معهد أبحاث السياسات الاقتصادية الفلسطيني (ماس)

من حصد المكاسب؟
الرابحون والخاسرون من النمو الاقتصادي
في الاراضي الفلسطينية خلال 2006-2010

مهرين لارودي

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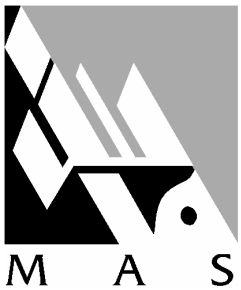
Palestine Economic Policy Research Institute (MAS)

Who Shared the Fruits of Growth in the Palestinian Economy, 2006-2010?

Mehrene Larudee

2012



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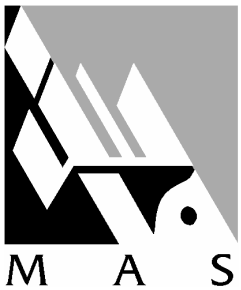

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Who shared the fruits of growth in the Palestinian economy, 2006-2010?

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Foreword

This study analyses how the bounty of the recent economic growth in Palestine was distributed among different sectors and segments of the Palestinian society. It directly addresses the question of whether the economic growth during the 2006-2010 period was accompanied by an increase in employment or whether it was a jobless growth where most of the benefits were trapped in the hands of the affluent few.

This study significantly enriches the existing literature on the Palestinian economy. It also employs a rigorous methodology that leads to objective and unbiased results. The study provides an authentic analysis which decision-makers can employ while crafting new social and economic policies to guarantee fairness and the inclusion of marginalized groups.

I would like to thank the researcher who could successfully achieve the ambitious objectives of the study. Her research adds to the literature and opens the door for more research on socio-economic dynamics in Palestine. I would also like to express my gratitude to those who reviewed the paper and gave their constructive feedback, which enriched the final result. Finally, we would like to extend our sincere thanks to the International Development Research Center-Canada (IDRC) for funding this study, which is the first study to be published in the MAS-IDRC cooperation agreement 2012-2013.

Dr. Samir Abdullah
Director General

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Executive Summary

Introduction

The economic boom in Palestine that began in 2007 had by 2010 increased real GDP by 33% above its 2006 level, following four years of rapid growth in the West Bank and a deep recession in the Gaza Strip with limited recovery in 2010. Yet many Palestinians have been inclined to believe that this boom is an illusion. This is perhaps because its benefits have been unevenly shared, and have flowed mainly to employment rather than real wages. This new study identifies the demographic groups, sectors, and locations that were winners, and those that were losers, focusing on output, employment and wages. A fuller study of who shared the fruits of growth would also do a detailed examination of poverty and consumption using household survey data, though the World Bank's *Coping with Conflict* (2011) already has explored these issues in considerable detail.

This study finds a kind of paradox: that 108,000 people were newly employed, but that this was barely sufficient to employ new entrants into the labor force, and insufficient to reduce the economy-wide unemployment rate. In fact, it is worse than that: without new employment in Israel and the settlements that accounted for about 23,600 – more than one-fifth – of those newly employed in the whole economy, given the rapidly growing labor force the unemployment rate would actually have risen in both the West Bank and the Palestinian territory as a whole. The Palestinian economy has one of the highest rates of labor force growth in the world, and for this reason it would have required much more rapid growth to reduce the unemployment rate through new employment in the Palestinian economy alone.

There were other welcome benefits of growth, however: 99,000 of the increase in employment was in wage employment. So although total employment grew only 13% as a result of growth in the Palestinian economy (excluding new employment in Israel and the settlements), *wage employment* in the Palestinian economy grew about 30% in both the West Bank and Gaza Strip, and private sector wage employment grew even more, about 39% in the whole Palestinian territory. This is explained by a strong shift, among those who were already employed, from unpaid work in a family business to wage employment. A welcome shift from underemployment to employment also took place in the West Bank.

That is the good news. The bad news, however, is that the real average daily wage fell sharply in the whole Palestinian economy – by 11% – because it declined 3% in the West Bank, and much further, a staggering 31%, in the Gaza Strip. In other words, the gains that flowed to labor as a whole from economic growth were almost entirely limited to the employment benefits; overall, labor did not reap gains in real wages from growth, despite rapid growth in labor productivity. This was particularly striking in the Gaza Strip, where, according to Economic Survey data, labor's share of value added fell by half, and total employee compensation in the Gaza Strip actually declined sharply, even as employment grew. In other words, in the Gaza Strip during 2006-2010 the entire gain in real GDP – and more – went to non-labor incomes. The inescapable conclusion is that for the whole Palestinian economy the disproportionate beneficiaries of growth from 2006 to 2010 were the recipients of non-labor incomes such as profit, interest, and rent.

