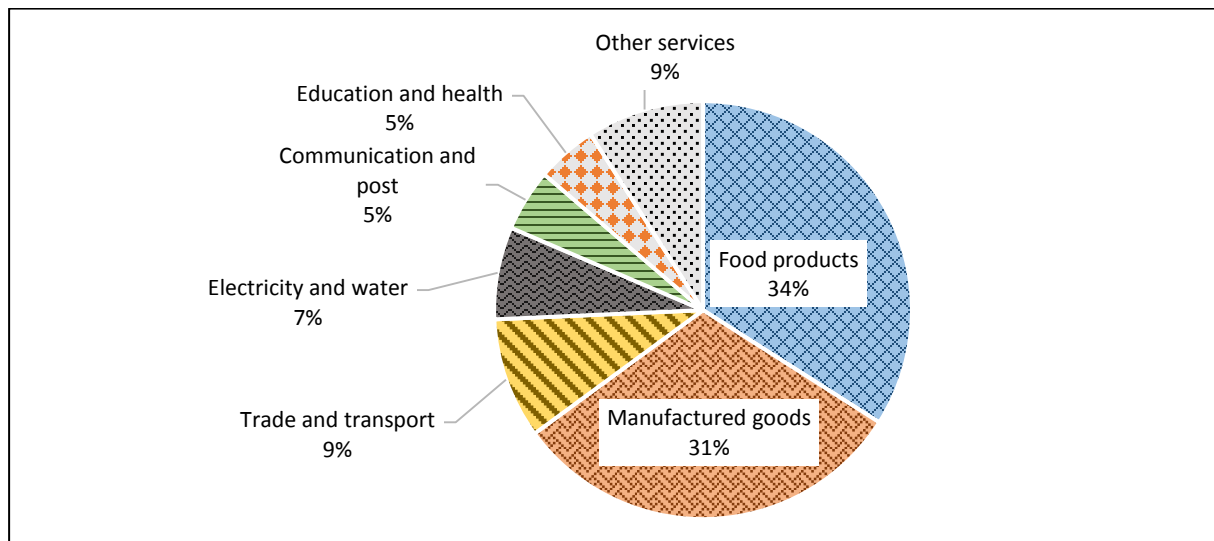


Source: 2011-SAM.

Food expenditure, including both agricultural products and processed food, represents on average 34% of household consumption expenditure. Households in the poorest quintile have the highest share, while the richest quintile has the lowest share (Figure 14).

**Figure 14: Household food expenditure share in consumption expenditure**
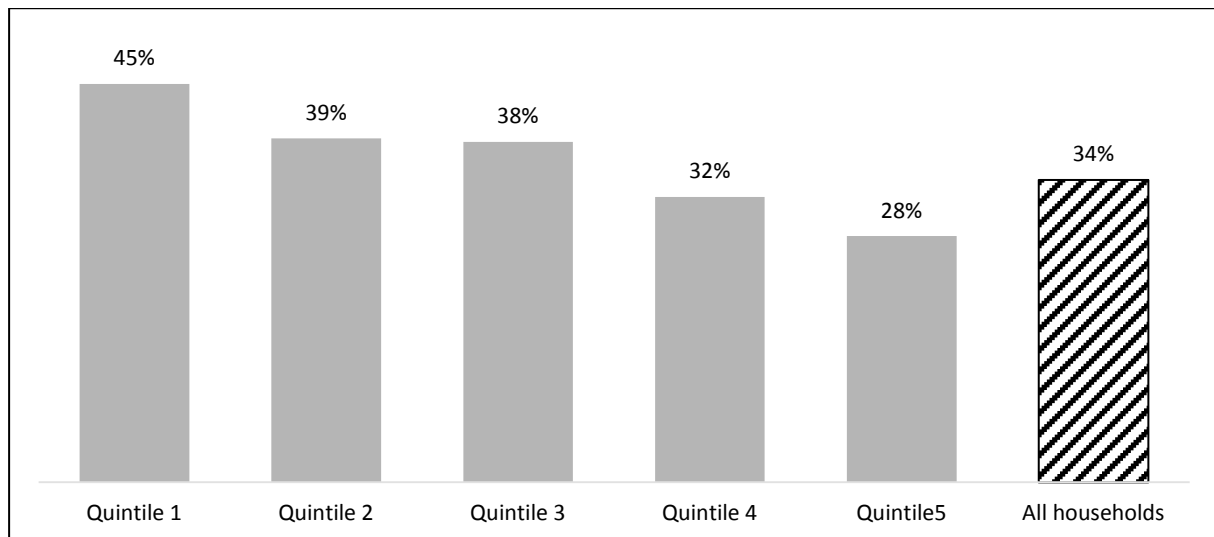


Source: 2011-SAM.

## 4.4 Government revenue and expenditure

The PNA collects revenue from various tax instruments, of which the main are the value added tax (VAT), the import tax and the excise tax (Figure 15).

**Figure 15: Shares of government revenue from different sources**
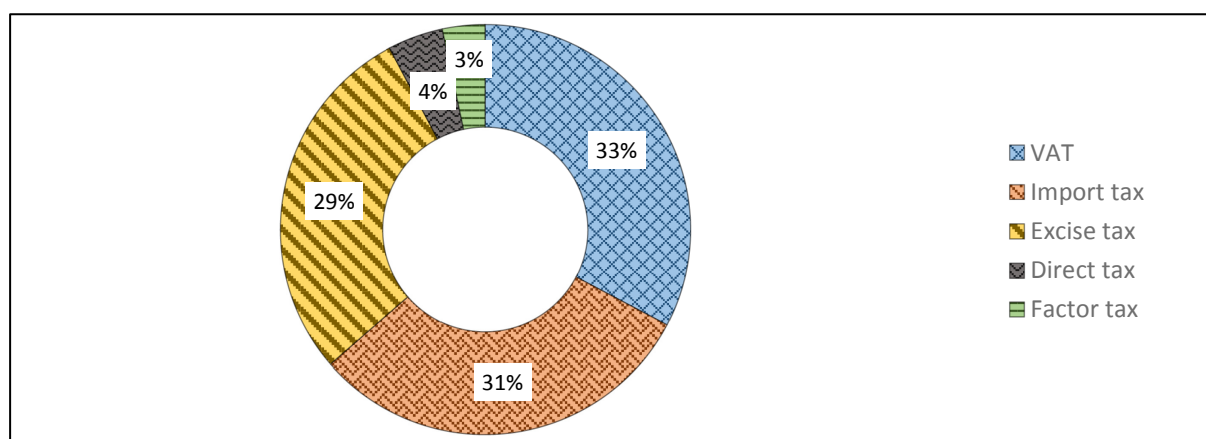


Source: 2011-SAM.

A particularity of the West Bank is that part of the tax revenue is collected domestically by the PNA itself, and another part is collected by the Israeli government on imports from and via Israel, as well as on West Bank workers employed in the Israeli labour market. About 78% of the total PNA tax revenue is collected by the Israeli administration and transferred to the PNA through the so-called "tax clearance".

