UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT

Policy review

Occupation, fragmentation and poverty in the West Bank

United Nations

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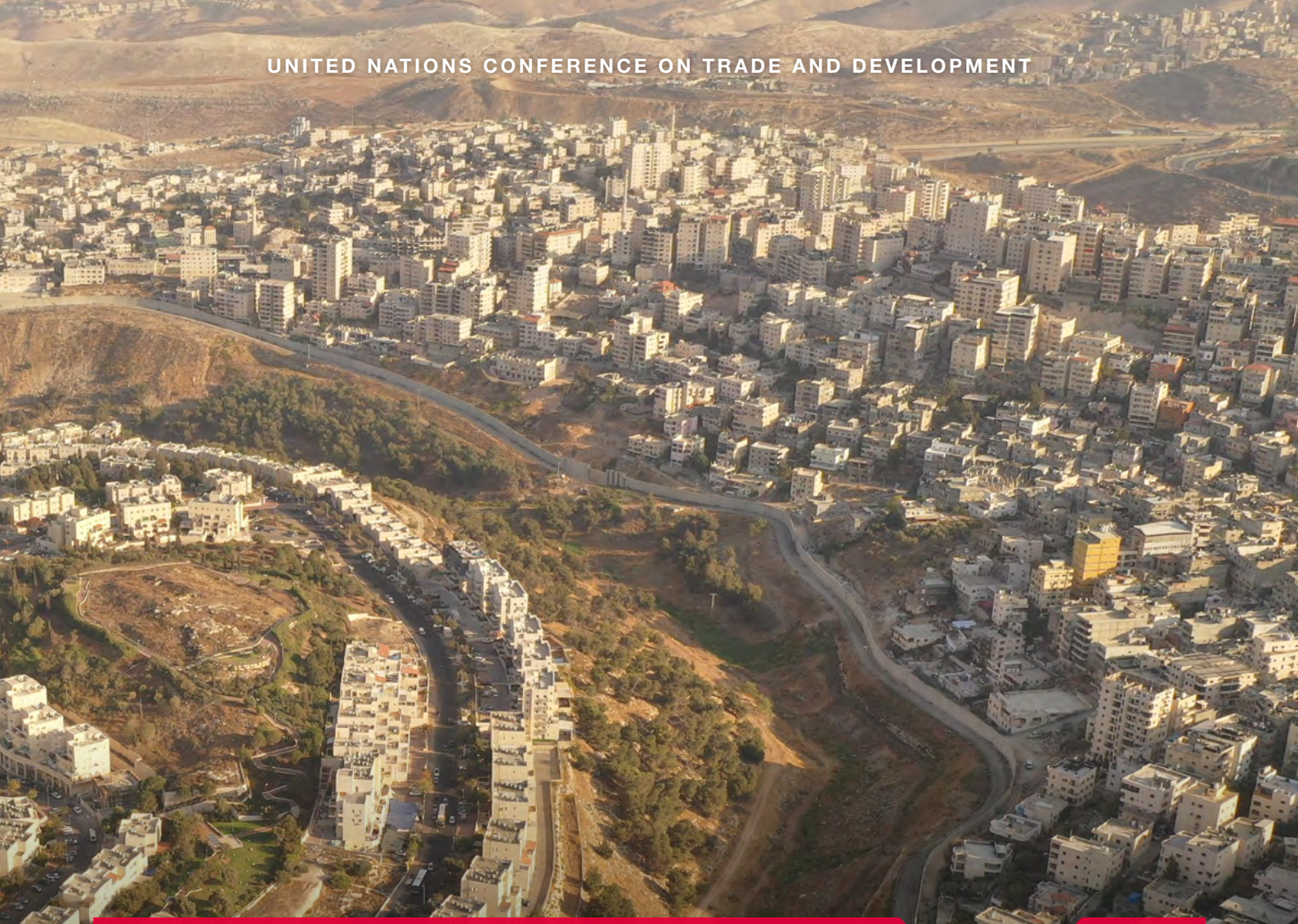

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Note

This study was prepared by the UNCTAD secretariat, drawing on research prepared by UNCTAD consultants Mr. Jean-Louis Arcand, Professor, International Economics, Graduate Institute of International and Development Studies, Geneva, and Ms. Pinyi Chen, Researcher, Development Economics, Graduate Institute of International and Development Studies, Geneva. The study seeks to stimulate debate on the research topic.

The term “dollars” ($) refers to United States dollars.

Abbreviation: GDP, gross domestic product

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Executive summary

Throughout the West Bank, the occupying Power deploys a system of administrative and physical impediments that control the movements of the Palestinian people and limit their access to their productive resources. The resulting multilayered control system includes the division of the West Bank into different administrative areas, the application of a stringent permit regime, bureaucratic controls and hundreds of permanent and flying checkpoints, gates, earth mounds, roadblocks and trenches, in addition to the wall and settlements. The system has turned the West Bank into an archipelago of scattered, disconnected islands. Elements of the complex matrix of control put in place reinforce one another and underpin a de facto annexation of large portions of the West Bank by the occupying Power.

A variety of controls imposed under occupation constrain economic development in Areas A and B of the West Bank. These include the ban on the importation of certain technology and inputs under the dual-use list system and a myriad of mobility and other restrictions that inflate the cost of production and undermine the competitiveness of Palestinian producers in domestic and foreign markets.

Area C accounts for more than 60 per cent of the area of the West Bank and is fully under the control of Israel. In tandem with the expansion of settlements, Israel imposes restrictions on Palestinian economic activities in Area C over and above those imposed in Areas A and B of the West Bank.

Special economic zones have contributed significantly to the economies that establish them and their use is thought to be positive. However, the classification of portions of the West Bank as part of Area C exerts the opposite effect; instead of openness, it entails restrictions, and instead of contributing to the economy, it hampers and suppresses its potential. Area C thus plays a role akin to an “adverse economic zone” that thwarts investment instead of promoting greater economic activity.

This study attempts to quantify the impact of the relative share of Area C in Palestinian localities on household welfare, measured by expenditure. The estimation exercise uses two cross-sectional data sets on 457 localities in 10 governorates. The exercise reveals that the greater the share of Area C in a locality, the stronger the negative impact on total household expenditure. The extent of this negative effect, however, is heterogeneous and varies across West Bank governorates.

The study complements previous studies and concludes that reducing restrictions in Area C to levels similar to those in Areas A and B is a necessary, but not sufficient, step towards ending the occupation, in line with relevant United Nations resolutions, and could boost total Palestinian household expenditure substantially, by up to 200 per cent in some localities, and help reduce poverty substantially across much of the Occupied Palestinian Territory. For example, in 2017, total household expenditure in the West Bank, excluding the governorate of Jerusalem, could

have been $4.4 billion higher (in constant 2015 dollars) than the actual amount. This is equivalent to a 57 per cent increase in total household expenditure in the West Bank during that year.

Reassigning land currently categorized as Area C, as stipulated in the Oslo Accords, to Areas A or B would amount to only a partial removal of restrictions, however. If all restrictions in the three areas were removed, as a step towards ending the occupation, the positive economic impact would be much greater.

The study concludes that ending and reversing settlement activities in the West Bank and East Jerusalem, in line with Security Council resolution 2334(2016), and lifting all restrictions on Palestinian economic development, including in Area C, is a sine qua non for the eradication of poverty and the achievement of the Sustainable Development Goals in the Occupied Palestinian Territory and the emergence of a viable, sovereign Palestinian State, based on the two-State solution, in line with relevant United Nations resolutions.

Chapter 1

Introduction

Mandate

The Israeli occupation has had profound socioeconomic impacts on the Palestinian people, and the heavy costs imposed on them have been accumulating over time. UNCTAD member States, in the Bridgetown Covenant, stated that UNCTAD should "continue to assess the economic development prospects of the Occupied Palestinian Territory and examine economic costs of the occupation and obstacles to trade and development, and strengthen its programme of assistance to the Palestinian people with adequate resources and effective operational activities, including relevant studies as part of the international community's commitment to building an independent Palestinian State, and with a view to alleviating the adverse economic and social conditions imposed on the Palestinian people, in line with the Accra Accord, the Doha Mandate and the Nairobi Maafikiano".

The General Assembly of the United Nations, in eight resolutions (69/20, 70/12, 71/20, 72/13, 73/18, 74/10, 75/20 and 77/22), requested UNCTAD to report to it on the economic costs of the Israeli occupation for the Palestinian people. Analyses and estimations of these economic costs have been presented in various reports prepared in response to the resolutions.

In these reports, UNCTAD emphasizes that occupation continues to impose substantial economic costs on the Palestinian people. It also highlights the urgent need for further evaluation of all aspects of the costs and a greater understanding of their impact on the welfare of the Palestinian people and the prospects for economic development in the Occupied Palestinian Territory. Within this context, UNCTAD stresses the need for comprehensive, effective monitoring of the dynamic economic impact of occupation and its policies as an essential prerequisite in promoting peace, reversing the damages, achieving the Sustainable Development Goals in the Occupied Palestinian Territory and forging a just and lasting peace in the Middle East.

Objectives and background

The present study examines the economic cost of the additional restrictions imposed under occupation on Area C, which accounts for more than 60 per cent of the total area of the West Bank. Occupation imposes significant restrictions on Palestinian economic activity in Areas A and B, yet the restrictions imposed in Area C are more stringent.

> The Israeli occupation imposes profound socioeconomic burdens on the Palestinian people

This study complements the findings in a previous study on the economic cost of the additional restrictions imposed by occupation in Area C (UNCTAD, 2022). The study estimates the welfare cost imposed on Palestinian households by these additional restrictions on economic activities in Area C. This is achieved by quantifying the welfare impact on household welfare of the relative share of Area C in Palestinian localities, using expenditure as a proxy for welfare. A counterfactual (alternative) scenario, in which the share of Area C in each locality is set to zero, is assumed. This implies that the restrictions in Area C are set at the level of the significant yet relatively less severe restrictions imposed in Areas A and B. This cost is estimated from a microeconomic vantage point. Given the census and survey data sets used and the microeconometric nature of the exercise, the cost is estimated for one year, 2017, but the results apply to other years. Finally, the study provides a set of conclusions and recommendations for the occupying Power, for Palestinian policymakers and for the international community and development partners.

This study adds to previous research by UNCTAD on the economics of occupation and its toll on socioeconomic conditions in the Occupied Palestinian Territory. Further to the reports prepared for and submitted to the Trade and Development Board of UNCTAD and to the General Assembly of the United Nations, UNCTAD has produced technical studies on the economic costs of the Israeli occupation for the Palestinian people stemming from reduced economic activity and the destruction of

infrastructure and productive assets, which suppresses the potential they entail.

In 2022, UNCTAD assessed the cost of the restrictions imposed by occupation in Area C of the West Bank from a macroeconomic perspective, looking at the potential loss of gross domestic product (GDP). The study estimated the economic cost of the additional restrictions on Palestinian economic activity in the 30 per cent of Area C available for Palestinian development. The annual cost of these restrictions was estimated at 25.3 per cent of West Bank GDP and the cumulative GDP loss in 2000–2020 was estimated at $50 billion ($45 billion in constant 2015 dollars), which was about three times the West Bank GDP and over 2.5 times the Palestinian GDP in 2020. The cost was estimated based on an innovative, emerging methodology that used night-time luminosity captured by satellite sensors over a span of time (UNCTAD, 2022).

In 2021, UNCTAD estimated the economic costs, in terms of lost GDP, incurred by the Palestinian people, due to the closures, restrictions and military operations in the West Bank imposed by the occupying Power in the aftermath of the second intifada, during the period 2000–2019, by considering what the situation could have been had these events not occurred. A counterfactual growth path for the period 2000–2019 was constructed by assuming that the 32.8 per cent drop in the West Bank GDP had not occurred and that, instead, the economy had grown at the average rate in the periods 1995–1999 and 2007–2019. Under this alternative scenario, during the 2000–2019 period, the annual GDP of the West Bank would have been, on average, 35 per cent higher than its actual level and by 2019, GDP per capita would have been 44 per cent higher than its realized, actual level (UNCTAD, 2021).

In 2020, UNCTAD estimated the impact of occupation in relation to the closures, restrictions and military operations during the period 2007–2018. From a macroeconomic perspective, the foregone economic growth could have resulted in GDP per capita of between 50 and 100 per cent greater than the current level. It was estimated that the cumulative loss of potential GDP, or part of the economic costs to Gaza, during the period 2007–2018, was $16.7 billion (real 2015 dollars), equivalent to six times the Gaza GDP or 107 per cent of the Occupied Palestinian Territory GDP in 2018 (UNCTAD, 2020).

In 2019, UNCTAD assessed existing and potential Palestinian oil and natural gas reserves that could be exploited for the benefit of the Palestinian people, which Israel either prevented Palestinians from accessing or exploited for the benefit of the economy of Israel. The study noted that the exploitation of Palestinian natural resources, including oil and natural gas, by the occupying Power imposed on the Palestinian people significant costs that continued to escalate as long as the occupation remained in effect. The study shed light on the discoveries of oil and natural gas in the Levant Basin, amounting to 122 trillion cubic feet of natural gas at a net value of $453 billion (in 2017 prices) and 1.7 billion barrels of recoverable oil at a net value of about $71 billion. The study argued that such resources offered an opportunity to distribute and share a total of about $524 billion among neighbouring States, in addition to the many intangible but substantive advantages of energy security and cooperation among long-time belligerents. The study emphasized the need for further detailed economic, historical and legal research, guided by international law, to ascertain property rights related to common oil and natural gas resources in the region. It concluded by recommending further detailed studies to clearly establish the Palestinian people's right to their separate natural resources, as well as their rightful share in the common resources collectively owned by several neighbouring States in the region, including Israel (UNCTAD, 2019a).

Chapter 2

Area C of the occupied West Bank

Fragmentation, restrictions and settlements

Throughout the West Bank, the occupying Power deploys a system of administrative and physical mechanisms that control trade flows and the movements of the Palestinian people and limit their access to natural and economic resources. These restrictions intensified following the outbreak of the second intifada in 2000. The resulting multilayered control system includes the division of the West Bank into different administrative areas, the application of a stringent permit regime, bureaucratic controls and hundreds of permanent and flying checkpoints, gates, earth mounds, roadblocks and trenches, in addition to the wall and settlements. The system has turned the West Bank into an archipelago of scattered, disconnected islands. Elements of the complex matrix of control put in place reinforce one another and underpin a de facto annexation of large areas of the West Bank by the occupying Power.

The West Bank is divided into disconnected islands and the only contiguous part is Area C, which remains under the control of Israel and is largely inaccessible to Palestinian producers, although it has the most valuable natural resources, such as fertile land, minerals and stones, as well as tourist attractions and cosmetic products. The wall, along with settlements, deepens the physical, administrative and legal fragmentation of the Occupied Palestinian Territory.

Prior to the signing of the Oslo Accords and the creation of the Palestinian National Authority in 1994, the Israeli Civil Administration managed civil affairs in the West Bank. The administration, reporting to the Coordinator of Government Activities in the Territories under the authority of the Ministry of Defense, was established in 1981 through a military order, according to which it would administer civil matters in the area "for the benefit and welfare of the population and in order to provide and run public services, while taking into account the need for proper administration and public order in the area" (B'Tselem, 2013; B'Tselem, 2021). In accordance with the Oslo Accords, the West Bank was divided into three administrative areas, Areas A, B and C, each assigned a different status depending on their governance pending a final solution to their status, as follows: Area A, under civil and security administration by the Palestinian National Authority; Area B, under civil administration by the Palestinian National Authority and with joint security control by the Palestinian National Authority and Israel; and Area C (including Israeli settlements), under civil and security administration by Israel. The Oslo Accords stipulated that Area C would initially be under control by Israel before being transferred gradually to the Palestinian National Authority over the course of five years, a transfer that has not taken place. Instead, settlements and settler populations have continued to grow in occupied Area C, depriving the Palestinian people of land, water and natural resources.