The report also finds that the gender pay gap shrank in some low-wage sectors and widened in one low-wage and one high-wage sector. Refugees lost ground in employment relative to non-refugees, although refugee camp residents did better than refugees as a whole. The percentage of the male working age population that was employed rose in the West Bank but fell in the Gaza Strip, while the percentage of females of working age who were employed fell in the West Bank and stayed nearly the same in the Gaza Strip.

This study recommends reviewing policies that tend to create greater inequality in income distribution, such as tax breaks for firms that already are highly profitable. In an earlier draft it recommended considering establishment of a minimum wage, something which the Palestinian Authority actually announced in October 2012 would be implemented, though controversy remains about the level at which it was set. This study further recommends that the PCBS expand its data collection to allow closer tracking of trends in employment and real wages by governorate. A central goal of all these policies should be to ensure that labor gains a fair share of increases in GDP. The rock bottom minimum policy goal should be that nominal wages rise at least as fast as the Consumer Price Index, so that the purchasing power of the average wage does not fall.

Growth in GDP

1. In the whole Palestinian territory, real GDP was 33.1% higher in 2010 than in 2006, expressed in constant US dollars of 2004, for an average annual growth rate of 7.4%. Real GDP in the West Bank was 42.7%

higher in 2010 than in 2006, for an annual average growth rate of 9.3% for these four years. In the same period, real GDP in the Gaza Strip suffered a deep recession, and only in 2010 recovered to exceed its 2006 level, so that the cumulative growth rate of real GDP in the Gaza Strip was 11.9% over the period.

2. Real per capita GDP (average income) in the Palestinian territory, expressed in constant US dollars of 2004, grew from $1275 in 2006 to $1510 in 2010, an increase of 18%. In the West Bank, it rose from $1460 to $1867 in the same period, for an increase of 28%. The same measure in the Gaza Strip fell precipitously from $997 in 2006 to $807 in 2008 before rising again to $980 in 2010, for a net change over the whole period of -2%. Like all measures of the flow of economic activity at the beginning and end of a time period, this figure does not capture the cumulative loss in output and income in the Gaza Strip during the deep recession of 2006-2008. By 2010 real per capita GDP even in the West Bank had not yet quite reached its previous peak in 1999 of $1875, and in the Gaza Strip in 2010 it still was more than one-fourth below its 1998 peak of $1336.

3. In the West Bank, two of the six broad economic activities stood out as faster growing than real GDP as a whole in this period, and they therefore substantially enlarged their contribution to GDP. The contribution of Transport, Storage and Communication to GDP rose from 8.7% to 11.5%, largely due to growth in telecom, while the contribution of Construction rose from 7.3% to 10.3%. In contrast, the share of industrial production (Mining, Manufacturing, Electricity, and Water) fell from 17.4% to 14.0%, and the share of Services and Other Branches fell from 36.9% to 32.4%. The two remaining sectors were Agriculture, Hunting, and Fishing, whose share of GDP remained exactly at 5.0%, and Commerce, Hotels, and Restaurants, whose share dropped slightly from 10.6% to 10.1%. In contrast, in the Gaza Strip only one sector's share rose by at least a full percentage point, and that was Services and Other Branches, whose share grew from 57.4% to 60.7%. The shares of the other five sectors in Gaza changed by less than one percentage point during 2006-2010.

Growth in employment

4. Was growth "jobless", as some have claimed? On the one hand, there were 108,000 more Palestinians employed in 2010 than in 2006; on the other, the unemployment rate in the whole Palestinian territory was the same in 2010 as in 2006 (23.7%).

5. In the West Bank, the labor force grew 3.7% per year on average during 2006-2010, while employment in the local Palestinian economy grew 3.1%. In the Gaza Strip, the labor force grew 4.7% per year, while employment grew 3.4% per year. Because employment in the local Palestinian economy in both regions grew more slowly than the labor force, the unemployment rate would have risen in the Palestinian Territory as a whole, and even in the West Bank, had it not been for an increase in the number employed in Israel and the settlements.

6. Total employment in the Palestinian territory[1] rose by 17.0%, from 636,000 to 744,000, during 2006-2010. Of this, 13.3 percentage points are due to growth in the Palestinian economy proper, and 3.7 percentage points to an increase in Palestinian employment in Israel and the settlements. The net number newly employed in the Palestinian economy alone was 84,400. In the West Bank, 60,400 were newly employed, as employment grew from 412,400 to 472,800. Employment in Israel and the settlements rose by about 23,600. In the Gaza Strip 24,000 were newly employed, as employment rose from 169,000 to 193,000. The term "employment" includes those who were reported as underemployed.

7. In the West Bank the 84,400 newly employed were sufficient to reduce the unemployment rate from 18.8% in 2006 to 17.2% in 2010. This reduction was not a consequence of growth in the Palestinian economy alone. Given the rapid growth rate of the labor force, the reduction would not have occurred without the increase in employment in Israel and the settlements, which provided 28.1% of the new employment and made the unemployment rate 3.5 percentage points lower than it otherwise would have been. Without these jobs, the unemployment rate would have been about 20.4% in the West Bank, and would have risen in the Palestinian economy as a whole.