Domestic excises are collected on beverages and tobacco products, with tobacco accounting for 98% of the domestic excise tax revenue. Excise tax collected by the Israeli government is only on petroleum products. Most of the import tax revenue collected both domestically and by the Israeli government is on manufactured goods. Similarly, most of the VAT is on manufactured goods. In the domestic market, agricultural products are exempted from VAT (Table 13).

**Table 13: Shares of indirect tax by commodity groups**

| | Agricultural products | Manufactured goods | Construction | Trade | Transport | Services | Total |
|---|---|---|---|---|---|---|---|
| Domestic import tax | 3.7% | 96.3% | 0.0% | 0.0% | 0.0% | 0.0% | 100.0% |
| Domestic VAT | 0.0% | 84.5% | 0.2% | 4.2% | 1.8% | 9.3% | 100.0% |
| Import tax Israel | 3.7% | 96.3% | 0.0% | 0.0% | 0.0% | 0.0% | 100.0% |
| VAT Israel | 7.5% | 77.8% | 0.1% | 1.1% | 12.0% | 1.5% | 100.0% |

Source: 2011-SAM.

Government savings in 2011 are negative and represent -10% of government total income. Government revenue is spent on commodities and on transfers to households and enterprises. Government consumption makes up 83% of total government expenditure before savings and transfers to households forms the remaining 17%. Transfers to enterprises are negligible. The main commodity consumed by the government is public administration services (Figure 16).

**Figure 16: Shares of government consumption expenditure by commodity groups**
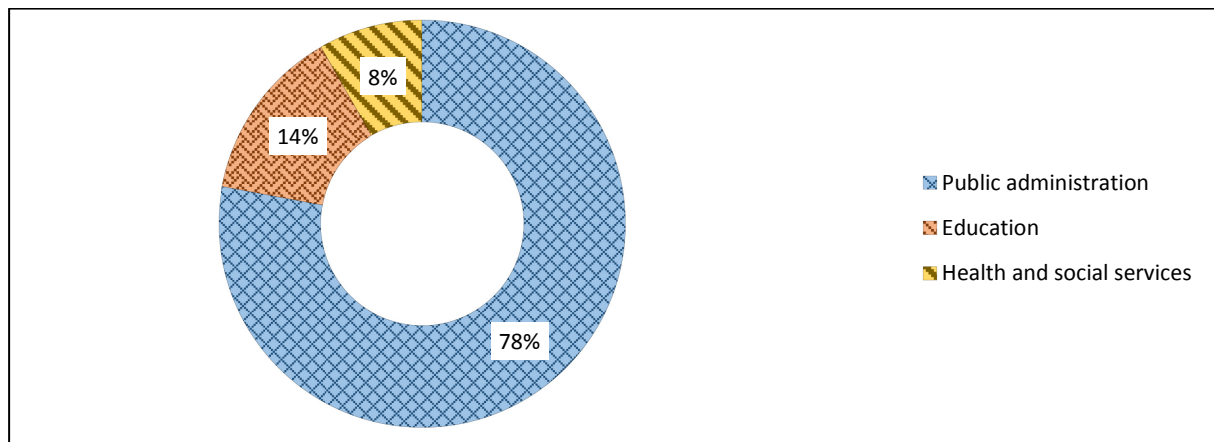


Source: 2011-SAM.

## 4.5 NPISH institution and activity

Non-profit institutions serving households play a significant role in the West Bank economy. In the SAM, they are depicted by an institution and an activity. The institution NPISH receive income from foreign donors and spends on consumption and transfers to households. In contrast to the other institutions present in the SAM, the institution NPISH does not save. About 96% of NPISH income is spent on consumption and 4% on transfers to households. The institution NPISH mostly consumes services (Figure 17).

**Figure 17: Shares of NPSH consumption expenditure by commodity groups**
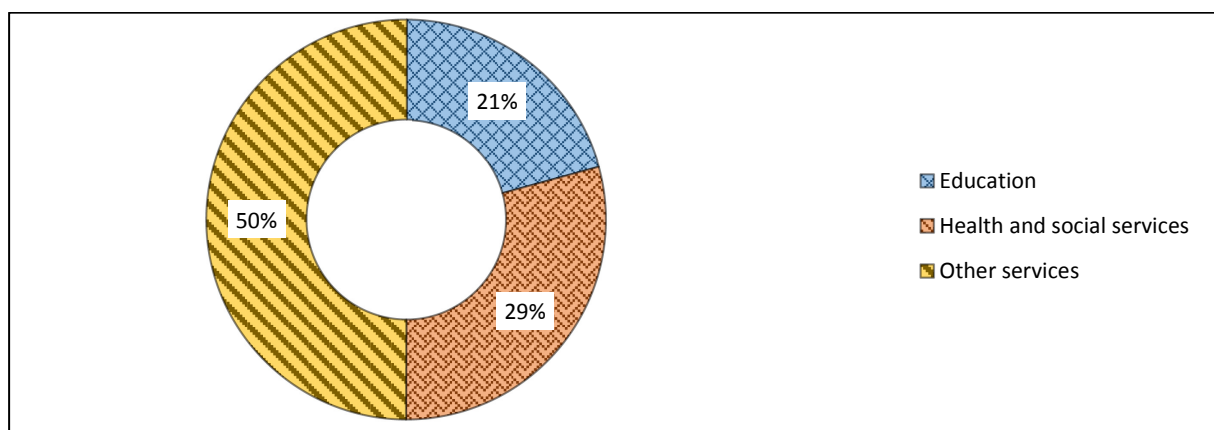


Source: 2011-SAM.

With regard to the activity "anpish", its total output forms 3% of the total domestic output. Its output is composed of 98% services. Among services, health and education form more than 80% of the total "anpish" activity output (Figure 18).

**Figure 18: Shares of activity npish output by service commodities**
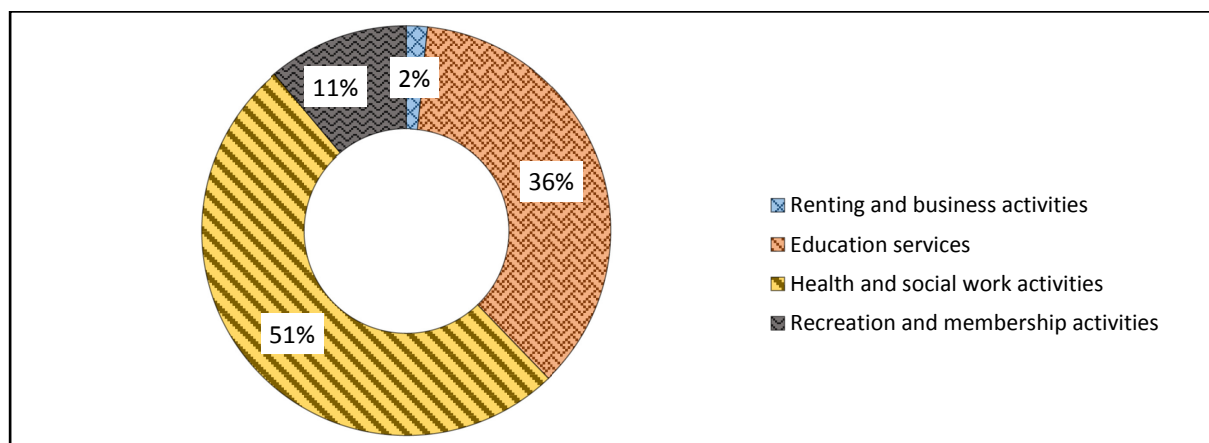


Source: 2011-SAM.