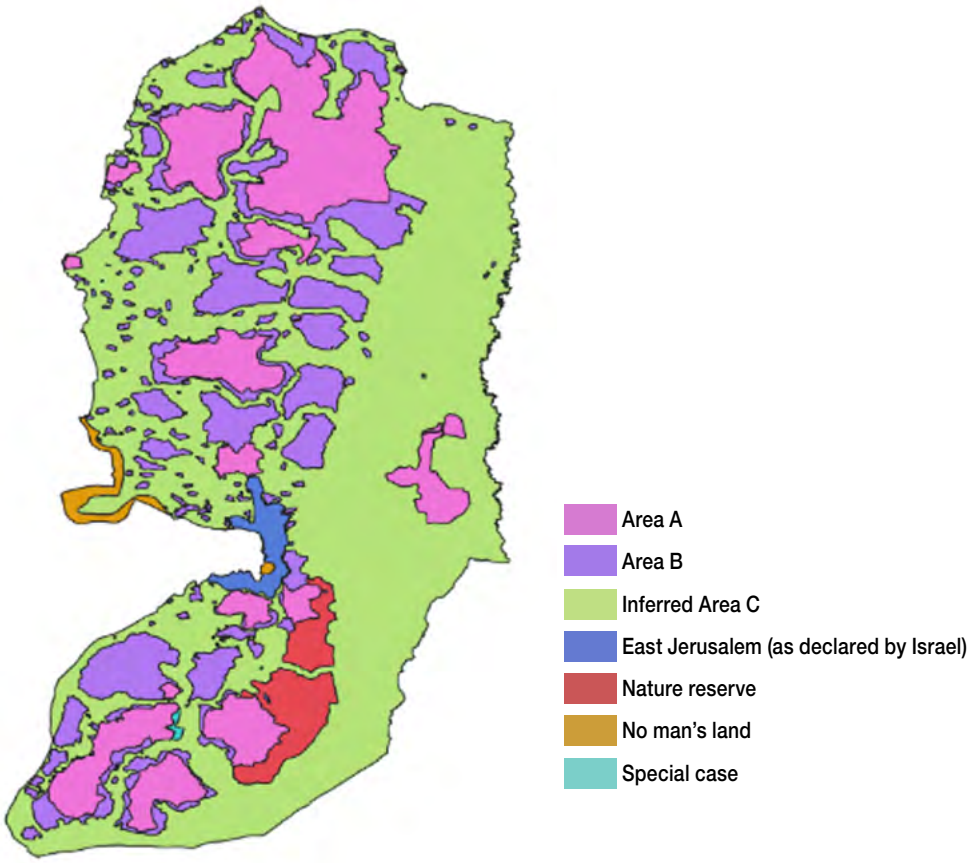
The division of the West Bank into Areas A, B and C was mostly based on demographic characteristics, not geography (B'Tselem, 2013). Area A accounts for about 18 per cent of the West Bank and includes Palestinian cities and most of the Palestinian population of the West Bank. Area B, which accounts for approximately 22 per cent of the West Bank, is composed largely of rural areas. Area C accounts for around 60 per cent of the West Bank and its boundaries incorporate all Israeli settlements.

Areas A and B are subdivided into 166 isolated units of land without territorial contiguity and are surrounded by land in Area C. In contrast, Area C is fully contiguous and includes the majority of the natural resources of the West Bank (figure 1). Israel has prevented Palestinian development in about 60 per cent of Area C by allocating land to settlement regional councils, by designating large portions of land as state land, survey land, firing zones, nature reserves or national parks, and by imposing prohibitions in the area

Area C restrictions suppress Palestinian development, creating an adverse economic zone

now trapped between the wall and the Green Line (corresponding to the June 1967 border), or seam zone (B'Tselem, 2013). The World Bank (2013a) has studied the potential direct, sector-specific benefits, as well as indirect benefits, related to improvements in physical and institutional infrastructure, and conservatively concluded that if Palestinian businesses and firms were permitted to operate in Area C, the potential additional output gains alone would amount to at least $2.2 billion per year.

Figure 1
West Bank: Administrative areas according to the Oslo Accords, 1994

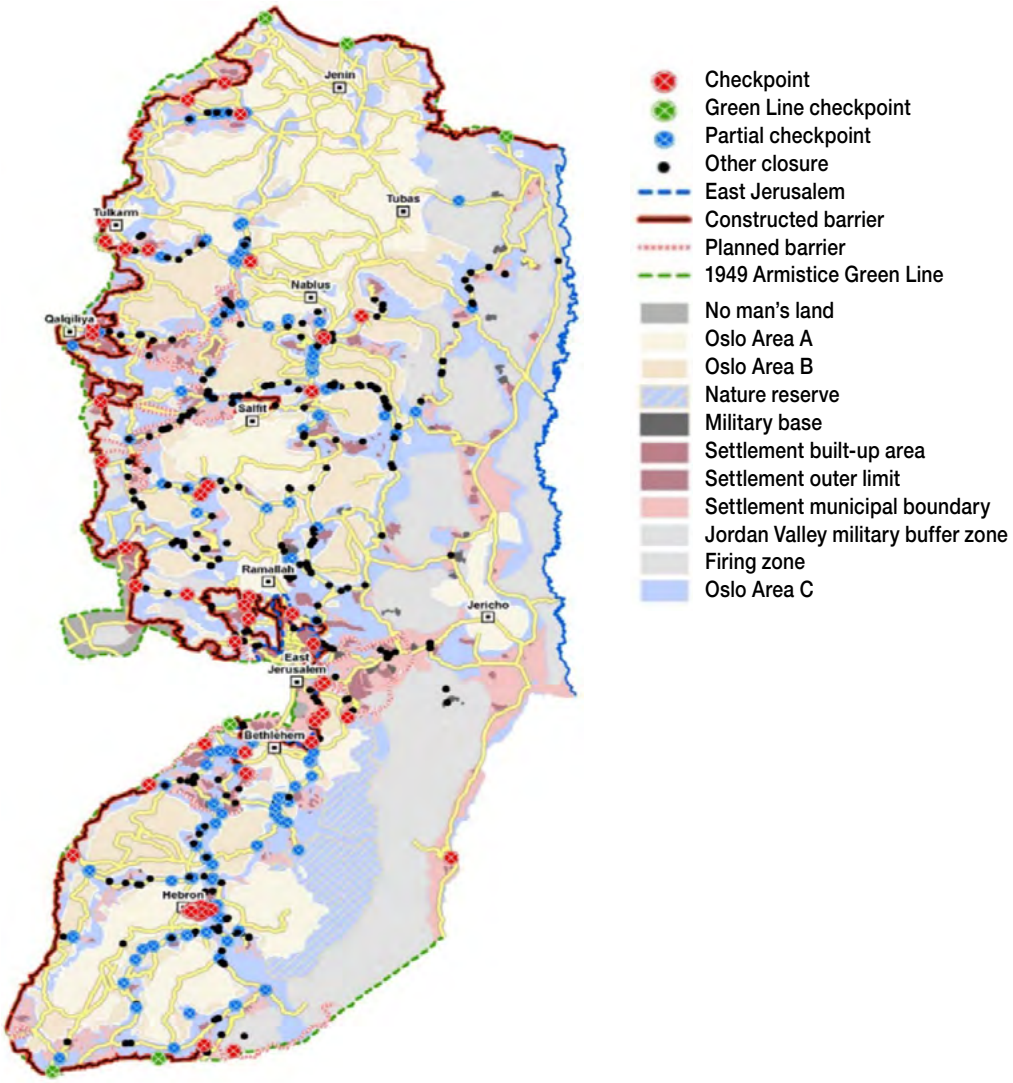


Source: Office for the Coordination of Humanitarian Affairs.
Note: The nature reserve is part of Area C.

To reinforce the fragmentation, the occupying Power has deployed hundreds of closure points and restrictions such as permanent and flying checkpoints, gates, earth mounds, roadblocks and trenches on the borders of Areas A and B with Area C (figure 2). The World Bank estimates that easing road obstacles just enough to improve market access by 10 per cent would increase local output in the West Bank by 0.6 per cent and, therefore, in the absence of such obstacles, GDP per capita in the West Bank would be 4.1–6.1 per cent higher than its observed level (World Bank, 2018). Furthermore, some easing of other restrictions by Israel would have, by 2025, enlarged the Palestinian economy by 33 per cent (World Bank, 2018). According to the Palestinian Central Bureau of Statistics, because of mobility restrictions, Palestinians lose 60 million work hours per year, equivalent to $274 million (Applied Research Institute–Jerusalem, 2019). The World Bank, in a study in 2013, found that closures substantially reduced the probability of being employed, hourly wages and the number of days worked, while they increased the number of working hours

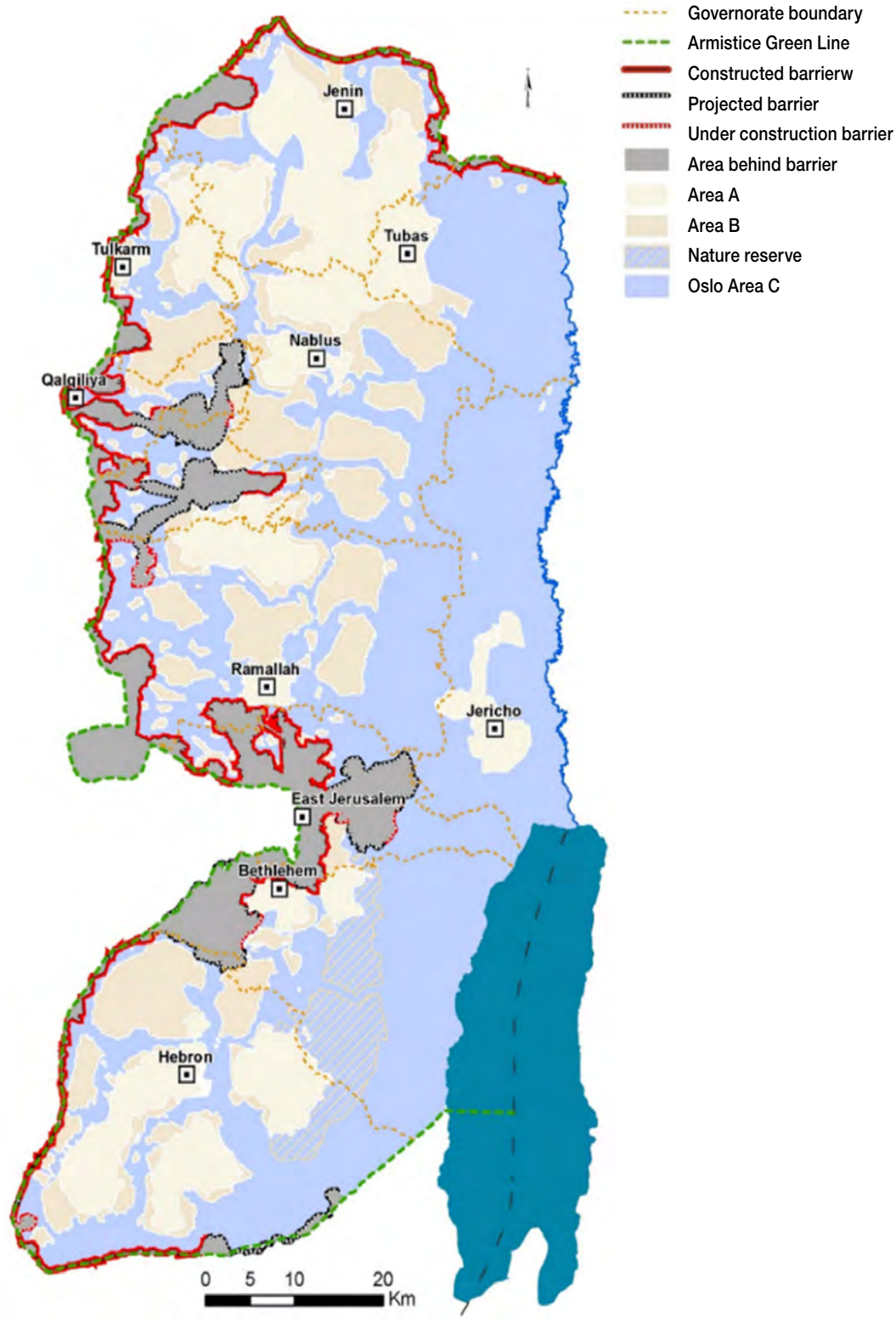
per day; much of this impact was driven by reduced firm profitability and labour demand (World Bank, 2013b). The study concluded that checkpoints alone cost the West Bank economy a minimum of 6 per cent of GDP and that placing one checkpoint one minute away from a locality reduced the probability of being employed by 0.41 per cent, the hourly wage by 6.3 per cent and working days by 2.6 per cent (World Bank, 2013b). In 2002, the occupying Power started the construction of a wall. This wall encroaches deeply into Palestinian land; 85 per cent of the wall will be built on Palestinian land and not along the Green Line, the internationally recognized border, as can be seen from the fact that, at 712km, it will be over twice the length of the internationally recognized border (320km), rendering it, for all intents and purposes, an annexation wall. As a result, more than 530km^2, accounting for 9.5 per cent of the West Bank (including East Jerusalem), now lies in the seam zone, between the wall and the Green Line (figure 3).

Figure 2
West Bank: Israeli access restrictions



Source: Office for the Coordination of Humanitarian Affairs.

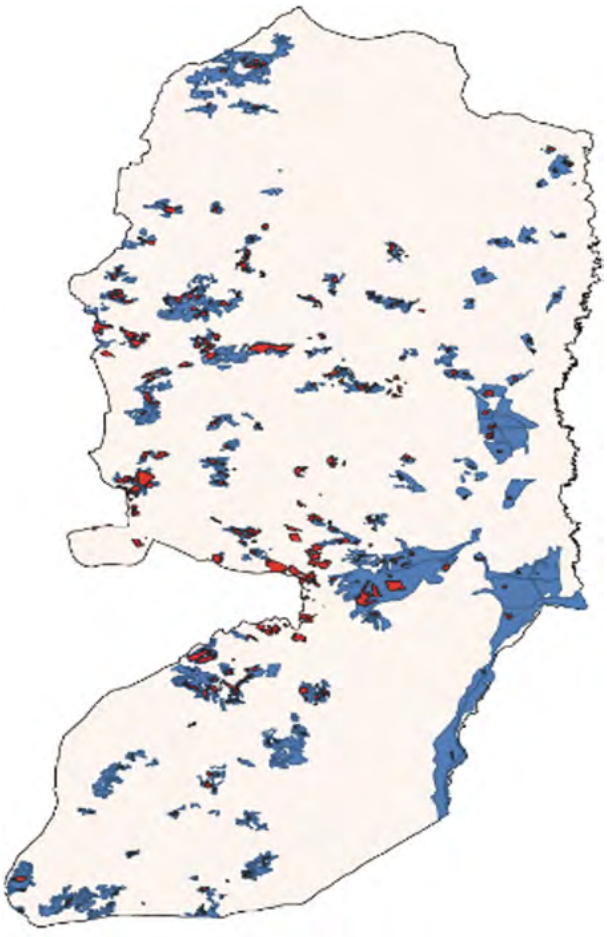
Figure 3
West Bank: Israeli barrier route



Source: Office for the Coordination of Humanitarian Affairs.