8. Cumulative growth in *income-earning employment* (wage employees + employers + the self-employed) was about 20% over the period 2006-2010 in the Palestinian territory, with growth in this category at the same rate in the West Bank and the Gaza Strip.

9. Cumulative growth in *wage employment* alone was about 30% in the Palestinian territory as a whole, and almost exactly the same in both the West Bank and Gaza Strip. This was greater than growth in total employment, and greater than growth in income-earning employment,

[1] Includes Palestinian employment in Israel and the settlements.

and was due to a major shift among employed persons from unpaid family work to wage employment.

10. In the Palestinian economy as a whole, cumulative growth in *private sector wage employment* was 38.5% from 2006 to 2010, excluding employment in Israel and the settlements. In the West Bank, growth in private sector wage employment was at least 40% over the period, while in the Gaza Strip it was about 34%. Public sector wage employment grew more slowly, by 21% in the Palestinian territory as a whole, by 16% in the West Bank, and by 27% in the Gaza Strip.

11. Among those employed there was a shift from underemployment to regular ("full") employment. In the West Bank, the number underemployed as a percent of all those employed fell from 11.8% in 2006 to 9.3% in 2010, and in absolute terms it fell from 55,000 to 51,000. In the Gaza Strip, the same measure rose from 7.1% to 9.3%, and the number of underemployed increased from 12,000 to 18,000. In the whole Palestinian territory, it fell from 10.5% to 9.3%.

12. From 2006 through 2010, for each 1.0% of annual growth in real GDP in the whole Palestinian territory, on average over the period there was 0.46% growth in total employment, 0.62% growth in income-earning employment, and 0.93% growth in wage employment in the Palestinian economy (excluding Israel and the settlements). In the West Bank, for each 1.0% of growth in real GDP, there was 0.37% growth in total employment, 0.50% growth in income-earning employment, and 0.75% growth in wage employment in the West Bank Palestinian economy. For the Gaza Strip, all the comparable numbers were greater than one: for each 1.0% of annual growth in real GDP, on average over the period there was 1.18% growth in total employment, 1.58% growth in income-earning employment, and 2.34% growth in wage employment.

13. Public sector employment in the West Bank was 19% of all employment in the Palestinian economy (excluding Israel and the settlements) in 2006 and remained at the same level in 2010. In the Gaza Strip it was both higher initially (42% in 2006) and rising (to 46% in 2010).

Changes in employment by demographic group

14. To evaluate changes in employment this study mainly uses the *employment ratio (ER)*, often called the *employment-to-population ratio*. For a given demographic group it is the number in that group

who are employed, divided by the total population of that group who are of working age (15+). If the ER is 33.3%, then roughly speaking each employed person 15 and over supports three persons of working age (himself and two others) in that age group with his or her earnings, in addition to about three children. It is calculated as the Labor Force Participation Rate multiplied by the employment rate.[2] The Palestinian economy's ER was constant over the period: 31.3% in 2006 and 31.4% in 2010. This was the result of divergent trends in the two regions, with the ER higher in the West Bank, and rising from 35.6% to 36.2% over the period, but lower in the Gaza Strip, and falling from 23.5% to 22.6%. The Palestinian economy has the lowest reported employment ratio in the world; for comparison, Iraq's is 34%, Jordan's is 36%, and the average for MENA developing countries is 41%.

15. In the West Bank, the employment ratio for men rose from 55.7% to 58.0%, and for women fell from 14.7% to 13.8%, indicating that women's employment grew much more slowly than men's. In the Gaza Strip, in contrast, the employment ratio for men fell from 40.9% to 39.6%, and for women was almost exactly the same in 2010 (5.3%) as in 2006 (5.5%).

16. Among males, by age group, it was men aged 35-44 who were the main winners in employment in both the West Bank and the Gaza Strip. In the West Bank, their employment ratio increased by 5.4 percentage points, and in the Gaza Strip their ER rose 6.4 percentage points. In the West Bank, men 45-54 also gained, with a 3.7 percentage point increase in their ER. In both regions, the youngest and oldest males were the groups with the smallest increases (West Bank) or largest declines (Gaza Strip) in their ERs. By 2010 only 13.2% of males 15-24 in Gaza were employed, while in the West Bank 35.2% were. The age profile of employment ratios for males, which was already an inverted U in shape in both the West Bank and Gaza Strip, became a narrower, sharper U in both regions.

    Among females, the age profiles of their employment ratios tilted during this period shifting in the West Bank from younger to older, and in the Gaza Strip from older to younger. In the West Bank, the only female age group whose ER rose was those aged 45-54; in the Gaza Strip the ER fell or stayed the same for every age group except

[2] By "employment rate" we mean the total number of employed persons (including the underemployed) as a percent of the labor force.

one: among Gazan women 25-34 there was an increase in the ER from 8.3% to 9.6%, notable in an overall lagging economy, and likely related to service sector growth.