On the expenditure side, about 54% of activity "anpish" revenue is spent on compensating production factors (Figure 19).

**Figure 19: Shares of activity npish expenditure**
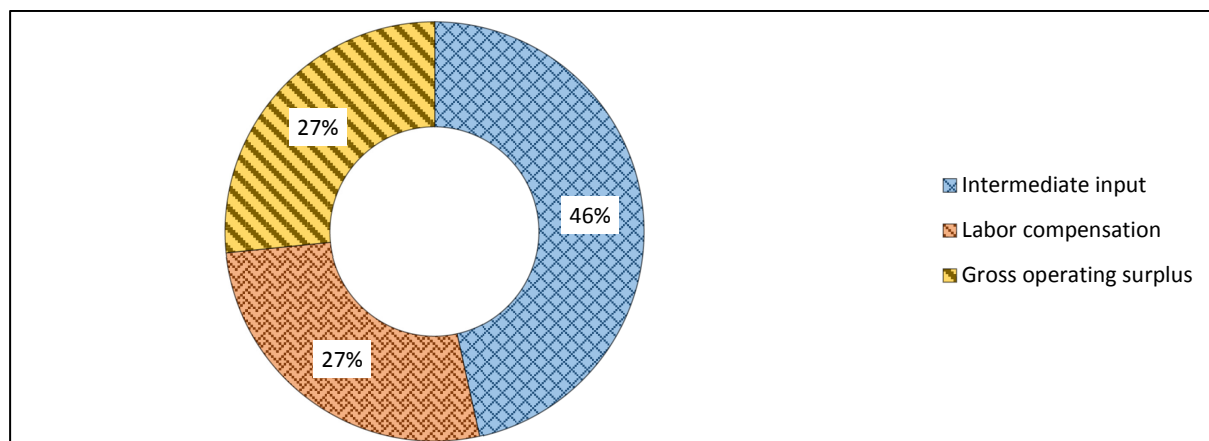


Source: 2011-SAM.

Regarding the compensation of employee paid by activity "anpish", it appears that the high-skilled workers get the highest share (Figure 20).

**Figure 20: Shares of compensation of employees paid by activity npish**
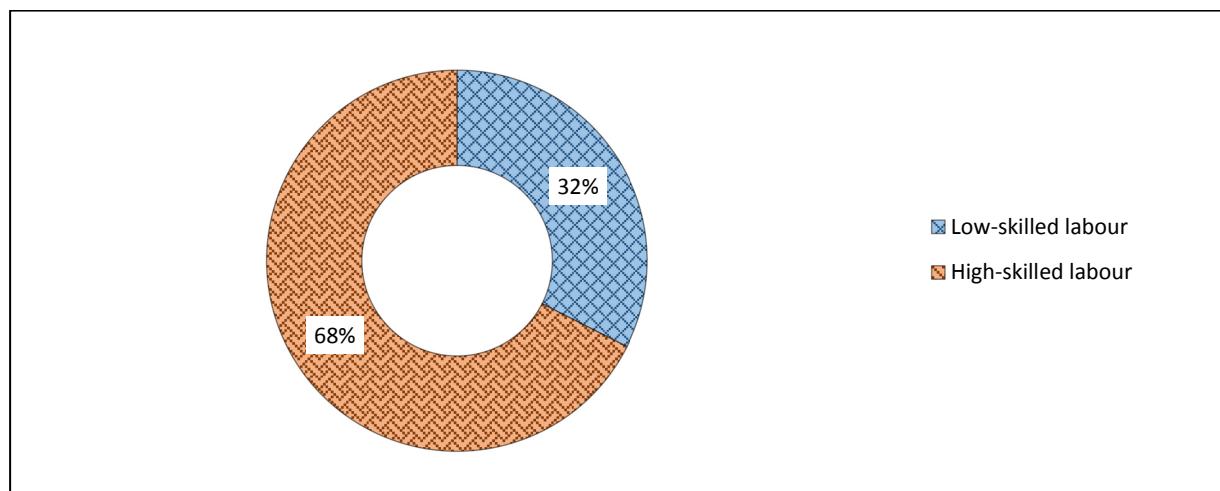


Source: 2011-SAM.

## 4.6 Transactions with foreign accounts

Two foreign accounts are included in the SAM: Israel and the rest of the world. Israel is the main trade partner of the West Bank. Regarding exports, Israel accounts for 94% of West Bank total exports. Most of West Bank exports to both Israel and the Rest of the world are manufactured goods (Figure 21). The total export makes up about 15% of the domestic production.

**Figure 21: Shares of West Bank export by destination and commodity groups**

a.  To Israel                                          b. To the rest of the world
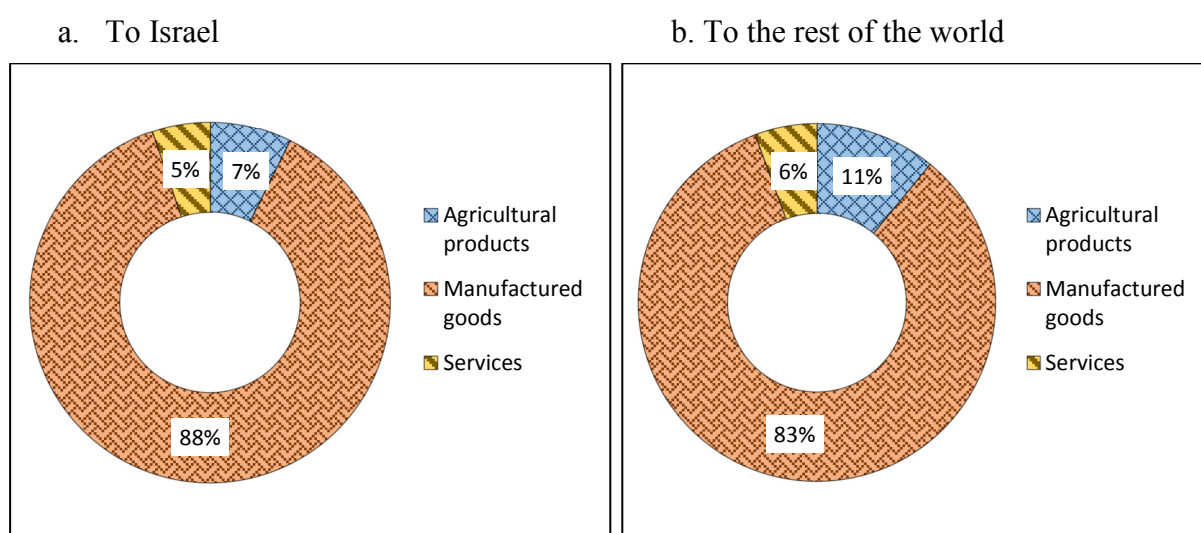


Source: 2011-SAM.