With the onset of the occupation in 1967, Israel began to establish settlements in Area C of the West Bank (figure 4). The settler population in the West Bank, including East Jerusalem, rose from 198,315 in 2000 to almost 700,000 by end-2022.[1] These settlements inflict a significant economic cost on the Palestinian people, dispossess them of their inalienable right to development, entrench occupation and pre-empt prospects for a meaningful two-State solution. The location of settlements is strategically chosen to be in the vicinity of areas likely to become borderlines in the future. Settlements have been established in ways that effectively contain and isolate Palestinian communities. Some are spread along the Jordan River and separate the West Bank from Jordan, some are spread along the Green Line and separate Palestinians in the West Bank from Israel and some ring the most populated Palestinian towns, such as Nablus and East Jerusalem (Allegra and Maggor, 2022). Evidence suggests that the occupying Power continues to deplete the natural resources, particularly water resources, to its advantage and to the detriment of the Palestinian people (Allegra and Maggor, 2022).

Figure 4
West Bank: Settlements built-up area, 2020, and municipal boundary, 2014



Source: Office for the Coordination of Humanitarian Affairs.
Note: Red, built-up area; blue, municipal boundary.

[1] See https://peacenow.org.il/en/settlements-watch/settlements-data/population and https://peacenow.org.il/en/settlements-watch/settlements-data/jerusalem.

In tandem with the expansion of settlements, Israel imposes additional restrictions on Palestinian economic activities in Area C, over and above those imposed in Areas A and B of the West Bank. Palestinians are not allowed to build in 99 per cent of Area C. To build structures for residence or investment or to develop infrastructure, such as roads and networks for water and power, Palestinians need to secure permits from the Israeli authorities. However, these permits are extremely difficult to obtain, and if a structure is built without a permit, the occupying Power demolishes it at the owner's expense. This is one reason that the socioeconomic conditions of Palestinians living in localities partially or fully inside Area C are worse than those in Areas A and B.

Israeli Civil Administration data indicate that less than 1 per cent of Palestinian construction requests have been approved since 2016, and the approval rate has further dropped in recent years (UNCTAD, 2023a). This forces Palestinians to build without permits, to meet basic human needs, yet Israeli authorities issue demolition orders for these structures, as noted by the Office for the Coordination of Humanitarian Affairs. Over the years, the demolition and seizure of Palestinian structures and the human displacement they entail have increased. Schools, water pipes and donor-funded humanitarian structures are not exempt from demolitions (Office for the Coordination of Humanitarian Affairs, 2023). Owners are frequently forced to demolish their own property, at their own expense, to avoid paying for the cost of demolition if carried out by the occupying Power, which may include additional fines. It is estimated that between 2009 and 2021, in the West Bank, including East Jerusalem, 7,400 Palestinian-owned structures were destroyed. Recently, both demolition and "self-demolition" have been increasing; in 2022, the highest number of demolitions of Palestinian structures occurred in over a decade. Israel demolished 953 structures, including water cisterns, storerooms, agricultural buildings, businesses and public buildings; as a result of the demolition of 193 residential structures, 1,031 Palestinians were displaced, half of whom (508) were minors. According to the Office for the Coordination of Humanitarian Affairs (2023), 144 structures were demolished in East Jerusalem, including 74 demolished by the owners in order to avoid additional fines.

Area C and the case for special economic zones

Countries have been using place-based policies, such as special economic zones, for various purposes, including targeting economically poorer, disadvantaged regions for growth and development. Special economic zones are a policy instrument commonly used in most developing and many developed economies to accelerate development. They are geographically defined areas within which Governments aim to promote investment, achieve structural transformation and accelerate development by providing fiscal, regulatory and other incentives, land use rights and other advantages and infrastructure support. Special economic zones are typically subject to different economic regulations than other regions within the same country (UNCTAD, 2019b).

The gains from special economic zones have received attention in the literature; under the right circumstances, such gains include boosting income, promoting exports, attracting foreign direct investment, creating jobs and advancing the development of targeted regions (World Bank, 2015). The experience of China is often cited as a success story that offers lessons learned. China piloted special economic zones in the 1970s; decades later, such zones had created millions of jobs and contributed some 22 per cent of GDP, 46 per cent of total national foreign direct investment and 60 per cent of exports (World Bank, 2015). The benefits of special economic zones in China have been explored by, among others, Alder et al. (2013), UNCTAD (2023b), Wang (2013) and Wei (1995). The

literature also covers the positive impact of special economic zones in different countries, such as Cambodia (Brussevich, 2020) and India (Aggarwal, 2007; Crescenzi, 2012). The literature further considers other countries and the different channels through which special economic zones contribute to growth and development.

UNCTAD (2019b) explores the explosive growth of special economic zones and documents that more than 1,000 such zones were developed worldwide in 2014–2019. By 2019, there were some 5,400 zones in 147 countries, with more in the pipeline. In many cases, special economic zones have played a key role in structural transformation and have led to greater participation in global value chains.

The multilayered restrictions in Area C have a negative impact on Palestinian development. The share of Area C in Palestinian West Bank localities plays a role akin to an adverse (negative) special economic zone that, instead of fostering investment, suppresses it and prevents development. A cursory examination of the disincentives emanating from the restrictions imposed by the occupation in Area C suggests that designating part of a Palestinian locality as Area C introduces an adverse special economic zone whose negative impact spills over beyond the limits of the zone. The welfare cost of this adverse special economic zone is explored in the present study, through an assessment of the impact of the share of Area C on total household expenditures in Palestinian localities across the West Bank. If Palestinian investors had greater access to Area C, this could help eliminate poverty and boost total Palestinian household expenditure substantially.

Chapter 3

Data: Definition and measurement

Geographical data

The 2007 and 2017 censuses of the Palestinian Central Bureau of Statistics divide the West Bank into 523 localities in 11 governorates, namely Ramallah, Janin, Tubas, Tulkarm, Nablus, Qalqiliyah, Salfit, Jericho, Jerusalem, Bethlehem and Hebron. The present analysis excludes the governorate of Jerusalem as it is under Israeli control and data are not available (the governorate covers East Jerusalem, under Israeli control, and the rest of the governorate, which includes Israeli settlements; consequently, many parts of the governorate are inaccessible to Palestinians). All geographical data is obtained from the Office for the Coordination of Humanitarian Affairs in shapefile format, including for the maps of the West Bank, for the administrative divisions of the West Bank into Areas A, B and C and for the municipal boundaries of Israeli settlements. The shapefile for the administrative boundaries of Palestinian localities is obtained from the Palestinian Central Bureau of Statistics for census year 2017. The localities across the two census years (2007 and 2017) are harmonized based on information provided by the Palestinian Central Bureau of Statistics. The analysis thus covers 457 localities in the 10 remaining governorates, excluding Jerusalem and its localities (table 1). The average share of Area C per locality area is 52 per cent (the distribution is shown in figure 5). The average shares of Areas A and B per West Bank locality area are 26 and 20 per cent, respectively. Some localities are fully accounted for by Areas A, B or C. In addition, the average share of Palestinian locality area that falls within the municipal boundaries of Israeli settlements is 7.5 per cent, but varies significantly, from 0 to 93.5 per cent.[2]

Area C constitutes 52% of localities, heavily impacting Palestinian territorial access

Table 1
Summary statistics of geographical characteristics of West Bank localities

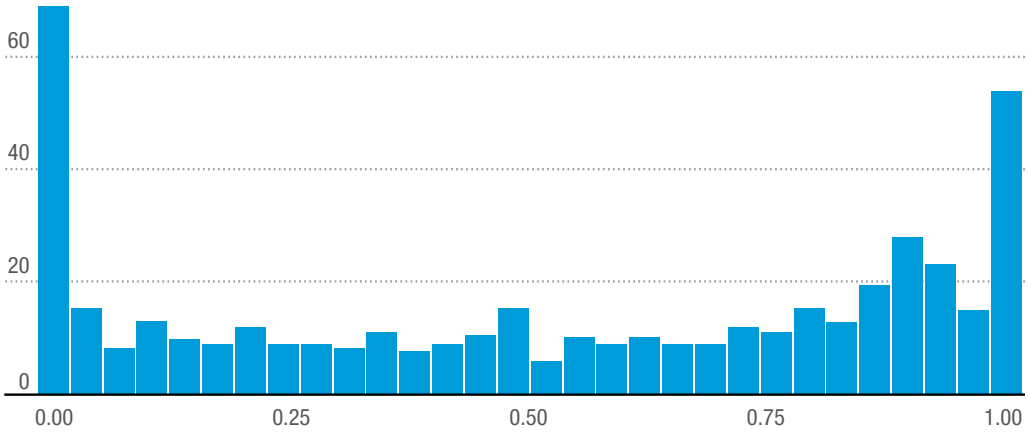
Variable	Mean	Standard deviation	Median	Minimum	Maximum
Locality area (km^2)	114.0	216.0	61.3	0.3	2 140.0
Share of locality area in Area A	0.209	0.343	0.000	0.000	1.000
Share of locality area in Area B	0.259	0.298	0.145	0.000	1.000
Share of locality area in Area C	0.517	0.366	0.555	0.000	1.000
Share of Israeli settlements in locality	0.075	0.141	0.000	0.000	0.935
Number of observations: 475					

Source: UNCTAD calculations, based on data from the Office for the Coordination of Humanitarian Affairs and the Palestinian Central Bureau of Statistics censuses.

Note: The data exclude Jerusalem and its localities.

[2] The division of the West Bank into localities by the Palestinian Central Bureau of Statistics was done for statistical reasons. The locality is the smallest geographical statistical unit in the census. It does not consider the Israeli settlements that are built on Palestinian land. Thus, some of the localities are within the municipal boundaries of Israeli settlements, but remain Palestinian land taken over by the occupying Power.

Figure 5
Share of locality area in Area C
(Percentage)



Source: UNCTAD.

Estimation of total household expenditure at the locality level

Total household expenditure by locality is estimated through the use of the empirical best prediction method, which involves two steps in estimating the poverty headcount (as used in UNCTAD, 2021). First, data from the Palestinian expenditure and consumption surveys are used to estimate statistical regression equations of household expenditures per adult equivalent based on the observable characteristics of the households. Second, the estimated coefficients obtained from the regressions are combined with census data (covering a greater number of households) to impute the household level of expenditures per adult equivalent. In order for the statistical relationship linking household expenditures per adult equivalent to the household characteristics to be estimated, this information must be available in both the survey and census data that constitute the basis for the estimation (see annexes 1 and 2).

As is typical in almost all States, Palestinian census data do not include information on household or individual consumption, expenditures or income. However, the Palestinian expenditure and consumption surveys in 2011 and 2017 and the censuses in 2007 and 2017 compile data on a relatively broad set of common variables, including location, whether urban, rural or a refugee camp; characteristics of the household head, such as education level and employment status; sector of employment; demographic characteristics of the household; access to basic services, such as water; characteristics of the household dwelling; and household assets.

Estimates of expenditure per adult equivalent are based on the regression results (see annex 3). The results of the weighted regressions of log expenditure per adult equivalent (in constant 2015 dollars) on the set of standard covariates interact with regional dummy variables of both Gaza and the West Bank for better regional estimates. Inclusion of all census data enhances the efficiency of regional estimates, as the larger sample size improves precision and lowers the error term.[3]

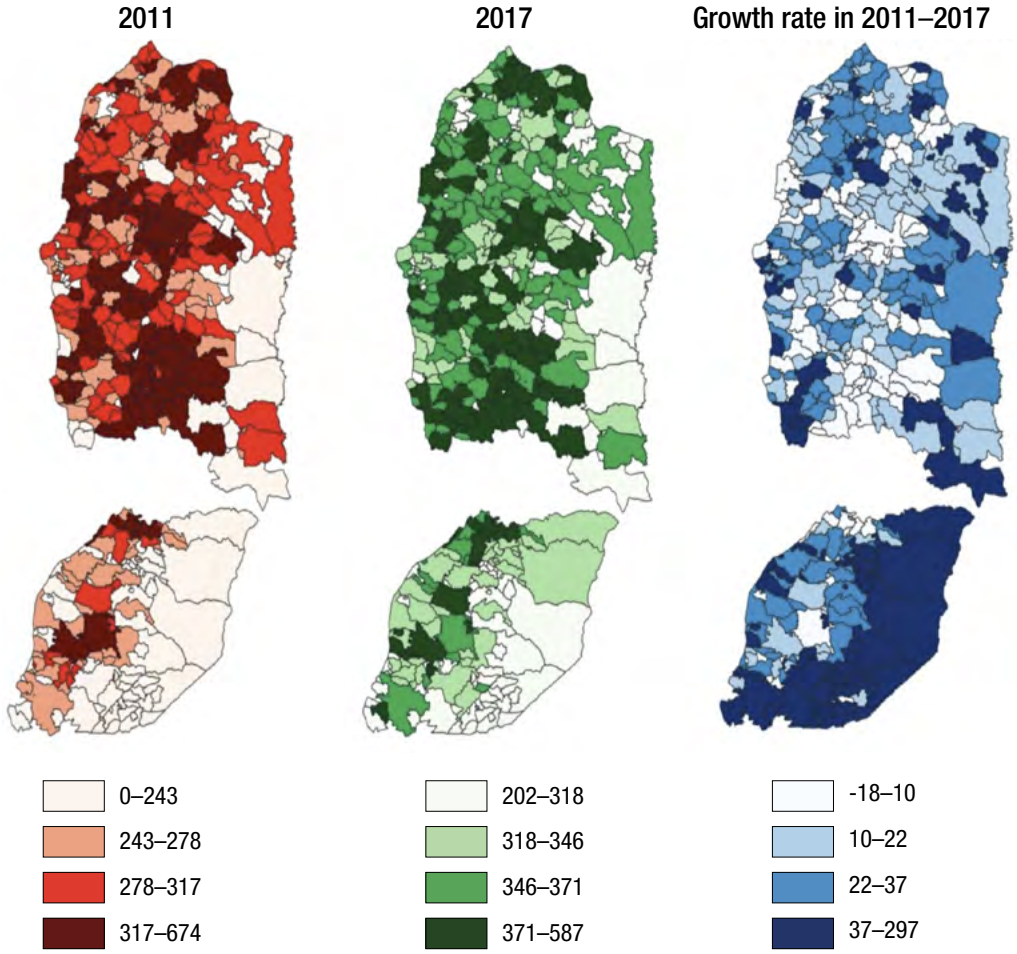
In order to maximize comparability between the synthetic expenditure measures constructed using census data and the estimated coefficients, a common set of covariates over the

[3] The methodology used is that in Elbers et al., 2003, and Molina et al., 2015 (see annexes 1 and 2).

two sample surveys is maintained in the regressions for 2011 and 2017.[4]

The estimated average expenditure per adult equivalent and poverty rates by locality are mapped in figures 6 and 7. Expenditure per adult equivalent in general shows an increase between 2011 and 2017. The spatial distribution of expenditure per adult equivalent does not change much in general; it shows convergence, as growth is higher in areas with an initially lower expenditure per adult equivalent in 2011. Between 2011 and 2017, the spatial distribution of poverty remained stable, with the east and south poorer than the rest of the West Bank. In addition, the poorest regions in the West Bank are those that are fully or partially in Area C, namely, across the Jordan Valley and the south.