17. Among males, by years of schooling, in both the West Bank and the Gaza Strip employment ratios fell for the most and least educated, that is, the college educated and the tiny (and elderly) group with no schooling at all. In the West Bank, ERs increased for the three middle groups, those with 1 to 12 years of schooling, rising most for those with 10-12 years of schooling. In the Gaza Strip, the only group whose ER rose was those with 1-6 years of schooling, and only by 0.2 percentage points. The group that lost most was males with 7-9 years of schooling, whose ER dropped by 4.8 percentage points.

    Among females, the employment ratio for every category of years of schooling fell in both the West Bank and the Gaza Strip except college-educated Gazan women, whose ER stayed essentially the same. In the West Bank this decline was 2-3 percentage points at most education levels, and even for college-educated women the ER fell from 31.4% to 30.0%. However, because the employment ratio of college-educated women was higher, and because the number of college-educated women increased, the net decline in the overall female ER was small in the West Bank, only from 14.7% to 13.8%. In the Gaza Strip, nearly the only women in the labor force are college-educated women, and their employment ratio was 20.0% in 2006 and essentially unchanged in 2010. This explains why the ER for Gazan females fell only from 5.5% in 2006 to 5.3% in 2010.

18. In comparing refugee with non-refugee employment trends, data for 2007 and 2010 were used, because 2007 was the first year that the PCBS published data on refugees' labor force status. The overall refugee employment ratio fell from 29.9% to 27.3%. One reason was that the majority of refugees live in the Gaza Strip, where total employment grew much more slowly than did the working age population. Another was that in the West Bank the refugee ER fell both absolutely (from 34.9% to 33.3%) and relative to non-refugees, whose ER rose. However, in the West Bank the ER for those living in refugee camps actually rose from 30.7% to 31.2%, implying that the decline in employment ratio was for those refugees not living in camps.

Changes in wages

19. The change in the real average daily wage in the Palestinian economy, excluding employment in Israel and the settlements, was -11.4% from 2006 to 2010, because the nominal average daily wage rose by only a cumulative 5.7% (from 73.7 to 77.9 NIS) while cumulative inflation was 19.3%. This economy-wide change masks an enormous chasm between wage changes in the West Bank and those in the Gaza Strip. In the West Bank, the nominal average daily wage rose 12.2%, from 76.5 NIS to 85.8 NIS; but with 16.0% inflation, the real average daily wage fell 3.3%. In the Gaza Strip, the nominal average daily wage *fell* 15.7%, from 69.0 NIS to 58.2 NIS, and with cumulative 22.9% inflation, the real average daily wage fell by 31.4%.

20. The real wage bill in the whole Palestinian economy – wage payments to all wage employees, public and private, excluding workers in Israel and the settlements – rose by just 11.7% over the period, the result of about a 30% increase in wage employment, a 3.4% decline in average days worked per month, and an 11.4% decline in the real average daily wage. If the real wage had remained constant in real terms and average days worked had not changed, the 30% increase in wage employment would have produced a 30% increase in the wage bill. The fact that the wage bill actually grew by only 12%, while real GDP grew by 33%, means that labor's share of value added fell. In the West Bank, the wage bill grew 22%. In the Gaza Strip it fell 13%.

21. In the West Bank, in the establishments included in the Economic Survey, the employee compensation share of value added fell from 25.6% of Gross Value Added in 2007 to 23.5% of GVA in 2010, while in the Gaza Strip it dropped sharply from 28.2% in 2007 to 15.0% in 2010.

22. When we report a change in the average wage for all wage employees, it is important to be aware of what we call *composition effects*: in this case, the composition of employment changes with the addition of new hires, and the behavior of the average wage may mask an increase in the wage of existing employees, offset by the lower wages of those newly hired. In the West Bank, the real average wage fell, yet it is quite possible that those who were already employed in the beginning year (2006) did get a small real wage increase. Published aggregate data do not allow us to calculate exactly how large such a wage increase for existing employees might have been. However, the formula we have calculated implies, for example, that if existing

employees received an average 16% nominal wage increase, then new hires must have received 100% of the wage that existing employees earned in 2006; and if existing employees received a 20% nominal wage increase, then new hires must have received on average 87% of the wage that existing employees were being paid in 2006. The latter would imply that existing employees received about a 4% increase in real wages over the period, or about a 1% increase per year. See Appendix 1 and Section 5.7 for details.

23. This report presents changes in real wages by governorate, but it does so after deflating nominal wages using region-wide Consumer Price Indexes. The absence of CPIs by governorate makes it impossible to know which governorates truly enjoyed the largest real wage changes. In the West Bank the governorates with the largest nominal wage increases in percentage terms were Tulkarm, Jericho/Al-Aghwar, Qalqilya, Ramallah/Al-Bireh, and Bethlehem. In the Gaza Strip, all governorates suffered devastating wage declines, but the hardest hit were Deir al-Balah and Khanyounis, with 36% declines in the real average daily wage, adjusted for inflation using the Gaza Strip CPI.