Imports make up 36% of the total domestic demand[3] for goods and services in the West Bank. From the import perspective, Israel remains the main trade partner with 79% of West Bank total import. Manufactured goods compose most of the imports from both Israel and the rest of the world (Figure 22).

**Figure 22: Shares of West Bank import by destination and commodity groups**

From Israel
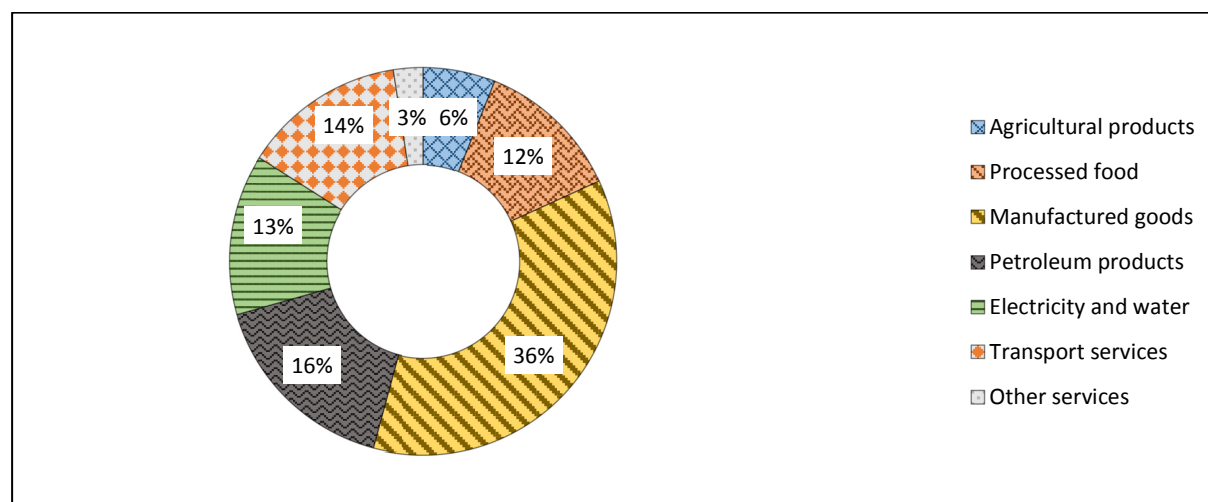


From the rest of the world
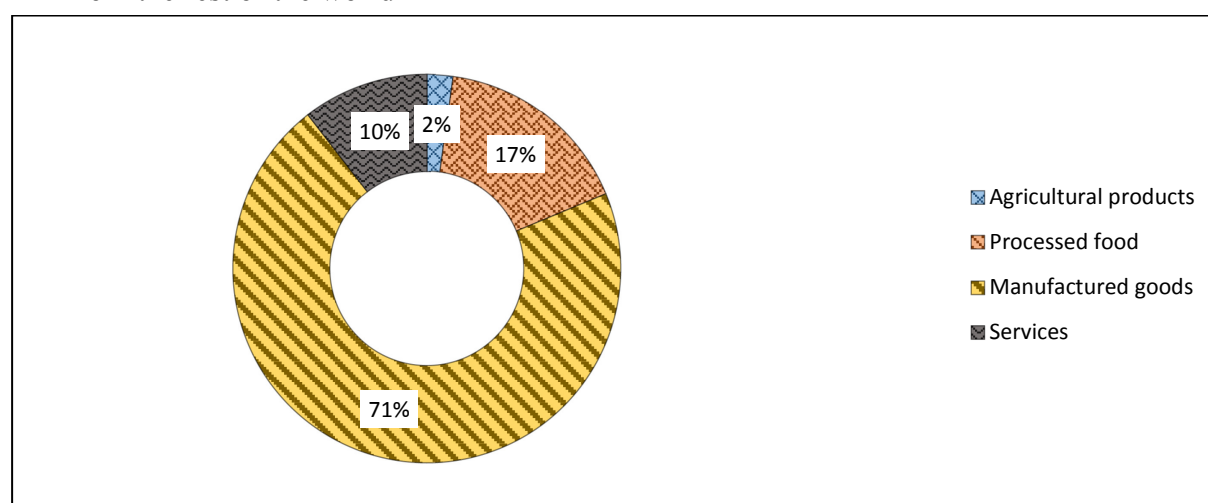


Source: 2011-SAM.

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[3] Total domestic demand is final demand (household, NPISH and government consumption demand) plus intermediate input demand.

# 5  Conclusion and suggestions for potential data improvement

The 2011 SAM for the West Bank has been developed from data gathered from different sources, including institutions inside Palestine such as the PCBS and the Palestinian Ministry of Finance as well as institutions outside Palestine like the IMF and the COGAT (Israel). These official sources were also complemented with estimates derived from articles mostly published in peer-reviewed journals. We made the national accounts of the West Bank for 2011 the reference data set to which the other sources were compared and when feasible adjusted. Despite these adjustments, the data taken from different sources were not always converging and this resulted in discrepancies that were removed during the estimation of both the macro and the micro SAMs using the cross-entropy program. In that process we kept some indicators constant and left others to be estimated by the program. Therefore, there are some entries of the SAM that are more reliable than others. Table 14 presents the data reliability matrix that shows the quality of the data based on the sources and the procedures followed to compile the macro SAM and to build each submatrix of the micro SAM. A grading scheme is adopted to illustrate the reliability level of each cell and is as follows:

- Grade A: data of best reliability. This includes entries in the macro SAM that are based on the national accounts and for which the corresponding submatrices in the micro SAM are based on the supply and use table.

- Grade B: data of second best reliability. This includes entries in the macro SAM whose values stem from official data sets other than the national accounts. This comprises the balance of payments and the Ministry of finance statement that were available for the whole Palestinian territory, from which the share of the West Bank is derived based on other official statistics. At the micro SAM level, submatrices corresponding to such entries are disaggregated based on official surveys such as the expenditure and consumption survey or the labour force survey.

- Grade C: this grade is attributed to entries in the macro SAM that are mostly driven by estimates derived from journal articles. Their values are the same in the macro and the micro SAMs.

In the data reliability matrix, there are two entries with grade C, which are related to enterprise income and saving. These are data not readily available and are therefore the Authors' first recommendation for further improvement. However, values for several entries with grade B were initially available only at national level. Although the proxies used to derive the shares for the West Bank in these national figures are consistent with the recommendation of the PCBS, having them explicitly displayed in the balance of payments or in the Ministry of finance statements will be useful for further improvement of the West Bank SAM. Finally, several micro SAM submatrices are disaggregated based on the 2004 supply and use table. Therefore, there is a room for updating those submatrices, whenever a more recent supply and use table is available. We will be making this document freely available online so that the SAM can be further improved and we are willing to share and cooperate

with those wishing to do so. This work is a major contribution for researchers interested in pursuing SAM-based analyses on the West Bank. Hence, the data will be made available to interested collaborators.