Figure 6
Estimated level and growth of average monthly expenditure per adult equivalent by locality
(constant 2015 dollars)

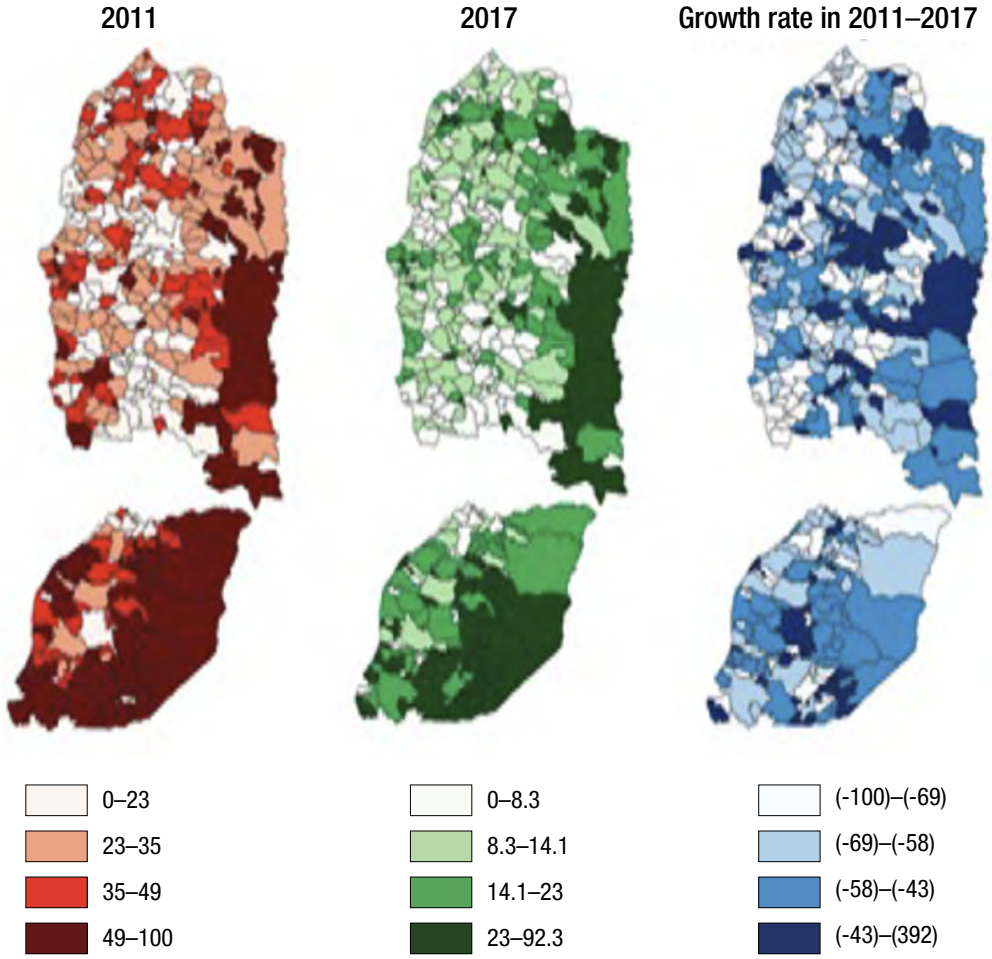


Source: UNCTAD.

Note: The legend value is classified by quartile.

[4] These estimates differ from those in UNCTAD, 2020, and UNCTAD, 2021, in three ways: first, the earlier studies use a sample of the censuses (about 20 per cent) while the present study uses the full census. Second, in the earlier studies, Jerusalem is included, whereas it is not included in the present study. Third, in the present study, the regression is weighted, that is, it incorporates household weight (the inverse of the selection probability of the household). These weights are used to correct or adjust baseline expansion factors in the regression.

Figure 7
Estimated rate and growth of poverty by locality, 2011–2017
(Percentage)

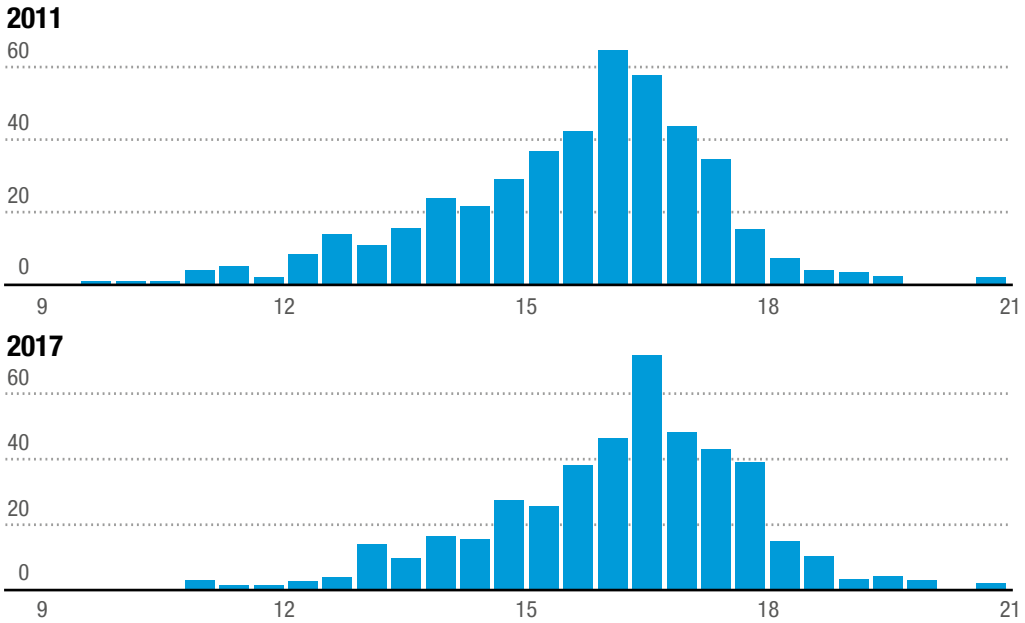


Source: UNCTAD.

Note: The legend value is classified by quartile.

Estimated total expenditures at the locality level are heterogeneous, as shown in the histograms, using a logarithmic scale (figure 8). In 2011, mean total locality expenditure was $9.9 million and the median was $4.1 million. In 2017, the mean was $15.5 million and the median was $6.4 million. Large standard deviations of $30.0 million and $42.4 million, respectively, indicate significant inequality. As shown in the figure, the distribution shifted to the right between 2011 and 2017, reflecting a modicum of economic growth in the West Bank, with total expenditure increasing from $4.54 billion in 2011 to $7.11 billion in 2017.

Figure 8
West Bank: Total expenditures by locality, 2011 and 2017



Source: UNCTAD.

In real terms, estimated locality average expenditure per adult equivalent increased by 28 per cent between 2011 and 2017 (table 2). However, given population growth, the average locality expenditure increased by 54 per cent, from $277 in 2011 to $345 in 2017. Locality average annual night-time luminosity outside the municipal boundaries of Israeli settlements also increased by 28 per cent between 2011 and 2017.

Table 2
Summary statistics of West Bank locality night-time luminosity and estimated expenditure measures

Variable	Mean	Standard deviation	Median	Minimum	Maximum
Panel, 2011					
Average expenditure per adult equivalent (constant 2015 dollars)	277	72	279	73	674
Total locality annual expenditure of households (thousands of constant 2015 dollars)	9 940	30 100	4 167	4	404 000
Locality average annual night-time luminosity outside Israeli settlement municipal boundaries ($nWcm^{-2}$ sr^{-1})	5.8	8.5	3.1	0.0	67.8
Panel, 2017					
Average expenditure per adult equivalent (thousands of constant 2015 dollars)	345	51	346	202	587
Total locality annual expenditure of households (constant thousand 2015 dollars)	15 300	42 100	6 381	6	563 000
Locality average annual night-time luminosity outside Israeli settlement municipal boundaries ($nWcm^{-2}$ sr^{-1})	7.8	9.2	4.9	0.2	71.9
Number of observations: 475					

Source: UNCTAD calculations, based on data from the Palestinian Central Bureau of Statistics and National Aeronautics and Space Administration black marble night-time luminosity data.

Note: Night-time luminosity data from settlements in Area C and from East Jerusalem are excluded (see annex 4).

Chapter 4

The welfare cost of the fragmentation of the occupied West Bank

Area C accounts for more than 60 per cent of the total area of the West Bank, is the only contiguous part of the West Bank and has the most fertile land and the most valuable natural resources. Occupation imposes significant restrictions on Palestinian economic activity in Areas A and B, yet the restrictions imposed in Area C are more stringent. The restrictions disincentivize Palestinian investment, stifle the economy and undermine household welfare. The ongoing expansion of settlements dispossesses Palestinians of most of Area C and its natural resources and economic potentials, thus exacting a significant socioeconomic toll.

Estimates of part of the economic cost of occupation in Area C in terms of lost household welfare are presented in this chapter. It is crucial to note that the estimated cost is partial and does not include the cost of the restrictions imposed in areas A and B, which, it is assumed, would persist after a hypothetical modification of restrictions in Area C to resemble the restrictions in Areas A and B. The exercise estimates the negative impact of the share of Area C in Palestinian localities on household welfare, using the level of expenditure as a proxy. The cost, in terms of percentage and dollar value, is measured using a counterfactual scenario that reverses the negative impact of the share of Area C in Palestinian localities on total household expenditure. The estimated cost does not take into account several channels other than expenditure through which occupation significantly undermines the general welfare of the Palestinian people.

Area C as an adverse economic zone

The occupation thwarts investment in Area C and the vicinity, and Area C thus plays a role akin to an adverse economic zone. This section investigates the relationship between the share of Area C in a locality and the total household expenditure in the locality. An econometric model is developed with the following: total expenditure by locality as a function of a period dummy (1 for 2017 and 0 otherwise), to account for the growth in total expenditure and population; nine governorate dummies (Ramallah is the excluded dummy), to account for the unobserved characteristics of the governorates, with Ramallah as the benchmark; and the logarithm of the locality's area. The results, as presented in column 1 of table 3, report the corresponding estimates, where total locality expenditures are expressed in logarithmic form and standard errors are clustered at the governorate level, to account for common shocks affecting localities within a given governorate. Even this bare-bones specification accounts for 31.5 per cent of the variance of the response variable.

In column 2, in order to capture a significant portion of the residual variance owing to the small area estimates of total expenditure, the logarithm of the mean luminosity of the locality (outside the municipal boundaries of Israeli settlements) is added. The point estimate of the elasticity is close to 1, indicating that a 1 per cent increase in mean luminosity is associated, ceteris paribus, with a 1 per cent increase in Palestinian expenditure. In this specification, R^2 increases to 0.595, indicating a strong link between luminosity and expenditure.

Column 3 adds the share (which varies between 0 and 1) of Area C in locality area. The column captures the unrealized potential gains of transferring Area C to greater Palestinian control. These gains can be estimated by observing the substantial variation in the share of localities under effective Palestinian control (Areas A and

Reallocating Area C land could boost household expenditures by up to 200%

B) and the substantial number of localities lying at each extreme. Nevertheless, this share is time-invariant and therefore cannot, from a statistical perspective, exploit within-locality variance in the share to identify its effect, as there is none. The precise point estimate associated with the share of Area C in a locality is presented in column 3. This number (-1.466) implies that if a hypothetical locality currently entirely inside Area C is reassigned entirely to Areas A or B, its total expenditure would increase by 146.6 per cent. A graphical representation of the relationship is illustrated in figure 9, where the straight line represents the relationship between the share of Area C in a locality and the logarithm of total expenditure in the locality, while controlling for other covariates.

In column 4, the effect of the share of Area C in a locality is allowed to vary by governorate. The coefficients vary, from -1.066 for Janin to -2.084 for Jericho, with Ramallah (-1.426) close to the West Bank mean. The estimation results suggest that most of the differences are statistically significant at the usual levels of confidence. The observed heterogeneity in the marginal effect on total expenditure is illustrated in figure 10, which plots the governorate-specific linear relationships.

The share of Area C in a locality has a negative impact on Palestinian household welfare through several channels, namely, it restricts them from living, developing, investing, building and accessing land, water and vital services such as health care and education.

Table 3
Regression results: Log estimated total expenditure, by locality

Independent variables from the Palestinian expenditures and consumption survey	(1)	(2)	(3)	(4)
Intercept	6.435***	0.213	0.486	0.375
	(1.692)	(1.256)	(0.785)	(0.841)
2017 dummy	0.548***	0.096*	0.111*	0.118*
	(0.059)	(0.052)	(0.059)	(0.061)
Janin	-0.456***	0.483***	0.300***	0.145**
	(0.034)	(0.091)	(0.057)	(0.062)
Tubas	-1.960***	-0.566***	-0.504***	-0.467***
	(0.021)	(0.131)	(0.086)	(0.050)
Tulkarm	0.020	0.313***	0.273***	-0.050
	(0.029)	(0.034)	(0.021)	(0.047)
Nablus	-0.199***	0.313***	0.117***	0.143***
	(0.004)	(0.048)	(0.031)	(0.040)
Qalqiliyah	-0.698***	-0.804***	-0.395***	-0.009
	(0.070)	(0.046)	(0.040)	(0.065)
Salfit	-0.267***	-0.522***	-0.263***	-0.281***
	(0.019)	(0.027)	(0.028)	(0.066)
Jericho	-1.186***	-0.716***	-0.504***	-0.061
	(0.102)	(0.079)	(0.062)	(0.066)
Bethlehem	0.083	-0.117**	0.008	0.137**
	(0.068)	(0.048)	(0.029)	(0.058)
Hebron	-0.711***	0.090	0.020	0.299***
	(0.003)	(0.075)	(0.047)	(0.038)
Log locality area	0.593***	0.809***	0.845***	0.853***
	(0.103)	(0.071)	(0.044)	(0.051)

Independent variables from the Palestinian expenditures and consumption survey	(1)	(2)	(3)	(4)
Log night-time luminosity outside settlements		1.177***	1.138***	1.120***
		(0.110)	(0.070)	(0.070)
Share of Area C in locality			-1.466***	
			(0.134)	
Share of Area C in locality C x Janin				-1.066***
				(0.041)
Share of Area C in locality C x Tubas				-1.531***
				(0.075)
Share of Area C in locality x Tulkarm				-0.779***
				(0.037)
Share of Area C in locality x Nablus				-1.500***
				(0.020)
Share of Area C in locality x Qalqiliyah				-1.919***
				(0.078)
Share of Area C in locality x Salfit				-1.408***
				(0.109)
Share of Area C in locality x Ramallah				-1.426***
				(0.084)
Share of Area C in locality x Jericho				-2.084***
				(0.173)
Share of Area C in locality x Bethlehem				-1.631***
				(0.095)
Share of Area C in locality x Hebron				-2.008***
				(0.044)
R^2	0.323	0.601	0.693	0.699
Adjusted R^2	0.315	0.595	0.689	0.691
Number of observations	914	914	914	914

* $p < 0.1$

** $p < 0.05$

*** $p < 0.01$

Source: UNCTAD.