Changes in labor income by demographic group and sector

24. There were some wage gains and some losses for women relative to men in this period. One gain was that the number of women who worked unpaid in a family business fell from 26% to 19% economy-wide, with the main decline in the Gaza Strip, where this number fell from 21% to 3% of all employed women in Gaza.

    In order to understand changes in wage levels, it is important to realize that the large majority of women wage employees worked in the Services and Other Branches sector throughout 2006-2010: nearly 100% of women wage employees in the Gaza Strip and a majority in the West Bank. This was the only sector in which the average hourly wage, estimated especially for this report, was nearly equal for men and women, with women's estimated hourly wage at 12.4 NIS in 2006, compared to men's 12.2 NIS. By 2010 women's relative pay in the sector had fallen, with women's estimated average hourly wage at 12.0 NIS and men's at 12.5 NIS, a drop from 103% of men's pay to 98%.[3]

[3] From the published data it is not possible to tell whether factors such as possible changes in the relative number of years of experience of male and female workers may explain some of this change.

In three other broad economic activities there was a sizeable gender pay gap, which in two sectors (*Agriculture* and *Commerce, Hotels & Restaurants*) narrowed substantially over the period, and in a third (*Mining, Quarrying, and Manufacturing*) slightly widened. Women's estimated hourly pay in agriculture was in 2006 their lowest wage in any sector at 4.4 NIS per hour, which was 81% of men's estimated hourly wage in the sector in 2006; this rose to 86% of men's pay in 2010. In manufacturing, women earned 5.3 NIS per hour in 2006, 58% of men's estimated hourly wage, and this fell to 56% in 2010. In commerce, women earned 5.8 NIS per hour, 62% of men's estimated hourly wage, in 2006, and this rose sharply to 82% in 2010. Overall, both men's and women's wages fell in real terms, but women's real average wages fell somewhat further, largely due to the decline in the service sector estimated hourly wage for women. All estimates are for the Palestinian territory as a whole, due to data availability.

25. In the West Bank, labor's share of value added fell in three of five broad economic activities (*Industry*; *Services*; and *Transportation, Storage, and Communication*), and it rose slightly in *Internal Trade* and substantially in *Construction*. In the Gaza Strip labor's share of value added fell in all sectors except *Construction*, where it rose slightly. The largest declines in Gaza were in *Internal Trade*, where labor's share fell from 19.2% to 5.9%, and *Industry*, where this measure fell from 26.3% to 12.7%.

26. Economic Survey data show that, in large sectors with above average output growth from 2006 to 2010, labor's share of value added tended to fall, while in large sectors with below average output growth, labor's share of value added tended to rise. A notable case is *Post and Telecommunications*, whose Gross Value Added grew from $242 million in 2007 to $604 million in 2010, expressed in current dollars, while employee compensation fell from 25% to 11% of Gross Value Added.

Chapter 1:
Controversy over the benefits of growth

1.1 Introduction

Real GDP in the Palestinian economy as a whole was 33% higher in 2010 than in 2006 after four successive years of rapid overall growth, and yet to many Palestinians the fruits of this growth are not immediately evident. Was this growth "jobless", as UNCTAD (2011) has described it? Who participated in it, and who did not? Did growth in output lead to parallel growth in employment, or in paid employment? Did it lead to substantial growth in real wages? And if growth and its fruits were unevenly distributed, which regions, governorates, sectors, economic activities, factor owners, and demographic groups gained, and which lost? This report examines these questions in detail.

1.2 Is the economic boom a myth?

Several Palestinian writers have, in one way or another, cast doubt on the idea that there has been an economic boom, or have argued that its benefits have been minimal. Much of this was a response to talk by Israeli Prime Minister Benyamin Netanyahu in 2009 of a so-called "economic peace", provoking criticism from a number of Palestinian writers. For one, Netanyahu took credit for Israel, claiming that its reduction of the number of checkpoints in the West Bank was a significant cause of the West Bank's economic growth (Abunimah 2011). In contrast, the World Bank (2011) and most observers credit the very large inflow of international aid for the high growth rate of GDP in the West Bank from 2007 on. Netanyahu touted "economic peace" as a strategy that would somehow resolve the conflict by creating economic links between Palestinians and Israelis – without an end to the occupation or the violations of international law.

These Palestinian writers strenuously objected, rejecting both the implications that Netanyahu drew from growth, and rejecting to a great extent the claims (published in numerous foreign news media) of growth itself. One point they pressed was that no amount of economic growth can demonstrate that the Israeli occupation is harmless, or is becoming harmless, and so does not matter and can safely be ignored. These writers further rejected the implication that economic growth could be credited to

the policies of Prime Minister Salam Fayyad, insisting instead that to the extent there was growth, it was due to the increase in international aid, and suggesting further that the population at large was benefiting little or not at all from the reported economic boom. In fact, some argued, the policies of "fiscal responsibility" – trying to bring the PA budget more closely into balance – actually made life worse for the poor, because certain revenue-raising and cost-cutting measures fell heavily on the poor.