**Table 14: Data reliability matrix**

| Incomings \ Outgoings | A Commodity | B Margins | C Activities | D Labor | E Capital | F Households | G NPISH | H Enterprise | I Government | J Domestic tax | K Tax Israel | L Investment | M Israel | N RoW | O Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 Commodity | | B | A | | | B | A | | A | | | A | A | A | |
| 2 Margins | B | | | | | | | | | | | | | | |
| 3 Activities | A | | | | | | | | | | | | | | |
| 4 Labor | | | B | | | | | | | | | | B | B | |
| 5 Capital | | | B | | | | | | | | | | | B | |
| 6 Households | | | | B | B | B | B | B | B | | | | | B | |
| 7 NPISH | | | | | | | | | | | | | | B | |
| 8 Enterprise | | | | | C | | | | B | | | | | | |
| 9 Government | | | | | | | | B | | B | B | | | B | |
| 10 Domestic tax | B | | B | B | | B | | B | | | | | | | |
| 11 Tax Israel | B | | | B | | | | | | | | | | | |
| 12 Investment | | | | | B | B | | C | | B | | | B | B | |
| 13 Israel | A | | | | | | | | | | | B | | | |
| 14 RoW | A | | | B | B | B | | | | | | | | | |
| 15 Total | | | | | | | | | | | | | | | |

Source: Own compilation.

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# Appendix

## Appendix 1: Concordance table for activity accounts between the SAM, the SUT, ISIC Rev.3 and GTAP standard classifications

| No. | code | description | No. | code | description | code | Description | code | Description |
|---|---|---|---|---|---|---|---|---|---|
| | **Sectors in the SUT** | | | **Sectors in the SAM** | | | **ISIC Rev.3** | | **GTAP (GSC.2)** |
| 1 | A-A.011ol | Olive groves and farms | 1 | aaoliv | Olive | 0113 | Growing of fruit, nuts, beverage and spice crops including olives | 5 | Oilseeds |
| 2 | A-A.011r | Growing of cereal, other crops | 2 | aaocrop | Growing of cereals and other crops n.e.c. | 0111 | Growing of cereals and other crops n.e.c. | 3 | Cereal grains |
| | | | | | | | | 2 | Wheat |
| | | | | | | | | 1 | Paddy rice |
| | | | | | | | | 6 | Sugar cane, sugar beet |
| | | | | | | | | 7 | Plant based fibers |
| | | | | | | | | 8 | Other crops |
| | | | | | | 0112 | Growing of vegetables, horticultural specialties and nursery products | 4 | Vegetables, fruits and nuts |
| | | | | | | 0113 | Growing of fruit, nuts, beverage and spice crops | | |
| 3 | A-A.012 | Farming animals | 3 | aalivstk | Farming animals | 0121 | Farming of cattle, sheep, goats, horses, asses, mules and hinnies; dairy farming | 11 | Raw milk |
| | | | | | | 0121 | Farming of cattle, sheep, goats, horses, asses, mules and hinnies; dairy farming | 9 | Cattle, sheep, goats and horses |
| | | | | | | 0122 | Other animal farming; animal products n.e.c. | 10 | Animal products nec. |
| 4 | A-A.r | Other agriculture | 4 | aaforest | Forestry | 0200 | Forestry, logging and related service activities | 13 | Forestry |
| 5 | A-B | Fishing | | | | 050 | Fishing, aquaculture and service activities incidental to fishing | 14 | Fishing and Hunting |
| 6 | A-C.1410 | Quarrying stone, sand and clay | 5 | abstone | Quarrying stone, sand and clay | 1410 | Quarrying of stone, sand and clay | 18 | Mineral nec |
| 7 | A-C.r | Other mining, quarrying | 6 | abomine | Other mining and quarrying | 10 | Mining of coal and lignite; extraction of peat | 15 | Coal |
| | | | | | | 11 | Extraction of crude petroleum and natural gas; service activities incidental to oil and gas extraction | 16 | Oil |

| Sectors in the SUT | | | Sectors in the SAM | | | ISIC Rev.3 | | GTAP (GSC.2) | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 12 | Mining of uranium and thorium ores | | |
| | | | | | | 13 | Mining of metal ores | 18 | Mineral nec |
| | | | | | | 14 except 1410 | Other mining and quarrying | | |
| 8 | A-D.1514ol | Manufacture of olive oil | 7 | acolivoil | Manufacture of olive oil | 1514 | Manufacture of vegetable and animal oils ans fats | 21 | Vegetable oils and fats |
| 9 | A-D.1514r | Manufacture of other vegetable oil and fats | 8 | acoilfat | Other vegetable oil and fats | 1514 | Manufacture of vegetable and animal oils ans fats | 21 | Vegetable oils and fats |
| 10 | A-D.151r | Manufacture of basic foods | 9 | acfood | Manufacture of basic foods | 1511 | Production, processing and preserving of meat and meat products | 19 | Bovine meat products |
| | | | | | | | | 20 | Meat product nec |
| | | | | | | 1512 | Processing and preserving of fish and fish products | 25 | Food products nec |
| | | | | | | 1513 | Processing and preserving of fruit and vegetables | 25 | Food products nec |
| 11 | A-D.1520 | Manufacture of dairy products | 10 | acdairy | Manufacture of dairy products | 1520 | Manufacture of dairy products | 22 | Dairy products |
| 12 | A-D.153 | Manufacture of starches and animal feeds | 11 | acstarch | Manufacture of grain mills and starches | 1532 | Manufacture of starches and starch products | 25 | Food products nec |
| | | | | | | 1531 | Manufacture of grain mill products | 23 | Processed rice |
| | | | | | | 1533 | Manufacture of prepared animal feeds | 25 | Food products nec |
| 13 | A-D.15 rt 16 | Manufacture of other food and beverages | 12 | acofbvtb | Manufacture of other food | 154 | Manufacture of other food products | 24 | Sugar |
| | | | | | | 155 | Manufacture of beverages | 26 | Beverage and tobacco products |
| | | | | | | 160 | Manufacture of tobacco products | | |
| 14 | A-D.17 | Manufacture of textile fibers and fabrics | 13 | actextile | Manufacture of textile | 17 | Manufacture of textiles | 27 | Textiles |
| 15 | A-D.18 | Manufacture of clothes | 14 | accloth | Manufacture of wearing apparels | 18 | Manufacture of wearing | 28 | Wearing apparel |
| 16 | A-D.19 | Manufacture of leather and leather products | 15 | acleather | Manufacture of leather products | 19 | Tanning and dressing of leather | 29 | Leather products |
| 17 | A-D.20 | Manufacture of wood and basic wood products | 16 | acwood | Manufacture of wood products | 20 | Manufacture of wood and of products of wood and cork, except furniture; | 30 | Wood products |
| 18 | A-D.21 | Manufacture of paper articles | 17 | acpaper | Manufacture of paper articles | 21 | Manufacture of paper and paper products | 31 | Paper products, publishing |