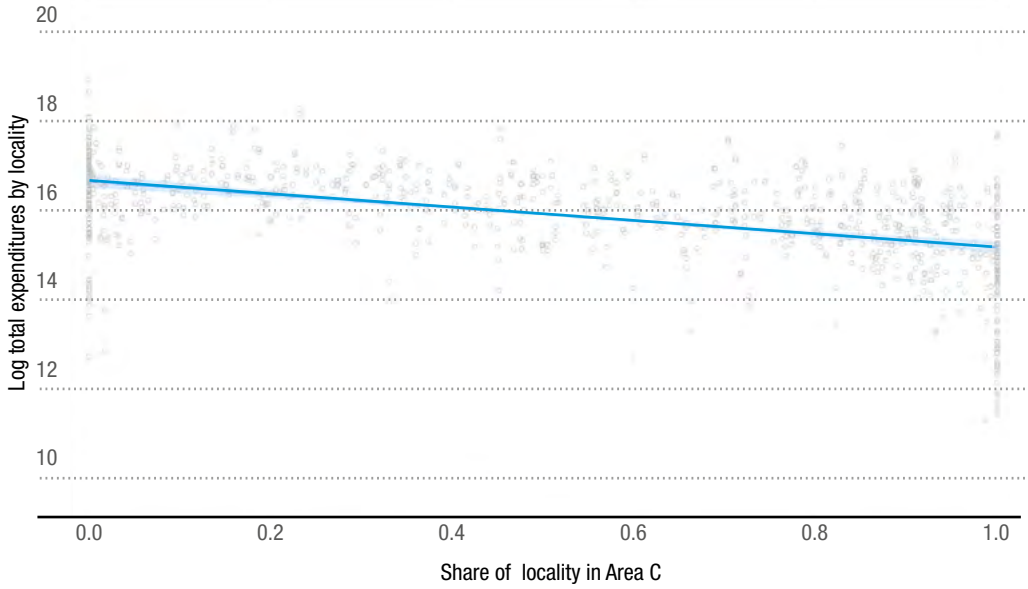
Note: Standard errors are clustered at the governorate level and shown in parentheses (457 localities, 10 governorates; two years are covered (2011 and 2017).

Abbreviation: R^2, proportion of the variance for a dependent variable that is explained by an independent variable.

Given the relatively heterogeneous scatterplots of the observations shown in figure 9, the exercise then proceeds to a semiparametric estimation, in which the effects of locality area, non-settlement luminosity and the share of a locality in Area C are not constrained to be linear and are allowed to vary by governorate. Estimation is carried out using a standard generalized additive model with smooth terms, estimated using penalized regression splines. The semiparametric estimates associated with the share of a locality not in Areas A and B are shown in figures 10 and 11. As expected, eschewing linearity reveals both greater heterogeneity and non-monotonicity, that is, in most governorates, there are ranges of the share variable for which the relationship is not decreasing, and in governorates with a relatively small number of localities (such as Jericho and Tubas), the marginal effect (i.e. the slope) changes sign at least twice. A feature common to almost all

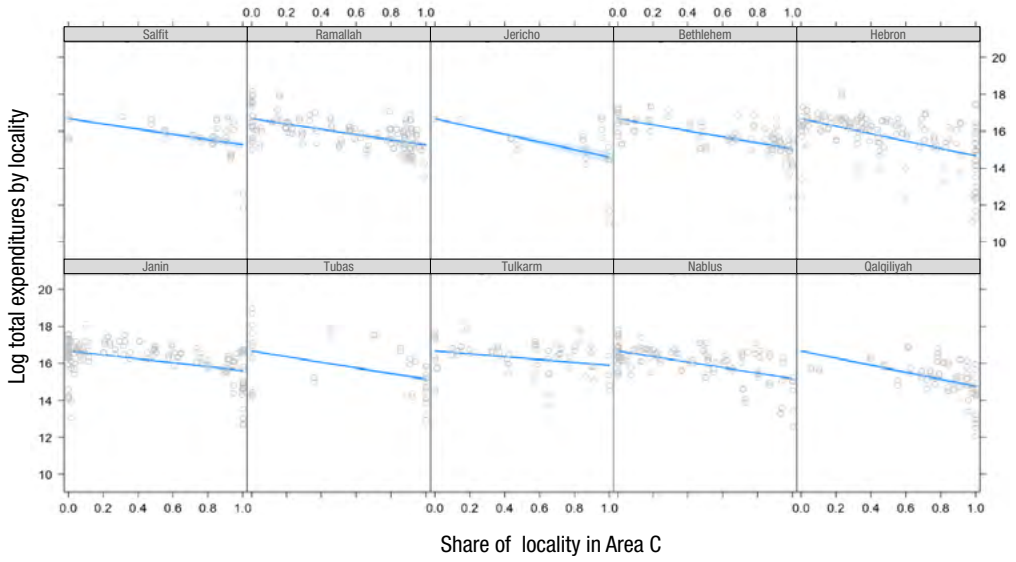
governorates, however, is that the marginal effects (i.e. the slopes) are particularly large (in absolute value terms) when the share of the locality in Area A or B is close to one.

Figure 9
West Bank: Relationship between the share of Area C in a locality and the logarithm of total estimated expenditure in the locality



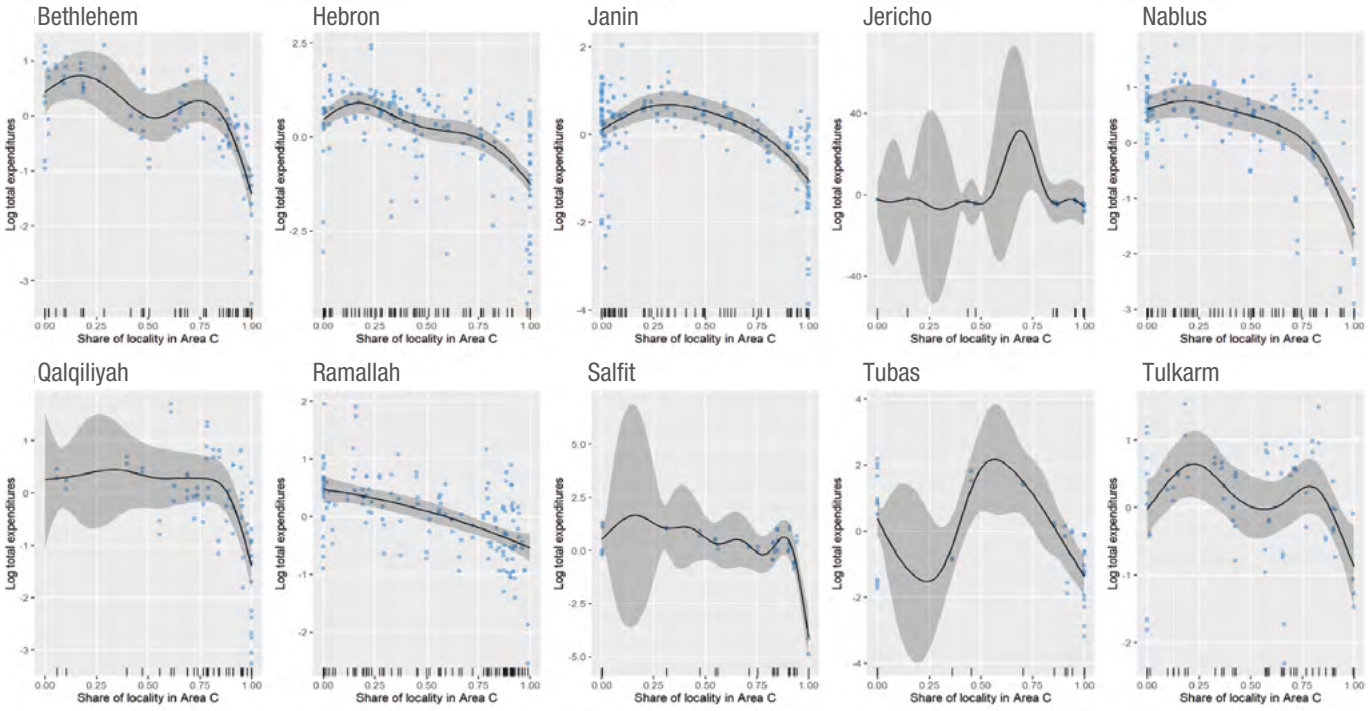
Source: UNCTAD.

Figure 10
West Bank: Relationship between the share of Area C in a locality and the logarithm of total estimated expenditure in the locality, by governorate



Source: UNCTAD.

Figure 11
West Bank: Semiparametric estimates associated with the share of a locality in Area C, by governorate



Source: UNCTAD.

The welfare cost of the occupation

A counterfactual exercise is developed, which involves using the estimates to compute the gains in total expenditures, in relative and absolute terms, that would accrue to West Bank localities if the totality of land was reallocated to Area A or B. This is a direct measure of the cost of occupation as it manifests itself in restrictions on Palestinian use of land.

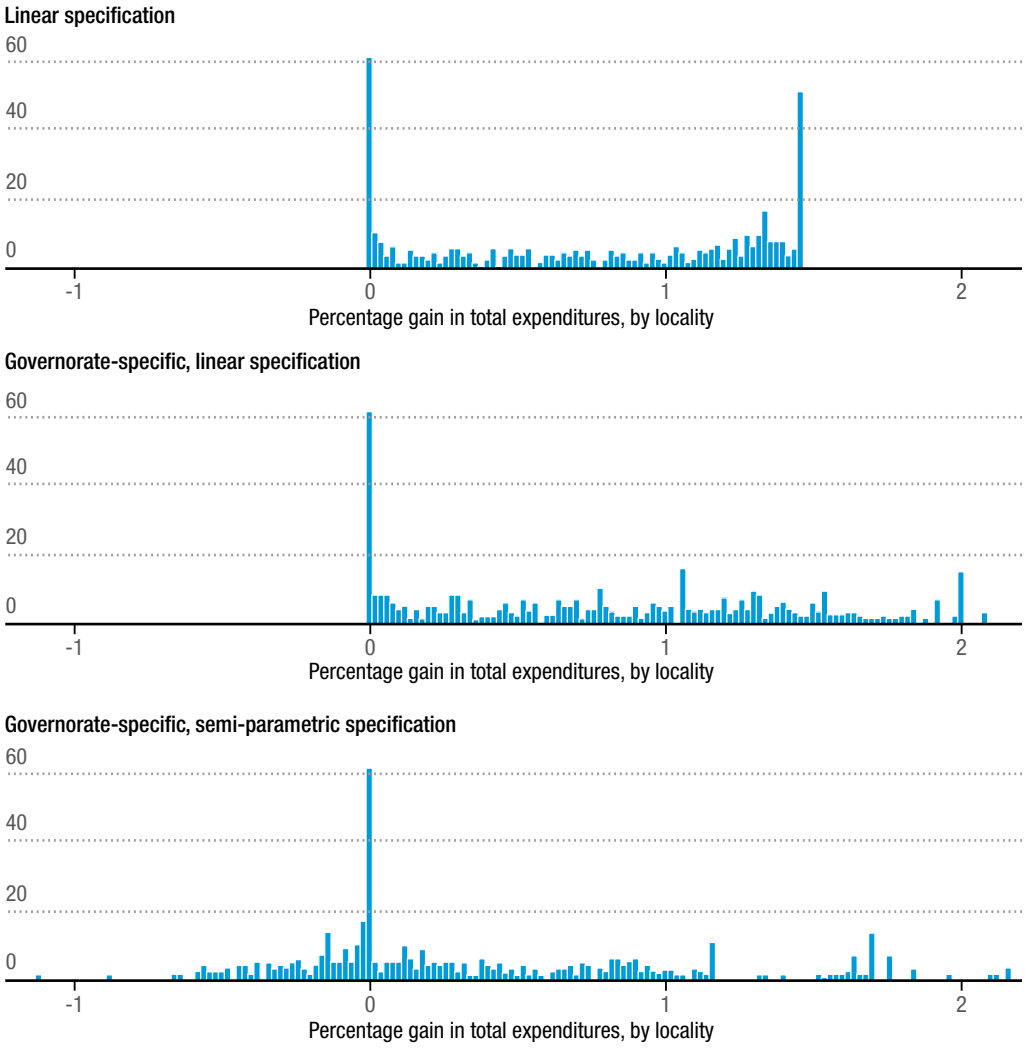
Relative gains

The logarithmic transformation of the dependent variable in the linear results presented in figure 12 and table 3 renders the results appropriate for computing the percentage gains that would accrue by assigning all land in a locality to Area A or B. This is because using the logarithm of total expenditure as the response variable implies that the conditional mean being estimated is given by E(log(y)) = Xb, where y is total expenditure, X is the matrix of covariates and b represents the corresponding coefficients. For example, for the simple linear model presented in column 3 of table 3, the predicted value of the response variable is first computed. The "share of Area C in locality" variable is then set to zero in order to recompute the corresponding predicted response variable. Both predictions for each locality are expressed in logarithmic terms, and subtracting the first from the second gives the percentage gain in total expenditure for each locality. For columns 3 and 4 in table 3, the gain will necessarily be positive, given that the marginal effects of the share variable are all negative. For the semiparametric results presented above, however, this is not necessarily the case, given the non-monotonic nature of the estimates.

As expected, the percentage gains are all positive for the two linear specifications,

whereas some localities experience negative gains when the semiparametric specification is applied (figure 12). For the linear specification, with a constant marginal effect in column 3 of table 3, the annual gains in 2017 vary between 0 and 150 per cent, with a mean gain of 77 per cent, whereas for the linear specification, where the marginal effects are constant within governorates, the gains vary between 0 and slightly above 200 per cent, with a mean value of 80.9 per cent. In contrast, in the semiparametric specification (figure 10, third histogram), in which the smooths vary by governorate, the annual percentage gains vary between less than -100 per cent and slightly above 200 per cent, with a mean percentage gain of 37.9 per cent.

Figure 12
West Bank: Histogram of annual estimated percentage gains in total expenditure, by locality, with different regression specifications



Source: UNCTAD.

Absolute gains

The regression results contain an estimate of the percentage of negative impact of the share of Area C in a locality; that is, a measure of the expectation of the log (expenditure). In order to estimate the negative impact in dollar terms, the regression specification should estimate log(E(y)) = Xb. Therefore, a generalized linear model with a log link function is estimated (figure 13 and table 4).[5] The second specification is appropriate to compute the absolute gains when the counterfactual exercise is in aggregate dollars. For the generalized linear model specification in which the marginal effect of the share variable is constant, the estimated aggregate gain in 2017 from reassigning all Area C land to Area A or B stands at $3.78 billion. However, owing to the heterogeneity of the impact of the share across governorates (see tables 3 and 4), it is more accurate to allow the impact of the share of Area C in localities to vary across governorates, in which case the corresponding annual gain is $4.4 billion in 2017 (in constant 2015 dollars).