Ali Abunimah (2011) charged that the Palestinian economic boom was a myth and a lie, as was Netanyahu's claim in a speech to the U.S. Congress that Israel could take credit for economic improvement in the West Bank because some Israeli roadblocks and barriers had been removed. As evidence that the boom was illusory, Abunimah cited data showing short-term declines in total West Bank employment and real wages reported in UNRWA's semiannual update on the labor market situation (Ajluni 2011a:1, cited in Abunimah 2011). Riyahi (c2010), writing for the NGO Bisan Center for Research and Development, argued that workers, the poor, and refugees living in camps were hurt by new policies promoted by the World Bank and adopted by the PA, such as prepaid electricity billing and other fees and new taxes. And while the Fayyad government was given credit for reducing the budget deficit, it was actually the poor, he argued, who were paying to close that gap. In referring to economic growth, he wrote, "this alleged growth has not reflected positively on the poor" (1).

Bahour (2010) did not deny that there had been economic growth, but asserted that growth was driven by international aid (a view with which the World Bank's report *Coping with Conflict* (2011) agreed); that the "economic peace" slogan had been employed to divert attention from relentless building of settlements; and that as long as Israel controlled, and controls, land, water, movement of persons and goods, borders, airspace, electricity, and permission to build on over half of West Bank land – in short, most key economic resources and activities – true development could not and would not take place. He also recalled the important fact, found in every introductory macroeconomics text, that GDP measures bads as well as goods. When, for example, Palestinians are forced by checkpoints to take circuitous routes to their destinations, they consume more fuel and hence add to GDP – but this measures something bad, not something good.

UNCTAD (2011) did not claim that the economic boom had been an illusion but pointed out that the unemployment rate remained as high in

2010 as in 2006; that growth is aid-dependent; that Palestinian private sector activity is still severely constricted by Israeli policies and actions; and that although growth appears rapid, this is partly because it started from quite a low base after years of disruptions during the Second Intifada. The UNCTAD report also noted that about two-thirds of the revenue to the Palestinian Authority, including a large sum of clearance revenues from customs duties collected on Palestinian imports, is dependent on Israeli willingness to hand these funds over to the PA.

The boom has indeed been driven largely by international aid, and to a lesser degree by an increase in Palestinian employment in Israel and the settlements and in the real wage they are paid. Programs designed to expand lending for purchases of cars and homes have also evidently played a significant role in creating the boom. Meanwhile, manufacturing has languished, as imports of cheaper goods from abroad, notably from China, have put some local production out of business.

1.3 "Jobless" growth?

Growth in the Palestinian territory in the last few years has been described as "jobless" by UNCTAD (2011) because it did not reduce the economy-wide unemployment rate. Similar concerns have been expressed about a number of economies in the Middle East and North Africa by studies sponsored by the International Labor Office (ILO), as well as about some economies in the rest of the world, and such studies are reviewed in Chapter 2. The concern is for countries where, even when real GDP grows at a rapid rate, the unemployment rate fails to fall, or falls only very slowly. The claim is not literally that no jobs have been created, but that the number of jobs created is insufficient, for example, to restore single-digit unemployment rates within the foreseeable future.

UNCTAD (2011) notes that by the relaxed definition, which includes among both the labor force and the unemployed those discouraged workers who are no longer actively seeking employment, the unemployment rate rose slightly, from 29.8% in 2006 to 30.0% in 2010 (PCBS 2011b: Table 62; UNCTAD 2011). From 2006 to 2010 by the conventional definition the unemployment rate in the Palestinian territory remained constant, and in the West Bank it fell only by 1.6 percentage points. Even acknowledging that the labor force was growing rapidly, it is disturbing that sustained growth averaging 9.3% per year from 2006 to 2010 in the West Bank can produce such a small reduction in the unemployment rate.

Chapter 3 analyzes output growth, and Chapter 4 presents employment data, analyzing why the unemployment rate was persistently high, and in detail who were the main beneficiaries of employment growth. Chapter 5 explores changes in real wages, real labor incomes, and non-labor incomes.