| Sectors in the SUT | | | Sectors in the SAM | | | ISIC Rev.3 | | GTAP (GSC.2) | |
|---|---|---|---|---|---|---|---|---|---|
| 19 | A-D.22 | Manufacture of publishing and printing | 18 | acpublish | Manufacture of publishing and printing | 22 | Publishing, Printing and reproduction of recorded media | | |
| 20 | A-D.23t24 | Manufacture of coke, chemical prod. | 19 | acchemical | Manufacture of coke, chemical prod. | 23 | Manufacture of coke and refined petroleum products | 32 | Petroleum, coal products |
| | | | | | | 24 | Manufacture of chemicals and chemical products | 33 | Chemical, rubber, plastic products |
| 21 | A-D.25 | Manufacture of rubber, plastics | 20 | acrubber | Manufacture of rubber, plastics | 25 | Manufacture of rubber and plastics products | | |
| 22 | A-D.2696 | Manufacture of stone | 21 | acstone | Manufacture of stone | 2696 | Cutting, shaping and finishing of stone | 34 | Mineral products nec |
| 23 | A-D.26r | Manufacture of other non-metallic minera | 22 | acnonmetal | Manufacture of other non-metallic minera | 26 except 2696 | Manufacture of other non-metallic mineral products | 34 | Mineral products nec |
| 24 | A-D.27t28 | Manufacture of basic  and fabricated metal products | 23 | acmetal | Manufacture of metal and metallic products | 27 | Manufacture of basic metals | 35 | Ferrous metals |
| | | | | | | | | 36 | Metals nec |
| | | | | | | 28 | Manufacture of fabricated metal products, except machinery and equipment | 37 | Metals products |
| 25 | A-D.29 | Manufacture of machinery equipment | 24 | acmachine | Manufacture of machinery equipment | 29 | Manufacture of machinery equipment | 41 | Machinery and equipment nec |
| 26 | A-D.r | Manufacture of medical, electrical and residuals | 25 | acmedical | Manufacture of medical, electrical and residuals | 30 | Manufacture of office, accounting and computing | 40 | Electronic equipment |
| | | | | | | 32 | Manufacture of radio, television and communication equipment and apparatus | | |
| | | | | | | 33 | Manufacture of medical, precision and optical instruments, watches and clocks | 41 | Machinery and equipment nec |
| | | | | | | 31 | Manufacture of electrical machinery n.e.c. | | |
| | | | | | | 34 | Manufacture of motor vehicles, trailers and semi-trailers | 38 | Motor vehicles and parts |
| | | | | | | 35 | Manufacture of other transport equipment | 39 | Transport equipment nec |
| | | | | | | 37 | Recycling | | |
| | | | | | | 36 except 3610 | manufacturing n.e.c | 42 | Manufactures nec |
| 27 | A-D.3610 | Manufacture of furniture | 26 | acfurniture | Manufacture of furniture | 3610 | Manufacture of furniture | | |
| 28 | A-E | Electricity, gas and water supply | 27 | adelectwat | Electricity and gas supply | 401 | Production, transmission and distribution of electricity | 43 | Electricity |
| | | | | | | 402 | Manufacture of gas; distribution of gaseous fuels | 44 | Gas manufacture, |

| Sectors in the SUT | | | Sectors in the SAM | | | ISIC Rev.3 | | GTAP (GSC.2) | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | through mains | | distribution |
| | | | | | | 41 | Collection, purification and distribution of water | 45 | Water |
| 29 | A-F | Construction | 28 | afconst | Construction | 45 | Construction | 46 | Construction |
| 30 | A-G.5020 | Maintenance and repair of motor vehicles | 29 | agmaintveh | Maintenance and repair of motor vehicles | 5020 | Maintenance and repair of motor vehicles | | |
| 31 | A-G.5050 | Retail sale of fuel | 30 | agfuel | Retail sale of fuel | 5050 | Retail sale of automotive fuel | | |
| 32 | A-G.50r | Sale of motor vehicles and parts | 31 | agvehicle | Sale of motor vehicles and parts | 5010 | Sale of motor vehicles | | |
| | | | | | | 5030 | Sale of motor vehicles parts and accessories | | |
| | | | | | | 5040 | Sale, maintenance and repair of motorcycles and related parts and accessories | | |
| 33 | A-G.51 | Wholesale | 32 | agwhole | Wholesale | 51 | Wholesale trade and commission trade, except of motor vehicles and motorcycles | 47 | Trade |
| 34 | A-G.5260 | Repair of personal and household goods | 33 | agretail | Repair of personal and household goods | 5260 | Repair of personal and household goods | | |
| 35 | A-G.52r | Retail sale, remaining | 34 | aghhgd | Retail sale, remaining | 52 except 5260 | Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods | | |
| 36 | A-H | Hotels and Restaurants | 35 | ahhotel | Hotels and Restaurants | 5510 | Hotels; camping sites and other provision of short-stay accommodation | | |
| | | | | | | 5520 | Restaurants, bars and canteens | | |
| 37 | A-I | Transport, storage | 36 | aitransp | Transport, storage | 60 | Land transport and transport via pipelines | 48 | Transport nec |
| | | | | | | 61 | Water transport | 49 | Water transport |
| | | | | | | 62 | Air transport | 50 | Air transport |
| | | | | | | 63 | Supporting and auxiliary transport activities; activities of travel agencies | 48 | Transport nec |
| 38 | A-I.6411 | National post activities | 37 | aipost | National post activities | 6411 | National post activities | 51 | Communication |
| 39 | A-I.64r | Remaining communication | 38 | aicomm | Remaining communication | 6412 | Courier activities other than national post activities | | |
| | | | | | | 6420 | Telecommunications | | |
| 40 | A-J.6511 | Central banking | 39 | ajfinance | Financial services | 6511 | Central banking | 52 | Financial services nec |
| 41 | A-J.6519 | Other monetary intermed. | | | | 6519 | Other monetary intermediation | | |

| | Sectors in the SUT | | | Sectors in the SAM | | | ISIC Rev.3 | | GTAP (GSC.2) |
|---|---|---|---|---|---|---|---|---|---|
| 42 | A-J.65Nom | Nominal banking sector | | | | | | | |
| 43 | A-J.660 | Insurance, pension funding, except compulsory social security | | | | 66 | Insurance and pension funding, except compulsory social security | 53 | Insurance |
| 44 | A-J.r | Other financial intermediation | | | | 659 | Other financial intermediationactivities | 52 | Financial services nec |
| | | | | | | 67 | Activities auxiliary to financial intermediation | | |
| 45 | A-K.7010 | Other rental of buildings | 40 | akrental | Other rental of buildings | 7010 | Real estate activities with own or leased property | 54 | Business services nec |
| 46 | A-K.70rt73 | Other real estate, renting, business activities | 41 | akrestate | Other real estate, renting, business activities | 7020 | Real estate activities on a fee or contract basis | | |
| | | | | | | 71 | Renting of machinery and equipment without operator and of personal and household goods | | |
| 47 | A-K.74 | Other business activities | 42 | akbusiness | Other business activities | 72 | Computer and related activities | | |
| | | | | | | 73 | Research and development | | |
| | | | | | | 74 | Other business activities | | |
| 48 | A-L | Public administration, defense, compulsory social security | 43 | aladmin | Public administration, defense, compulsory social security | 75 | Public administration, defense, compulsory social security | 56 | Public Administration, Defense, Education, Health |
| 49 | A-M | Education | 44 | ameduc | Education | 80 | Education | | |
| 50 | A-N | Health and social work | 45 | anhealth | Health and social work | 85 | Health and social work | | |
| 51 | A-O.90 | Sewage | | adelectwat | Electricity and gas supply | 9000 | Sewage and waste collection, treatment and disposal and other environment protection services | | |
| 52 | A-O.91t92 | Membership org. And recreational activities | 46 | aombrecr | Other community, social and personal service activities | 91 | Activities of membership organizations n.e.c. | | |
| | | | | | | 92 | Recreational, cultural and sporting activities | 55 | Recreational and other services |
| 53 | A-O.930 | other service activities, markets | 47 | aoservice | other service activities, markets | 93 | other service activities | | |
| 54 | A-P | Private households with employed persons | 48 | aphh | Private households with employed persons | 95 | Activities of private households as employers of domestic staff | | |
| 55 | A-Q | Extra-territorial organizations | | | Extra-territorial organizations | 99 | Extra-territorial organizations | 56 | Public Administration, Defense, Education, Health |
| | | | 49 | anpish | Activity non-profit organizations serving households | | | | |