Table 4
Result of generalized linear model with logarithmic link function inverse hyperbolic sine transformation for all logged variables

Independent variables from the Palestinian expenditures and consumption survey	(1)	(2)	(3)	(4)
Intercept	3.051	-1.751 *	-1.196 *	-1.291 **
	(3.386)	(0.819)	(0.581)	(0.568)
2017 dummy	0.448 ***	0.100 **	0.095 ***	0.095 ***
	(0.037)	(0.031)	(0.027)	(0.026)
Janin	0.097	0.859 ***	0.520 ***	0.479 ***
	(0.073)	(0.037)	(0.031)	(0.041)
Tubas	-0.942 ***	0.585 ***	0.597 ***	0.603 ***
	(0.194)	(0.088)	(0.078)	(0.065)
Tulkarm	0.428 ***	0.529 ***	0.362 ***	0.217 ***
	(0.097)	(0.007)	(0.006)	(0.013)
Nablus	0.358 ***	0.639 ***	0.329 ***	0.381 ***
	(0.037)	(0.011)	(0.024)	(0.036)
Qalqiliyah	0.112	-0.083 **	0.174 ***	0.743 ***
	(0.160)	(0.029)	(0.032)	(0.038)
Salfit	-0.222 ***	-0.407 ***	-0.134 ***	0.035
	(0.035)	(0.007)	(0.024)	(0.060)
Jericho	-1.440 ***	-0.653 ***	-0.604 ***	0.091 *
	(0.335)	(0.071)	(0.043)	(0.045)
Bethlehem	-0.035	0.042	0.042	0.022
	(0.184)	(0.023)	(0.029)	(0.060)
Hebron	0.401 ***	0.752 ***	0.542 ***	0.643 ***
	(0.048)	(0.029)	(0.027)	(0.030)
Log locality area	0.775 ***	0.884 ***	0.900 ***	0.905 ***
	(0.197)	(0.045)	(0.032)	(0.029)
Log night-time luminosity outside settlements		1.177 ***	1.140 ***	1.135 ***
		(0.047)	(0.050)	(0.055)

[5] The model (log(E(y)) = Xb) in table 4 is not the same as the model (E(log(y)) = Xb) in table 3, because the mean of the log is not necessarily the same as the log of the mean. This is particularly apparent when the variable is highly skewed, as is the case for total expenditure by locality.

Independent variables from the Palestinian expenditures and consumption survey	(1)	(2)	(3)	(4)
Share of locality area not in Area A or B			-1.272 ***	
			(0.077)	
Share of locality area not in Area A or B * Janin				-1.029 ***
				(0.017)
Share of locality area not in Area A or B * Tubas				-1.253 ***
				(0.075)
Share of locality area not in Area A or B * Tulkarm				-0.843 ***
				(0.035)
Share of locality area not in Area A or B * Nablus				-1.361 ***
				(0.074)
Share of locality area not in Area A or B * Qalqiliyah				-2.031 ***
				(0.055)
Share of locality area not in Area A or B * Salfit				-1.462 ***
				(0.078)
Share of locality area not in Area A or B * Ramallah				-1.216 ***
				(0.018)
Share of locality area not in Area A or B * Jericho				-2.542 ***
				(0.140)
Share of locality area not in Area A or B * Bethlehem				-1.159 ***
				(0.064)
Share of locality area not in Area A or B * Hebron				-1.477 ***
				(0.047)
Number of observations: 914				

* p < 0.1

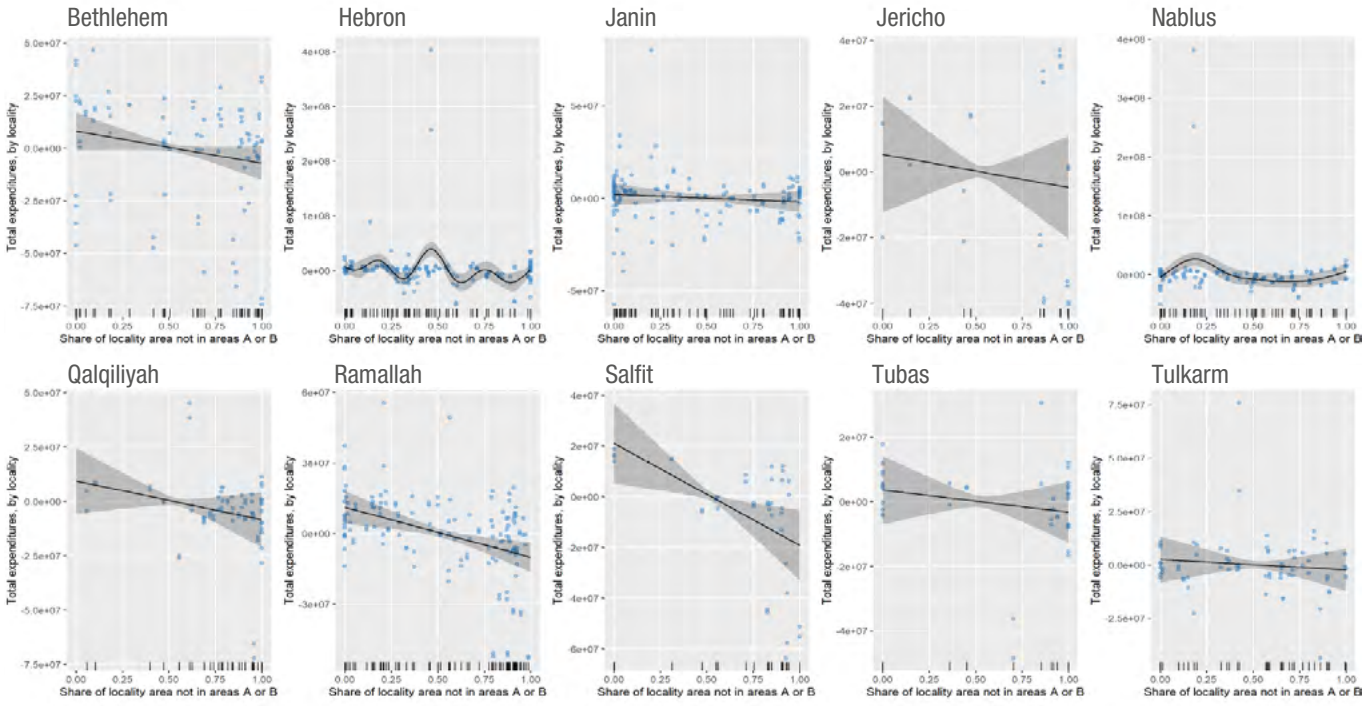
** p < 0.05

*** p < 0.01

Source: UNCTAD.

Note: Standard errors are clustered at the governorate level and shown in parentheses.

Figure 13
Generalized linear model estimates associated with share of a locality in Area C, by governorate



Source: UNCTAD.

The unrealized estimated $4.4 billion potential gain in household expenditure that would have materialized by reallocating Area C land to Area A or B would have significantly enhanced household welfare by increasing expenditure by 57 per cent in 2017. As shown in figures 6 and 7, this is especially relevant to the localities in the Jordan Valley and the southern parts of the West Bank, which are dominated by Area C and have the lowest level of expenditure per adult equivalent and the highest poverty rates.

This unrealized estimated $4.4 billion in additional expenditure would be sufficient to reduce poverty in localities where the share of Area C is greater than zero, and the positive spillover to the rest of the West Bank economy – through the expansion of aggregate demand, forward and backward linkages and fiscal channels – would contribute significantly to the reduction of poverty everywhere else.

The findings of the present study demonstrate that lowering the restrictions imposed in Area C to the levels applied in Areas A and B, as a step towards ending the occupation, could improve the economic situation of the Palestinian people significantly. It follows that the economic gains will be much greater when the occupation is brought to an end, in line with relevant United Nations resolutions, and the conflict is resolved in line with international law, in pursuit of the vision of the two-State solution.

> Reallocating Area C land could unlock $4.4 billion, significantly reducing poverty

Chapter 5

Concluding remarks

The multilayered Israeli control of the movement of Palestinian people and trade has a significant negative impact on Palestinian economic activity, development and household welfare throughout the Occupied Palestinian Territory. In the West Bank, the restrictions on economic activity are more pronounced in Area C but are by no means limited to this area.

The present study complements a previous study in which UNCTAD considered the impact of the additional restrictions in Area C from a macro-level perspective, that is, potential loss in terms of GDP, and estimated that the economic cost of the additional restrictions on Palestinian economic activity imposed by Israel in 30 per cent of Area C was 25.3 per cent of West Bank GDP (UNCTAD, 2022). The present study considers the impact on household welfare as measured by expenditure and poverty. Both studies show that generalizing the same economic restrictions imposed in Areas A and B to Area C, that is, removing the additional restrictions in all of Area C, could significantly enhance economic activity and household expenditure and reduce poverty in localities partially or fully classified as Area C.

The study suggests that if the additional restrictions imposed in Area C are lowered to the levels imposed in Areas A and B, as a step towards ending the occupation, total expenditure in Palestinian localities would increase by a range of up to 200 per cent. Estimation results suggest that, in 2017, total household expenditure would have been $4.4 billion (constant 2015 dollars) higher than actual expenditure, which is equivalent to a 57 per cent increase in expenditure in the West Bank, excluding the governorate of Jerusalem. The unrealized expenditure is not confined to 2017, as it applies to every year, at substantial rates. The estimated foregone expenditure thus severely impoverishes the Palestinian people and limits their access to the essential goods and services that dominate their expenditure, such as food, education, health care, transport, housing and communications.

The findings suggest that lowering the restrictions imposed in Area C could improve the economic situation significantly and, thereby, living conditions as well.

The ratio of expenditure to GDP is consistently high in the Occupied Palestinian Territory, and household expenditure represents an essential component of aggregate demand. Previous UNCTAD studies suggest that the Palestinian economy is constrained on both the supply and demand sides. Greater spending by households stimulates economic growth, creates jobs, enhances fiscal revenue and expands the policy space available for the Palestinian Government without important inflationary consequences for an economy that lacks a sovereign, national currency.

Showing that Area C plays a role akin to an adverse economic zone, the study estimates the negative impact of restrictions and the administrative fragmentation of the West Bank on the welfare of Palestinian households. When the occupation ends, the positive potential of introducing ordinary special economic zones should be considered in order to unlock the huge potential currently suppressed by the current situation on the ground.

Lifting restrictions in Area C could boost Palestinian expenditure by 57%, reducing poverty

The estimation results presented in this study are likely to be lower bounds since they do not yet incorporate the deleterious effects of the fragmentation of Palestinian land (the designation of Area C only partially accounts for the fragmented nature of the West Bank, and degrees of fragmentation vary significantly by governorate). The estimates are further likely to be lower bounds because they do not incorporate the negative effects of the wall and the operation of closure points. Territorial fragmentation

per se, the impact of the wall and the effect of military operations by the occupying Power further fetter Palestinian economic development and deserve to be topics of future research aimed at quantifying the costs of the Israeli occupation.

The United Nations continues to work towards the realization of a just, lasting and comprehensive peace in the Middle East on the basis of relevant Security Council resolutions in order to end the occupation and establish an independent, sovereign, democratic, viable and contiguous State of Palestine, living side by side in peace and security with Israel.

Sustainable development in the Occupied Palestinian Territory is unachievable without lifting all restrictions on Palestinian economic activity and, ultimately, ending occupation. Accordingly, the international community should consider the following:

- Calling on Israel to shoulder its responsibilities under international law.
- In line with the relevant United Nations resolutions, exerting all efforts necessary to bring an end to the occupation and reverse the evolving and substantial economic cost of the Israeli occupation for the Palestinian people.
- Immediately lifting all restrictions on Palestinian economic activity in Area C, pending a comprehensive settlement, and allowing for substantially increased Palestinian economic activity, since lifting such restrictions would provide the Palestinian economy with a badly needed economic and natural resource base for developing and reversing the current trend of increasing socioeconomic deprivation.
- Ending and reversing all settlement activities in the Occupied Palestinian Territory, including East Jerusalem, as called for by the Security Council in its resolution 2334(2016), in which it reaffirms that the establishment by Israel of settlements in the Occupied Palestinian Territory, including East Jerusalem, “has no legal validity and constitutes a flagrant violation under international law and a major obstacle to the achievement of the two-State solution and a just, lasting and comprehensive peace”.
- Reversing the ongoing negative trend in foreign aid and strengthening donor support to the Palestinian people, since the cost of occupation poses a major challenge in terms of resource mobilization and Palestinian national self-sufficiency may be pursued but cannot be fully achieved under occupation.

Annex 1
Variables: Definition and measurement

The following table shows all of the variables used in the regressions presented in annex 3.

Table 1.1
Variables: Definition and measurement

Variable	Description
Adult equivalent	Organisation for Economic Co-operation and Development and World Bank definition of adult equivalent using the equation (1 + (number of adults - 1) * 0.8 + (number of children * 0.5))
Total monthly expenditures with assistance per adult equivalent	Total household expenditures with assistance (constant 2015 dollars) divided by adult equivalent of household
Gaza	Dummy variable that takes the value of 1 if household is in Gaza and 0 if not
West Bank	Dummy variable that takes the value of 1 if household is in West Bank and 0 if not
Gender of household head	Dummy variable that takes the value of 1 if female and 0 if male
Marital status of household head	Dummy variable that takes the value of 1 if ever married and 0 if not
Education level of household head	Dummy variable that takes the value of 1 if attainment is secondary education or above and 0 if the attainment is below secondary education
Refugee status of household head	Dummy variable that takes the value of 1 if registered or unregistered refugees and 0 if they are not refugees
Employment status of household head	Dummy variable that takes the value of 1 if head of household is employed and 0 if not
Number of females	Number of females in household
Number of males	Number of males in household
Number of adult males	Number of males above 15 years old
Number of adult females	Number of females above 15 years old
Agriculture	Dummy variable that takes the value of 1 if head of household works in the agriculture and fishing sector and 0 if not
Construction	Dummy variable that takes the value of 1 if head of household works in the construction sector and 0 if not
Industry	Dummy variable that takes the value of 1 if head of household works in the mining, manufacturing, electricity or water sector and 0 if not
Services	Dummy variable that takes the value of 1 if head of household works in the services sector and 0 if not
Number of employed household members	Number of employed members of household
Employment in Israel	Dummy variable that takes the value of 1 if head of household is employed in Israel or settlements and 0 if not
Employment abroad	Dummy variable that takes the value of 1 if head of household is employed abroad and 0 if not

Variable	Description
Employment in national government	Dummy variable that takes the value of 1 if head of household is employed in the national government and 0 if not
Access to public water	Dummy variable that takes the value of 1 if household is connected to the public water network and 0 if not
Access to electricity	Dummy variable that takes the value of 1 if household is connected to the electricity network and 0 if not
Connection to sewage network	Dummy variable that takes the value of 1 if household is connected to the public sewage network and 0 if not
House ownership	Dummy variable that takes the value of 1 if household owns the dwelling they live in and 0 if not
Number of rooms	Number of rooms in household dwelling
Number of bedrooms	Number of bedrooms in household dwelling
Kitchen	Dummy variable that takes the value of 1 if a kitchen is available in household dwelling and 0 if not
Bathroom	Dummy variable that takes the value of 1 if a bathroom is available in household dwelling and 0 if not
Toilet	Dummy variable that takes the value of 1 if a toilet is available in household dwelling and 0 if not
Main source of cooking energy is gas	Dummy variable that takes the value of 1 if main source of cooking energy is gas and 0 if not
Main source of heating is gas	Dummy variable that takes the value of 1 if main source of heating is gas and 0 if not
Car	Dummy variable that takes the value of 1 if household owns a private car and 0 if not
Refrigerator	Dummy variable that takes the value of 1 if a refrigerator is available in household dwelling and 0 if not
Boiler	Dummy variable that takes the value of 1 if a boiler is available in household dwelling and 0 if not
Central heating	Dummy variable that takes the value of 1 if central heating is available in household dwelling and 0 if not
Vacuum	Dummy variable that takes the value of 1 if a vacuum is available in household dwelling and 0 if not
Cooking stove	Dummy variable that takes the value of 1 if a cooking stove is available in household dwelling and 0 if not
Washing machine	Dummy variable that takes the value of 1 if a washing machine is available in household dwelling and 0 if not
Home library	Dummy variable that takes the value of 1 if a home library is available in household dwelling and 0 if not
Television	Dummy variable that takes the value of 1 if a television is available in household dwelling and 0 if not
Telephone line	Dummy variable that takes the value of 1 if a telephone line is available in household dwelling and 0 if not
Computer	Dummy variable that takes the value of 1 if a computer is available in household dwelling and 0 if not
Mobile telephone	Dummy variable that takes the value of 1 if a mobile telephone is available in household dwelling and 0 if not

Source: Palestinian expenditures and consumption surveys, 2011 and 2017, and censuses, 2007 and 2017.