1.4 Sources and Methods

The data used here are mostly from the Palestinian Central Bureau of Statistics (PCBS) annual Labor Force Survey and National Accounts, as well as data on the Consumer Price Index. The Labor Force Survey is a household survey conducted year round, using a sample of households that is interviewed in four quarters within a time period of six quarters. National Accounts data are compiled from a variety of sources, including the annual Economic Survey of establishments and some information from various other ministries and the Palestine Monetary Authority. For the most part we use National Accounts data for real GDP in constant dollars of 2004. (Until 2005, the PCBS also reported real GDP in constant shekels, but it ceased to report data in shekels, or any other currency except dollars, thereafter.) Transactions in the Palestinian economy are conducted primarily in three currencies: New Israeli Shekels (NIS), dollars, and Jordanian dinars (JD). For example, the shekel is used commonly in street transactions, while some salaries (notably in universities) are paid in Jordanian dinars, some in dollars, and some in shekels. The PCBS converts all transactions to dollars at the simple average exchange rate prevailing during the year in question, a procedure which could potentially introduce inaccuracies in cases where economic activity is concentrated during a particular period of the year (Ramadan) during which the exchange rate may in some years be different from the annual average. We ignore such a possibility in this study.

A truly comprehensive study of who enjoyed the fruits of growth and who did not would also use household consumption and expenditure data, and link poverty data to other indicators. In fact, the World Bank (2011) report *Coping with Conflict: Poverty and Inclusion in the West Bank and Gaza* does a thorough analysis of this kind, and the present study cites its results where they can enrich our understanding of trends in the labor and national accounts data.

In most of this study we use data for 2006-2010. In 2006, real GDP declined economy wide, but renewed growth in 2007 began the longest

continuous growth path for the Palestinian economy since 1995-1999. The ending year for this study is 2010 because it is the latest year for which the revised national accounts data are available. Since the final revision was substantial, at least for the Gaza Strip, it was deemed unwise to add 2011 data to the study.

Changes in the way data were reported, however, made it necessary in some sections of this report to use data for 2007-2010, or 2006-2009, or in a few cases other time periods. Most notably, the Economic Survey began reporting data in 2010 according to sectors defined by the International Standard Industrial Classification (ISIC) Revision 4, after using ISIC Rev. 3 for many years. Since the changes were quite considerable, some sections of this study use just the five broad sectors of the economy reported consistently throughout the period. Other sections use 2006-2009 data.

A similar, but less comprehensive, change in categories took place in the national accounts data in 2010 (and the PCBS also re-categorized the data from 2009 for comparability), but it was possible in this case, too, to use the six broad economic activities (including agriculture, which is not in the Economic Survey), which had not changed.

The method used in this study has several distinctive features. First, in most of this analysis we have excluded data on Palestinians working in Israel and the settlements – the number of them employed, the wages they earn, and the hours and days they work – and used, or compiled, data only on those employed in actually contributing to Palestinian GDP. This is because we are interested in how growth in real GDP produced in the Palestinian economy has affected employment and incomes. This cause-effect relationship is absent for workers in Israel and the settlements; and their output is not part of Palestinian GDP. To capture the precise dynamics of the Palestinian economy proper requires removing Palestinian workers and their wages and hours from the data, and reporting them separately. In some cases it was necessary to do bit of minor gymnastics to achieve this, notably in order to find the number of wage employees. Appendix 2 explains how wage employment in the Palestinian economy was calculated, taking account of changes in the way the PCBS reported the relevant data in the Labor Force Survey.

Second, in discussing productivity we exclusively use the concept of labor productivity, that is, real value added per worker obtained simply by dividing real GDP by the number of persons employed. Some researchers

prefer the concept of Total Factor Productivity, as the residual in a Solow growth model, calculated using data on labor and the value of capital stock. However, measures of capital stock are notoriously inaccurate, particularly as they are often based on accounting rules rather than actual market value. And because TFP is a residual, it is unusually subject to error: even a modest error in valuation of capital stock can produce a quite large error in the residual, making the whole empirical exercise somewhat futile.

Third, in Chapter 4 we present output elasticities of employment, that is, the percent change in employment divided by the percent change in real output, for the whole Palestinian economy, and for each region (West Bank, Gaza Strip), and for each of six broad sectors. We have calculated these as arc elasticities for the sake of transparency, using data only for the beginning and ending years, such as 2006-2010 (or 2007-2010 in one instance, due to changes in availability of published data). Some researchers advocate estimating such elasticities by fitting a constant-elasticity curve to annual data. However, researchers report that by either the arc elasticity or point elasticity method, such elasticities are volatile depending on the beginning and ending year, and in view of this the more transparent method is adopted here.

Fourth, in Chapter 4 on employment, we have relied almost entirely on a measure that some researchers call the *employment to population ratio*, and which we call simply the *employment ratio (ER)*. For a given demographic group, this is the number of persons in that demographic group who are employed, as a share of all persons of working age (15+ in the Palestinian territory) in that demographic group. If we define the number employed as N, the labor force as L, and the working age population as P, the employment rate[4] is N/L, the labor force participation ratio is L/P, and the employment ratio is the employment rate times the LFPR, which is $(N/L)(L/P) = N/P$. An important reason for doing this is that it there appears to be a tendency for women who are not working to report themselves as not being in the labor force, while men who are not working apparently tend to report themselves as in the labor force, but unemployed. Using the employment ratio bypasses these complications and simplifies the analysis.