## Appendix 2: Concordance table for commodity accounts between the SAM and in the SUT

| No. | code | Description | No. | code | Description |
|---|---|---|---|---|---|
| | **Accounts in the SUT** | | | **Accounts in the SAM** | |
| 1 | P-A.011C | Cereals, other crops | 1 | cacer | Cereals, other crops |
| 2 | P-A.011OL | Olives | 2 | caoliv | Olives |
| 3 | P-A.011R | Fruits, nuts, beverages and spice crops, and flowers | 3 | cafruit | Fruits, nuts, beverages and spice crops, and flowers |
| 4 | P-A.011V | Vegetables, horticultural specialities | 4 | caveg | Vegetables, horticultural specialities |
| 5 | P-A.012A | Animals | 5 | caanim | Animals |
| 6 | P-A.012M | Milk | 6 | camilk | Milk |
| 7 | P-A.02 | Forestry products | 7 | caforest | Forestry products |
| 8 | P-B | Fishery products | 8 | cafishery | Fishery products |
| 9 | P-C.1410 | Stone, sand, clay | 9 | cbstone | Stone, sand, clay |
| 10 | P-C.R | Other ores, minerals | 10 | cbomine | Other ores, minerals |
| 11 | P-C.U | Unspec. ores, minerals | | | |
| 12 | P-D.1511 | Meat, meat products | 11 | ccMeat | Meat, meat products |
| 13 | P-D.1512 | Fish, fish products | 12 | ccfish | Fish, fish products |
| 14 | P-D.1513 | Processed fruits, vegetables | 13 | ccfruit | Processed fruits, vegetables |
| 15 | P-D.1514OL | Olive oil | 14 | ccolivoil | Olive oil |
| 16 | P-D.1514R | Oils, fats | 15 | ccoilfat | Oils, fats |
| 17 | P-D.1520 | Dairy products | 16 | ccdairy | Dairy products |
| 18 | P-D.1533 | Prepared animal feeds | 17 | ccanimfeed | Prepared animal feeds |
| 19 | P-D.153R | Grain mills, starches | 18 | ccstarch | Grain mills, starches |
| 20 | P-D.1541 | Bakery products | 19 | ccbake | Bakery products |
| 21 | P-D.154R | Sugar, cocoa, chocolate | 20 | ccSugar | Sugar, cocoa, chocolate |
| 22 | P-D.15R | Beverages | 21 | ccbev | Beverages |
| 23 | P-D.1600 | Tobacco products | 22 | cctob | Tobacco products |
| 24 | P-D.17 | Textiles | 23 | cctextile | Textiles |
| 25 | P-D.18 | Wearing apparel, furs | 24 | cccloth | Wearing apparel, furs |
| 26 | P-D.1911 | Leather | 25 | ccLeather | Leather |
| 27 | P-D.19R | Leather products, processed | 26 | ccleathpr | Leather products, processed |
| 28 | P-D.20 | Wood, wood products | 27 | ccWood | Wood, wood products |
| 29 | P-D.21 | Paper, paper products | 28 | ccPaper | Paper, paper products |
| 30 | P-D.22 | Publishing, printing | 29 | ccpublish | Publishing, printing |
| 31 | P-D.23 | Coke, petroleum products | 30 | ccCoke | Coke, petroleum products |
| 32 | P-D.2423 | Pharmaceuticals | 31 | ccpharm | Pharmaceuticals |
| 33 | P-D.2424 | Soaps, detergents, perfumes | 32 | ccsoap | Soaps, detergents, perfumes |
| 34 | P-D.24R | Other chemical products | 33 | ccochemi | Other chemical products |
| 35 | P-D.25 | Rubbers, plastics | 34 | ccrubber | Rubbers, plastics |
| 36 | P-D.2694 | Cement, lime and plaster | 35 | ccStone | Cement, lime and plaster |