Annex 2
Summary statistics

Table 2.1
Summary statistics: Palestinian expenditures and consumption survey, 2011, West Bank

Variable	Mean	Standard deviation	Minimum	Percentile (25)	Median	Percentile (75)	Maximum
Expenditures per adult equivalent	431	389	24	227	332	508	6 837
Adult equivalent	4	2	1	3	4	5	15
Urban	1	1	0	0	1	1	1
Rural	0	0	0	0	0	1	1
Camp	0	0	0	0	0	0	1
Gender of household head	0	0	0	0	0	0	1
Marital status of household head	1	0	0	1	1	1	1
Refugee status of household head	0	0	0	0	0	1	1
Education level of household head	0	0	0	0	0	1	1
Employment status of household head	1	0	0	1	1	1	1
Agriculture	0	0	0	0	0	0	1
Industry	0	0	0	0	0	0	1
Construction	0	0	0	0	0	0	1
Services	1	0	0	0	1	1	1
Employment in Israel and settlements	0	0	0	0	0	0	1
Employment abroad	0	0	0	0	0	0	1
Employment in national government	0	0	0	0	0	0	1
Number of household members employed	2	1	0	1	1	2	10
Number of household members	6	3	1	4	6	7	22
Number of females	3	2	0	2	3	4	13
Number of males	3	2	0	2	3	4	13
Number of children	2	2	0	0	2	3	11
Access to public water	1	0	0	1	1	1	1

Variable	Mean	Standard deviation	Minimum	Percentile (25)	Median	Percentile (75)	Maximum
Access to electricity	1	0	0	1	1	1	1
Connection to sewage network	0	0	0	0	0	1	1
House ownership	1	0	0	1	1	1	1
Number of rooms	4	1	1	3	4	4	16
Number of bedrooms	2	1	1	2	2	3	8
Kitchen	1	0	0	1	1	1	1
Bathroom and toilet	1	0	0	1	1	1	1
Main source of cooking energy is gas	1	0	0	1	1	1	1
Main source of heating is gas	0	0	0	0	0	1	1
Car	0	0	0	0	0	1	1
Refrigerator	1	0	0	1	1	1	1
Boiler	1	0	0	0	1	1	1
Central heating	0	0	0	0	0	0	1
Vacuum	0	0	0	0	0	1	1
Cooking stove	1	0	0	1	1	1	1
Washing machine	1	0	0	1	1	1	1
Home library	0	0	0	0	0	0	1
Television	1	0	0	1	1	1	1
Telephone line	0	0	0	0	0	1	1
Computer	1	0	0	0	1	1	1
Mobile telephone	1	0	0	1	1	1	1
Number of observations	2 909 households						

Source: Palestinian expenditures and consumption survey, 2011.

Table 2.2
Summary statistics: Palestinian expenditures and consumption survey, 2011, Gaza

Variable	Mean	Standard deviation	Minimum	Percentile (25)	Median	Percentile (75)	Maximum
Expenditures per adult equivalent	253	217	45	134	198	295	2 734
Adult equivalent	5	2	1	3	4	6	19
Urban	1	0	0	0	1	1	1
Rural	0	0	0	0	0	0	1
Camp	0	0	0	0	0	0	1
Gender of household head	0	0	0	0	0	0	1
Marital status of household head	1	0	0	1	1	1	1
Refugee status of household head	1	0	0	0	1	1	1
Education level of household head	0	0	0	0	0	1	1
Employment status of household head	1	0	0	1	1	1	1
Agriculture	0	0	0	0	0	0	1
Industry	0	0	0	0	0	0	1
Construction	0	0	0	0	0	0	1
Services	1	0	0	1	1	1	1
Employment in Israel and settlements	0	0	0	0	0	0	1
Employment abroad	0	0	0	0	0	0	1
Employment in national government	0	0	0	0	0	1	1
Number of household members employed	2	1	0	1	1	2	8
Number of household members	7	3	1	5	7	8	28
Number of females	3	2	0	2	3	4	15
Number of males	3	2	0	2	3	4	13
Number of children	3	2	0	1	3	4	12
Access to public water	1	0	0	1	1	1	1
Access to electricity	1	0	0	1	1	1	1
Connection to sewage network	1	0	0	1	1	1	1
House ownership	1	0	0	1	1	1	1
Number of rooms	4	1	1	3	4	4	10
Number of bedrooms	3	1	1	2	3	3	7
Kitchen	1	0	0	1	1	1	1

Variable	Mean	Standard deviation	Minimum	Percentile (25)	Median	Percentile (75)	Maximum
Bathroom and toilet	1	0	0	1	1	1	1
Main source of cooking energy is gas	1	0	0	1	1	1	1
Main source of heating is gas	0	0	0	0	0	0	1
Car	0	0	0	0	0	0	1
Refrigerator	1	0	0	1	1	1	1
Boiler	1	0	0	0	1	1	1
Central heating	0	0	0	0	0	0	0
Vacuum	0	0	0	0	0	0	1
Cooking stove	1	0	0	1	1	1	1
Washing machine	1	0	0	1	1	1	1
Home library	0	0	0	0	0	0	1
Television	1	0	0	1	1	1	1
Telephone line	0	0	0	0	0	1	1
Computer	0	0	0	0	0	1	1
Mobile telephone	1	0	0	1	1	1	1
Number of observations	1 408 households						

Source: Palestinian expenditures and consumption survey, 2011.

Table 2.3
Summary statistics: Palestinian expenditures and consumption survey, 2017, West Bank

Variable	Mean	Standard deviation	Minimum	Percentile (25)	Median	Percentile (75)	Maximum
Expenditures per adult equivalent	453	417	0	249	379	561	14 647
Adult equivalent	4	2	1	3	4	5	13
Urban	1	0	0	0	1	1	1
Rural	0	0	0	0	0	1	1
Camp	0	0	0	0	0	0	1
Gender of household head	0	0	0	0	0	0	1
Marital status of household head	1	0	0	1	1	1	1
Refugee status of household head	0	0	0	0	0	1	1
Education level of household head	1	0	0	0	1	1	1
Employment status of household head	1	0	0	1	1	1	1
Agriculture	0	0	0	0	0	0	1
Industry	0	0	0	0	0	0	1
Construction	0	0	0	0	0	0	1
Services	1	0	0	0	1	1	1
Employment in Israel and settlements	0	0	0	0	0	0	1
Employment abroad	0	0	0	0	0	0	1
Employment in national government	0	0	0	0	0	0	1
Number of household members employed	1	1	0	1	1	2	8
Number of household members	5	2	1	4	5	7	19
Number of females	3	1	0	1	2	3	9
Number of males	3	2	0	1	3	4	13
Number of children	2	2	0	0	2	3	10
Access to public water	1	0	0	1	1	1	1
Access to electricity	1	0	1	1	1	1	1
Connection to sewage network	0	0	0	0	0	1	1
House ownership	1	0	0	1	1	1	1
Number of rooms	5	1	1	4	5	6	14
Number of bedrooms	2	1	0	2	2	3	7

Kitchen	1	0	0	1	1	1	1
Bathroom and toilet	1	0	0	1	1	1	1
Main source of cooking energy is gas	1	0	0	1	1	1	1
Main source of heating is gas	0	0	0	0	0	1	1
Car	0	0	0	0	0	1	1
Refrigerator	1	0	0	1	1	1	1
Boiler	1	0	0	0	1	1	1
Central heating	0	0	0	0	0	0	1
Vacuum	0	0	0	0	0	1	1
Cooking stove	1	0	0	1	1	1	1
Washing machine	0	1	0	0	0	1	1
Home library	0	0	0	0	0	0	1
Television	1	0	0	0	1	1	1
Telephone line	0	0	0	0	0	1	1
Computer	0	0	0	0	0	1	1
Mobile telephone	1	0	0	1	1	1	1
Number of observations	2 832 households						

Source: Palestinian expenditures and consumption survey, 2017.

Table 2.4
Summary statistics: Palestinian expenditures and consumption survey, 2017, Gaza

Variable	Mean	Standard deviation	Minimum	Percentile (25)	Median	Percentile (75)	Maximum
Expenditures per adult equivalent	209	168	12	108	164	252	1 827
Adult equivalent	4	2	1	3	4	5	12
Urban	1	0	0	0	1	1	1
Rural	0	0	0	0	0	0	1
Camp	0	0	0	0	0	0	1
Gender of household head	0	0	0	0	0	0	1
Marital status of household head	1	0	0	1	1	1	1
Refugee status of household head	1	0	0	0	1	1	1
Education level of household head	1	0	0	0	1	1	1
Employment status of household head	1	0	0	0	1	1	1
Agriculture	0	0	0	0	0	0	1
Industry	0	0	0	0	0	0	1
Construction	0	0	0	0	0	0	1
Services	1	0	0	1	1	1	1
Employment in Israel and settlements	0	0	0	0	0	0	1
Employment abroad	0	0	0	0	0	0	1
Employment in national government	0	0	0	0	0	1	1
Number of household members employed	1	1	0	1	1	1	5
Number of household members	6	3	1	4	6	8	18
Number of females	3	2	0	2	3	4	9
Number of males	3	2	0	2	3	4	10
Number of children	3	2	0	1	3	4	10
Access to public water	1	0	0	1	1	1	1
Access to electricity	1	0	1	1	1	1	1
Connection to sewage network	1	0	0	1	1	1	1
House ownership	1	0	0	1	1	1	1
Number of rooms	5	1	1	4	5	6	11
Number of bedrooms	2	1	1	2	2	3	6

Kitchen	1	0	0	1	1	1	1
Bathroom and toilet	1	0	0	1	1	1	1
Main source of cooking energy is gas	1	0	0	1	1	1	1
Main source of heating is gas	0	0	0	0	0	0	1
Car	0	0	0	0	0	0	1
Refrigerator	1	0	0	1	1	1	1
Boiler	0	0	0	0	0	1	1
Central heating	0	0	0	0	0	0	1
Vacuum	0	0	0	0	0	0	1
Cooking stove	1	0	0	1	1	1	1
Washing machine	1	0	0	0	1	1	1
Home library	0	0	0	0	0	0	1
Television	0	0	0	0	0	1	1
Telephone line	0	0	0	0	0	1	1
Computer	0	0	0	0	0	1	1
Mobile telephone	1	0	0	0	1	1	1
Number of observations	789 households						

Source: Palestinian expenditures and consumption survey, 2017.

Table 2.5
Summary statistics: Census, 2007, West Bank

Variable	Mean	Standard deviation	Minimum	Percentile (25)	Median	Percentile (75)	Maximum
Expenditures per adult equivalent	312	151	5	206	283	387	1 858
Adult equivalent	4	2	1	3	4	5	27
Urban	1	0	0	0	1	1	1
Rural	1	0	0	0	1	1	1
Camp	0	0	0	0	0	0	1
Gender of household head	0	0	0	0	0	0	1
Marital status of household head	1	0	0	1	1	1	1
Refugee status of household head	0	0	0	0	0	1	1
Education level of household head	0	0	0	0	0	1	1
Employment status of household head	1	0	0	1	1	1	1
Agriculture	0	0	0	0	0	0	1
Construction	0	0	0	0	0	0	1
Industry	0	0	0	0	0	0	1
Services	1	0	0	0	1	1	1
Employment in Israel and settlements	0	0	0	0	0	1	1
Employment abroad	0	0	0	0	0	0	1
Employment in national government	0	0	0	0	0	0	1
Number of employed household members	1	1	0	1	1	1	8
Number of employed household members in Israel and settlements	0	1	0	0	0	1	8
Number of household members	6	3	1	4	5	7	40
Number of females	3	2	0	1	2	4	21
Number of males	3	2	0	2	3	4	20
Number of children	2	2	0	0	2	4	22
Access to public water	1	0	0	0	1	1	1
Access to electricity	1	0	0	1	1	1	1
Connection to sewage network	0	0	0	0	0	1	1
House ownership	1	0	0	1	1	1	1
Number of rooms	4	1	1	3	4	4	25

Number of bedrooms	2	1	1	1	2	3	22
Kitchen	1	0	0	1	1	1	1
Bathroom and toilet	1	0	0	1	1	1	1
Main source of cooking energy is gas	1	0	0	1	1	1	1
Main source of heating is gas	0	0	0	0	0	1	1
Car	0	0	0	0	0	0	1
Refrigerator	1	0	0	1	1	1	1
Boiler	1	0	0	0	1	1	1
Central heating	0	0	0	0	0	0	1
Vacuum	0	0	0	0	0	1	1
Cooking stove	1	0	0	1	1	1	1
Washing machine	1	0	0	1	1	1	1
Home library	0	0	0	0	0	0	1
Television	1	0	0	1	1	1	1
Telephone line	0	0	0	0	0	1	1
Computer	0	0	0	0	0	1	1
Mobile telephone	0	0	0	0	0	1	1
Number of observations	346 322 households						

Source: Palestinian census, 2007.

Table 2.6
Summary statistics: Census, 2007, Gaza

Variable	Mean	Standard deviation	Minimum	Percentile (25)	Median	Percentile (75)	Maximum
Expenditures per adult equivalent, with assistance	175	72	3	125	163	211	972
Adult equivalent	4	2	1	3	4	6	28
Urban	1	0	0	1	1	1	1
Rural	1	0	0	1	1	1	1
Camp	0	0	0	0	0	0	1
Gender of household head	0	0	0	0	0	0	1
Marital status of household head	1	0	0	1	1	1	1
Refugee status of household head	1	0	0	0	1	1	1
Education level of household head	0	0	0	0	0	1	1
Employment status of household head	1	0	0	0	1	1	1
Agriculture	0	0	0	0	0	0	1
Construction	0	0	0	0	0	0	1
Industry	0	0	0	0	0	0	1
Services	1	0	0	1	1	1	1
Number of employed household members	0	0	0	0	0	1	1
Employment in Israel	0	0	0	0	0	0	1
Employment abroad	0	0	0	0	0	0	1
Employment in national government	1	0	0	1	1	1	10
Number of females	0	1	0	0	0	1	8
Number of males	6	3	1	4	6	8	48
Number of adult females	3	2	0	2	3	4	31
Number of adult males	3	2	0	2	3	4	27
Access to public water	3	2	0	1	3	4	36
Access to electricity	1	0	0	1	1	1	1
Connection to sewage network	1	0	0	1	1	1	1
House ownership	1	0	0	1	1	1	1
Number of rooms	1	0	0	1	1	1	1
Number of bedrooms	4	1	1	3	4	4	25
Kitchen	2	1	1	2	2	3	18

Bathroom	1	0	0	1	1	1	1
Toilet	1	0	0	1	1	1	1
Main source of cooking energy is gas	1	0	0	1	1	1	1
Main source of heating is gas	0	0	0	0	0	0	1
Car	0	0	0	0	0	0	1
Refrigerator	1	0	0	1	1	1	1
Boiler	1	0	0	0	1	1	1
Central heating	0	0	0	0	0	0	1
Vacuum	0	0	0	0	0	0	1
Cooking stove	1	0	0	1	1	1	1
Washing machine	1	0	0	1	1	1	1
Home library	0	0	0	0	0	0	1
Television	1	0	0	1	1	1	1
Telephone line	0	0	0	0	0	1	1
Computer	0	0	0	0	0	1	1
Mobile telephone	0	0	0	0	0	1	1
Number of observations	214 555 households						

Source: Palestinian census, 2007.