| | Accounts in the SUT | | | Accounts in the SAM | |
|---|---|---|---|---|---|
| 37 | P-D.2695 | Articles of concrete, cement | 36 | ccCement | Articles of concrete, cement |
| 38 | P-D.2696 | Stone, stone products | 37 | ccconcrete | Stone, stone products |
| 39 | P-D.26R | Other non-metallic mineral products | 38 | ccnonmetal | Other non-metallic mineral products |
| 40 | P-D.27 | Basic metals | 39 | ccmetal | Basic metals |
| 41 | P-D.28 | Fabricated metals | 40 | ccfabmet | Fabricated metals |
| 42 | P-D.29 | Machinery, equipment | 41 | ccmachine | Machinery, equipment |
| 43 | P-D.30 | Office, accounting and computing machinery | 42 | ccOffice | Office, accounting and computing machinery |
| 44 | P-D.31 | Electrical machinery | 43 | ccelectmach | Electrical machinery |
| 45 | P-D.32 | Radio, television and communication equipment | 44 | ccRadio | Radio, television and communication equipment |
| 46 | P-D.33 | Medical and precision instruments | 45 | ccMedical | Medical and precision instruments |
| 47 | P-D.3430 | Vehicle spare parts | 46 | ccVehicle | Vehicle spare parts |
| 48 | P-D.34R | Cars and lorries | 47 | cccar | Cars and lorries |
| 49 | P-D.35 | Other trasnport equipment | 48 | cctranspequip | Other trasnport equipment |
| 50 | P-D.3610 | Furniture | 49 | ccFurniture | Furniture |
| 51 | P-D.36R | Other manufacturing | 50 | ccomanuf | Other manufacturing |
| 52 | P-D.U | Unspec. manufacture | | | |
| 53 | P-E.40 | Electricity, gas | 51 | cdelectricity | Electricity, gas |
| 54 | P-E.4100 | Water | 52 | cewater | Water |
| 55 | P-E.U | Unspec. electricity, gas, water supply | | | |
| 56 | P-F | Construction | 53 | cfconst | Construction |
| 57 | P-G.5020 | Maintenance and repair of motor vehicles | 54 | cgmaintveh | Maintenance and repair of motor vehicles |
| 58 | P-G.5050 | Retail sale of automotive fuel | 55 | cgfuel | Retail sale of automotive fuel |
| 59 | P-G.50R | Sale of motor vehicles and parts | 56 | cgvehicle | Sale of motor vehicles and parts |
| 60 | P-G.5122 | Wholesale of food, beverages, tobacco | 57 | cgwhfood | Wholesale of food, beverages, tobacco |
| 61 | P-G.5143 | Wholesale of construction materials | 58 | cgwhconstmat | Wholesale of construction materials |
| 62 | P-G.51R | Other wholesale | 59 | cgowhole | Other wholesale |
| 63 | P-G.521T522 | Retail sale of food, beverages, tobacco | 60 | cgrtfood | Retail sale of food, beverages, tobacco |
| 64 | P-G.5232 | Retail sale of textiles, clothing, footwear, leather goods | 61 | cgrtcloth | Retail sale of textiles, clothing, footwear, leather goods |
| 65 | P-G.5233 | Retail sale of household appliances | 62 | cgrthhappl | Retail sale of household appliances |
| 66 | P-G.5260 | Repair of personal and household goods | 63 | cgrphhgd | Repair of personal and household goods |
| 67 | P-G.52R | Other retail sale | 64 | cgoretail | Other retail sale |
| 68 | P-G.U | Unspec. wholesale, retail trade | | | |
| 69 | P-H.5510 | Hotels | 65 | chhotel | Hotels |
| 70 | P-H.5520 | Restaurants | 66 | chresto | Restaurants |
| 71 | P-H.U | Unspecified hotels, restaurants | | | |
| 72 | P-I.6023 | Freight transport by road | 67 | ciroad | Freight transport by road |
| 73 | P-I.60R | Passenger land transport | 68 | ciland | Passenger land transport |
| 74 | P-I.61T63 | Other transport, storage, travel agencies | 69 | ciotransp | Other transport, storage, travel agencies |

| | Accounts in the SUT | | | Accounts in the SAM | |
|---|---|---|---|---|---|
| 75 | P-I.6411 | National post activities | 70 | cipost | National post activities |
| 76 | P-I.64R | Remaining communication | 71 | cicomm | Remaining communication |
| 77 | P-I.U | Unspec. transport, storage, communications | | | |
| 78 | P-J.6511 | Central banking | 72 | cjfinance | Central banking |
| 79 | P-J.6519 | Other monetary intermediation | | | Other monetary intermediation |
| 80 | P-J.660 | Insurance, pension funding, except compulsory social security | | | Insurance, pension funding, except compulsory social security |
| 81 | P-J.R | Other fin. interm., auxiliary activities | | | Other fin. interm., auxiliary activities |
| 82 | P-J.U | Unspec. financial intermediation | | | |
| 83 | P-K.7010A | Imputed rentals of buildings | 73 | ckrental | Imputed rentals of buildings |
| 84 | P-K.7010B | Other rentals of buildings | 74 | ckbuild | Other rentals of buildings |
| 85 | P-K.70RT73 | Other real estate, renting, business activities | 75 | ckrestate | Other real estate, renting, business activities |
| 86 | P-K.74 | Other business activities | 76 | ckbusiness | Other business activities |
| 87 | P-K.U | Unspec. real estate, renting, business activities | | | |
| 88 | P-L | Public administration, defence; compulsory social security | 77 | cladmin | Public administration, defence; compulsory social security |
| 89 | P-M | Education | 78 | cmeduc | Education |
| 90 | P-N | Health, social work | 79 | cnhealth | Health, social work |
| 91 | P-O.90 | Sewage | | cewater | Water |
| 92 | P-O.91 | Membership organisations | 80 | comembr | Membership organisations |
| 93 | P-O.92 | Recreational, cultural and sporting | 81 | corecreation | Recreational, cultural and sporting |
| 94 | P-O.930 | Other services | 82 | coservice | Other services |
| 95 | P-O.U | Unspec. other community, social, personal service activities | | | |
| 96 | P-P | Private households with employed persons | 83 | cphh | Private households with employed persons |
| 97 | P-Q | Extra-territorial organisations | | | |

## Appendix 3: List of labour groups with their frequencies and share of the working population

| Labour group[4] | Share of working population | Frequency in LFS | Labour group | Share of working population | Frequency in LFS |
|---|---|---|---|---|---|
| 1 | 3.1% | 22115 | 40 | 0.5% | 3564 |
| 2 | 0.6% | 4433 | 41 | 0.2% | 1482 |
| 3 | 2.6% | 18122 | 42 | 0.2% | 1179 |
| 4 | 6.2% | 43922 | 43 | 0.3% | 2279 |
| 5 | 3.7% | 25796 | 44 | 0.1% | 918 |
| 6 | 1.8% | 12676 | 45 | 2.3% | 16408 |
| 7 | 3.0% | 21386 | 46 | 1.7% | 12238 |
| 8 | 1.9% | 13044 | 47 | 4.6% | 32542 |
| 9 | 3.3% | 23364 | 48 | 7.9% | 55796 |
| 10 | 2.3% | 15859 | 49 | 9.3% | 65511 |
| 11 | 3.8% | 26569 | 50 | 4.0% | 27914 |
| 13 | 5.0% | 34961 | 51 | 0.7% | 5256 |
| 14 | 2.4% | 17240 | 52 | 0.6% | 4502 |
| 15 | 5.0% | 34843 | 53 | 0.2% | 1583 |
| 16 | 1.2% | 8259 | 54 | 0.1% | 724 |
| 17 | 0.5% | 3601 | 55 | 0.3% | 2065 |
| 18 | 0.6% | 4416 | 56 | 0.8% | 5495 |
| 19 | 2.0% | 14315 | 57 | 0.1% | 1033 |
| 20 | 0.0% | 253 | 58 | 0.3% | 1890 |
| 21 | 2.1% | 14980 | | | |
| 22 | 1.4% | 10027 | Total | 100% | 703839 |
| 23 | 2.8% | 19462 | | | |
| 24 | 2.1% | 15065 | | | |
| 25 | 0.7% | 5195 | | | |
| 26 | 0.1% | 779 | | | |
| 27 | 0.3% | 2034 | | | |
| 28 | 0.4% | 3116 | | | |
| 29 | 0.6% | 4270 | | | |
| 30 | 0.3% | 2258 | | | |
| 31 | 0.5% | 3628 | | | |
| 32 | 0.3% | 2427 | | | |
| 33 | 0.7% | 5056 | | | |
| 34 | 0.3% | 1835 | | | |
| 35 | 0.5% | 3537 | | | |
| 36 | 0.0% | 302 | | | |
| 37 | 1.4% | 10177 | | | |
| 38 | 0.5% | 3805 | | | |
| 39 | 1.2% | 8334 | | | |

Source: PCBS, 2014d

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[4]  For the description of labour groups refer to Fig.1