Table 2.7
Summary statistics: Census, 2017, West Bank

Variable	Mean	Standard deviation	Minimum	Percentile (25)	Median	Percentile (75)	Maximum
Expenditures per adult equivalent, with assistance	362	120	0	277	340	427	1 373
Adult equivalent	4	2	1	2	3	4	78
Urban	1	0	0	0	1	1	1
Rural	0	0	0	0	0	1	1
Camp	0	0	0	0	0	0	1
Gender of household head	0	0	0	0	0	0	1
Marital status of household head	1	0	0	1	1	1	1
Refugee status of household head	0	0	0	0	0	0	1
Education level of household head	1	0	0	1	1	1	1
Employment status of household head	1	0	0	0	1	1	1
Agriculture	0	0	0	0	0	0	1
Construction	0	0	0	0	0	0	1
Industry	0	0	0	0	0	0	1
Services	0	0	0	0	0	0	1
Number of employed household members	0	0	0	0	0	0	1
Employment in Israel	0	0	0	0	0	0	1
Employment abroad	0	0	0	0	0	0	1
Employment in national government	1	1	0	1	1	2	13
Number of females	0	1	0	0	0	0	7
Number of males	5	2	1	3	5	6	99
Number of adult females	2	1	0	1	2	3	63
Number of adult males	3	2	0	1	2	3	97
Access to public water	2	2	0	0	2	3	17
Access to electricity	1	0	0	1	1	1	1
Connection to sewage network	1	0	0	1	1	1	1
House ownership	0	0	0	0	0	1	1
Number of rooms	1	0	0	1	1	1	1
Number of bedrooms	4	1	1	3	4	4	20
Kitchen	2	1	1	2	2	3	12

Bathroom	1	0	0	1	1	1	1
Toilet	1	0	0	1	1	1	1
Main source of cooking energy is gas	1	0	0	1	1	1	1
Main source of heating is gas	0	0	0	0	0	1	1
Car	0	0	0	0	0	1	1
Refrigerator	1	0	0	1	1	1	1
Boiler	1	0	0	0	1	1	1
Central heating	0	0	0	0	0	0	1
Vacuum	1	0	0	0	1	1	1
Cooking stove	1	0	0	1	1	1	1
Washing machine	1	0	0	1	1	1	1
Home library	0	0	0	0	0	0	1
Television	0	0	0	0	0	0	1
Telephone line	0	0	0	0	0	1	1
Computer	0	0	0	0	0	1	1
Mobile telephone	1	0	0	1	1	1	1
Number of observations	488 543 households						

Source: Palestinian census, 2017.

Table 2.8
Summary statistics: Census, 2017, Gaza

Variable	Mean	Standard deviation	Minimum	Percentile (25)	Median	Percentile (75)	Maximum
Expenditures per adult equivalent, with assistance	207	98	9	150	187	236	2 387
Adult equivalent	4	2	1	3	4	5	24
Urban	1	0	0	1	1	1	1
Rural	0	0	0	0	0	0	0
Camp	0	0	0	0	0	0	1
Gender of household head	0	0	0	0	0	0	1
Marital status of household head	1	0	0	1	1	1	1
Refugee status of household head	1	0	0	0	1	1	1
Education level of household head	1	0	0	1	1	1	1
Employment status of household head	1	0	0	0	1	1	1
Agriculture	0	0	0	0	0	0	1
Construction	0	0	0	0	0	0	1
Industry	0	0	0	0	0	0	1
Services	0	0	0	0	0	0	1
Number of employed household members	0	0	0	0	0	0	1
Employment in Israel	0	0	0	0	0	0	1
Employment abroad	0	0	0	0	0	0	1
Employment in national government	1	1	0	0	1	1	8
Number of females	0	0	0	0	0	0	3
Number of males	6	3	1	4	6	7	36
Number of adult females	3	2	0	2	3	4	19
Number of adult males	3	2	0	2	3	4	20
Access to public water	3	2	0	1	2	4	21
Access to electricity	0	0	0	0	0	0	1
Connection to sewage network	1	0	0	1	1	1	1
House ownership	1	0	0	1	1	1	1
Number of rooms	1	0	0	1	1	1	1
Number of bedrooms	3	1	1	3	3	4	18
Kitchen	2	1	1	2	2	3	10

Bathroom	1	0	0	1	1	1	1
Toilet	1	0	0	1	1	1	1
Main source of cooking energy is gas	1	0	0	1	1	1	1
Main source of heating is gas	0	0	0	0	0	0	1
Car	0	0	0	0	0	0	1
Refrigerator	1	0	0	1	1	1	1
Boiler	0	0	0	0	0	1	1
Central heating	0	0	0	0	0	0	1
Vacuum	0	0	0	0	0	0	1
Cooking stove	1	0	0	1	1	1	1
Washing machine	1	0	0	1	1	1	1
Home library	0	0	0	0	0	0	1
Television	0	0	0	0	0	0	1
Telephone line	0	0	0	0	0	0	1
Computer	0	0	0	0	0	1	1
Mobile telephone	1	0	0	1	1	1	1
Number of observations	323 709 households						

Source: Palestinian census, 2017.

Annex 3
Estimation of empirical best prediction method

The table shows the results of weighted regressions of log expenditures per adult equivalent on the set of standard covariates, interacted with regional dummies, for both Gaza and the West Bank, for better regional estimates. To maximize comparability between the synthetic income measures constructed using census data and the estimated coefficients, a common set of covariates over the two sample surveys were maintained in the regressions for 2011 and 2017 (these regressions should not be interpreted in causal terms).

Table 3.1
Weighted regression results: Log real monthly expenditures per adult equivalent

(Constant 2015 dollars)

Independent variables from the Palestinian expenditures and consumption survey	2017	2011
Intercept	5.495 (0.285)	4.321 (0.475)***
West Bank	0.104 (0.344)	0.970 (0.524)*
Rural * Gaza	-0.115 (0.0627)*	-0.0393 (0.0358)
Rural * West Bank	-0.0386 (0.0207)*	0.0240 (0.0231)
Camp * Gaza	0.0160 (0.0441)	-0.0539 (0.0348)
Camp * West Bank	-0.0561 (0.0385)	-0.0817 (0.0310)***
Characteristics of household head		
Gender * Gaza	0.264 (0.0660)***	0.104 (0.0474)**
Gender * West Bank	-0.0320 (0.0341)	0.0196 (0.0324)
Marital status * Gaza	-0.230 (0.177)	-0.187 (0.130)
Marital status * West Bank	-0.00938 (0.0614)	-0.0594 (0.0604)
Refugee status* Gaza	0.00314 (0.0422)	-0.00779 (0.0319)
Refugee status * West Bank	-0.0414 (0.0213)*	0.00617 (0.0235)
Education level * Gaza	0.0593 (0.0415)	0.0653 (0.0302)**
Education level * West Bank	0.0617 (0.0208)***	0.0410 (0.0224)*
Employment status		
Sector of employment (services is base category)		
Agriculture * Gaza	-0.129 (0.0810)	-0.0338 (0.0448)
Agriculture * West Bank	-0.0528 (0.0399)	-0.106 (0.0340)***
Construction * Gaza	-0.117 (0.0931)	-0.104 (0.0714)

Independent variables from the Palestinian expenditures and consumption survey	2017	2011
Construction * West Bank	-0.0247 (0.0324)	-0.0905 (0.0319)***
Industry * Gaza	-0.0858 (0.0742)	-0.0810 (0.0581)
Industry * West Bank	-0.0227 (0.0287)	-0.0618 (0.0285)**
Number of employed household members * Gaza	0.0561 (0.0260)**	0.0426 (0.0163)***
Number of employed household members * West Bank	0.0532 (0.0124)***	0.0521 (0.0105)***
Employment in Israel * Gaza	1.639 (0.494)***	0.0540 (0.0392)
Employment in Israel * West Bank	0.130 (0.0280)***	0.177 (0.0308)***
Employment abroad * Gaza	0.371 (0.350)	-0.102 (0.144)
Employment abroad * West Bank	-0.0294 (0.136)	0.165 (0.0310)***
Employment in national government * Gaza	0.261 (0.0431)***	0.199 (0.0331)***
Employment in national government * West Bank	0.0210 (0.0305)	0.0402 (0.0328)
Demographic characteristics of household		
Number of females * Gaza	-0.112 (0.0147)***	-0.0903 (0.0117)***
Number of females * West Bank	-0.120 (0.00882)***	-0.123 (0.00862)***
Number of males * Gaza	-0.0872 (0.0149)***	-0.0877 (0.0122)***
Number of males * West Bank	-0.0955 (0.00935)***	-0.108 (0.00886)***
Number of children * Gaza	0.00523 (0.0138)	0.00147 (0.0107)
Number of children * West Bank	-0.000200 (0.00858)	0.00205 (0.00820)
Access to basic services		
Access to public water * Gaza	-0.107 (0.0913)	-0.0180 (0.145)
Access to public water * West Bank	-0.152 (0.0278)***	-0.126 (0.0227)***
Access to electricity * Gaza	n/a	0.544 (0.293)*
Access to electricity * West Bank	n/a	-0.255 (0.122)**
Connection to sewage network * Gaza	-0.110 (0.0528)**	0.121 (0.0350)***
Connection to sewage network * West Bank	-0.00923 (0.0228)	0.0915 (0.0237)***
Characteristics of household dwelling		
House ownership * Gaza	-0.0111 (0.0448)	0.0233 (0.0533)
House ownership * West Bank	-0.0774 (0.0259)***	-0.0806 (0.0255)***
Number of rooms * Gaza	0.0144 (0.0225)	0.0446 (0.0149)***
Number of rooms * West Bank	0.0428 (0.0119)***	0.0314 (0.00947)***
Number of bedrooms * Gaza	0.0502 (0.0359)	-0.0433 (0.0238)*
Number of bedrooms * West Bank	-0.0208 (0.0185)	0.0271 (0.0165)
Kitchen * Gaza	-0.0802 (0.183)	0.169 (0.257)
Kitchen * West Bank	0.174 (0.144)	0.162 (0.146)
Bathroom and toilet * Gaza	0.0378 (0.0591)	0.0603 (0.248)
Bathroom and toilet * West Bank	0.0549 (0.0385)	0.158 (0.163)
Main source of cooking energy is gas * Gaza	-0.00506 (0.0963)	0.288 (0.0687)***
Main source of cooking energy is gas * West Bank	-0.0689 (0.103)	0.0632 (0.0663)

Independent variables from the Palestinian expenditures and consumption survey	2017	2011
Main source of heating is gas * Gaza	0.138 (0.122)	0.101 (0.136)
Main source of heating is gas * West Bank	-0.0171 (0.0208)	0.0237 (0.0205)
Household assets		
Car * Gaza	0.458 (0.0703)***	0.280 (0.0528)***
Car * West Bank	0.372 (0.0207)***	0.301 (0.0224)***
Refrigerator * Gaza	0.0442 (0.0737)	0.113 (0.0557)**
Refrigerator * West Bank	0.0936 (0.0745)	0.181 (0.0598)***
Boiler * Gaza	0.0619 (0.0371)*	-0.000375 (0.0286)
Boiler * West Bank	0.112 (0.0199)***	0.0358 (0.0213)*
Central heating * Gaza	0.864 (0.493)*	n/a
Central heating * West Bank	0.0589 (0.0793)	0.155 (0.0586)***
Vacuum * Gaza	0.0763 (0.0604)	0.160 (0.0460)***
Vacuum * West Bank	0.0798 (0.0212)***	0.153 (0.0231)***
Cooking stove * Gaza	-0.0471 (0.0647)	0.102 (0.118)
Cooking stove * West Bank	0.0323 (0.0346)	0.0962 (0.0942)
Washing machine * Gaza	-0.0421 (0.0367)	0.0919 (0.0552)*
Washing machine * West Bank	-0.0549 (0.0197)***	0.0902 (0.0452)**
Home library * Gaza	0.188 (0.0588)***	0.136 (0.0404)***
Home library * West Bank	0.0602 (0.0292)**	0.0922 (0.0247)***
Television * Gaza	0.131 (0.0437)***	-0.00629 (0.0747)
Television * West Bank	0.184 (0.0211)***	0.0908 (0.0655)
Telephone line * Gaza	0.189 (0.0448)***	0.108 (0.0322)***
Telephone line * West Bank	0.0469**	0.123 (0.0209)***
Computer * Gaza	0.0876 (0.0441)**	0.162 (0.0315)***
Computer * West Bank	0.0576 (0.0211)***	0.0838 (0.0209)***
Mobile telephone * Gaza	0.200 (0.0432)***	-0.0140 (0.0802)
Mobile telephone * West Bank	n/a	n/a
R^2	0.5511	0.5004
Number of observations	3 734	4 317

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Source: UNCTAD.

Notes: For variables and units of measurement and summary statistics from the surveys and censuses, see annex 2. Expenditures are in constant 2015 dollars. Standard errors are shown in parentheses. The final household weight is the inverse of the selection probability of the household; these weights are used to correct or adjust baseline expansion factors in the regression.

Abbreviations: n/a, not applicable; R^2, proportion of the variance for a dependent variable that is explained by an independent variable.

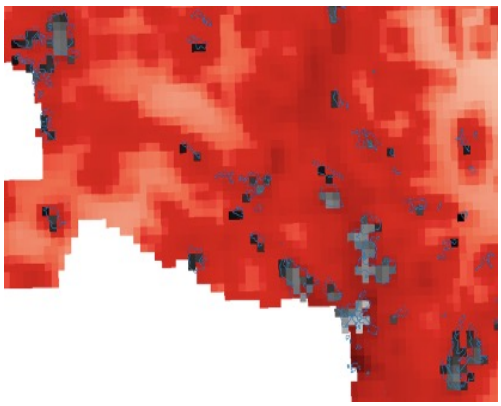
Annex 4
Night-time luminosity measurement

Data are obtained from the National Aeronautics and Space Administration Black Marble VNP46/VJ146 product suite, which uses the state-of-the-art application of data from the day/night band detectors of the visible infrared imaging radiometer suite. Annual night-time luminosity data from Black Marble are available from January 2012 to the present, have a 15 arc-second spatial resolution, and are cloud-free, and have been corrected for atmospheric, terrain, lunar and straylight effects, as well as vegetation and snow cover (UNCTAD, 2022). The annual composite has 28 layers, containing information on night-time luminosity measured at different zenith angles (near-nadir, off-nadir and all angles) and under different snow statuses (covered and free), as well as information on, among other aspects, the number of observations, quality, land water mask, platform, latitude and longitude.

The data used in this study are those captured from all zenith angles during snow-free periods, to understand night-time luminosity patterns within and outside of Israeli settlements. Night-time luminosity data cannot be directly clipped to settlements because their pixel size is too large compared with many of the settlements. Therefore, the original pixels are downsized to 10m x 10m instead of 446m x 446m, with downsizing conducted using the nearest neighbour method, in order for the downsized pixels to fit the settlement boundaries (figure).

Figure 14
Night-time luminosity: Examples of original and downsized pixels

(a) Original



(b) Downsized

Source: UNCTAD, 2022.

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