[4] The term *employment rate* as used here means the sum of what is reported in Table 1 of the Labor Force Survey (PCBS 2011b, for example) as the "employment rate" and the "underemployment rate". The PCBS category "employed persons" includes both the category *employment* and the category *underemployment*.

Fifth, in Chapter 5 on wages and other incomes, it is noted that it is important to be aware of possible *composition effects* in interpreting some of the data. The basic idea is this: that when total employment rises, the change in the average wage is the result of two facts that may work in opposite directions. One is a change, such as a possible increase, in the wage of those workers who were already employed. Another is the fact that new hires may be paid lower wages, on average, than existing workers. The wages of new hires may drag down average wages for all those employed, so that paradoxically everyone may be becoming better off (existing employees getting raises, while new hires go from zero to some pay), and yet the average wage falls. Appendix 1 discusses such issues in some detail, and Chapter 5 discusses them more briefly. Composition effects may also operate in a similar way with regard to average hours or days worked (if new hires on average work fewer hours than existing employees), or with regard to labor productivity (if new hires have lower labor productivity than existing employees); however, the latter two effects are mentioned only briefly in this report.

Chapter 2:
Growth in GDP, employment, and labor productivity: A literature review

2.1 The tradeoff between growth in employment and labor productivity

The relationship between growth of output, of employment, and of labor productivity is much discussed in the literature. The International Labor Office (ILO) has long argued that policymakers should focus on employment growth as among the most effective ways to combat poverty. However, many economists argue for focusing on labor productivity as a way of maintaining competitiveness. What is certain is that for a given growth rate of real GDP, there is a tradeoff between growth of employment and growth of labor productivity.

This is because it is a mathematical fact that *output* = (*number of workers*)(*labor productivity*) if labor productivity is defined as total output divided by the number of workers. That is, if we express real GDP (denoted by y) as *number employed* (L) times *labor productivity* (real value added per person employed, or y/L):

$$y = L(y/L) \qquad (2.1)$$

It is then also a mathematical fact that, for small changes, the growth rate of y is approximately equal to the growth rate of the number employed, plus the growth rate of labor productivity (see Kapsos 2005):

$$g_y \sim g_L + g_{y/L}, \qquad (2.2)$$

(where ~ means "approximately equals").[5] In equation (2.2), the tilde (~) can only be replaced by an equals sign (=) for infinitesimal changes, though the approximation is fairly close for the range of actual growth rates typically encountered over short periods. In the case of the West Bank economy, the numbers for equation (2.2) are:

$$42.7\% \sim 14.6\% + 24.5\%$$

[5] This is easy to prove by taking the natural logarithm of both sides of equation (1) and then differentiating to get growth rates; such growth rates will be instantaneous rates of change, and so the resulting equation will be only approximate for finite changes, especially large changes over multiple years, like those that took place over 2006-2010. More precisely, $g_y = g_L + g_{y/L} + g_L(g_{y/L})$ for finite changes.

In other words, real GDP in 2010 was 42.7% greater than in 2006; the number of persons in the West Bank employed in producing West Bank Palestinian GDP in 2010 (which excludes those employed in Israel and the settlements) was 14.6% greater than in 2006; and when we divide West Bank Palestinian GDP by the number employed in producing it, and calculate how much larger it was in 2010 than in 2006, we find it had grown by 24.5%.

The literature, especially the ILO literature, strongly emphasizes that growth in employment is a principal mechanism for channeling income to those who might otherwise fall into poverty, or who are already in poverty and seek to escape it. The less rapidly employment grows, the less likely poverty is to fall. Khan (2007) cites studies, such as those collected in Islam (2006), that document a strong correlation between slow employment growth and slow or negative poverty reduction in developing countries. In addition, in 2003 the ILO adopted a Global Employment Agenda, and seeks to fulfill its mission to contribute to providing "full and productive employment and decent work for all" (Nassar 2011: iii). Many of its studies place heavy emphasis on the need for more rapid employment growth, and this often appears to take priority over growth in labor productivity.

At the same time, however, growth in labor productivity is important in order to maintain competitiveness with other countries exporting similar goods. For example, Ronnås (2011), in a study of Mongolia, observes that increasing imports of manufactured goods have motivated an increase in the capital intensity of manufacturing production in Mongolia and in value added per worker, resulting in a decline in manufacturing employment from 2000 to 2007 even while real manufacturing output more than doubled. No doubt a major factor is competition with low-priced Chinese exports that reflect both scale economies and a high level of technical development in China. In this case, the necessity for sufficient growth in labor productivity to remain competitive acted as a constraint on growth in employment. Indeed, for countries where employment growth has been relatively rapid, authors of country studies in some cases complain that labor productivity grew relatively slowly, while in countries where labor productivity growth was relatively rapid, authors of country studies often complain that employment growth was insufficient. For a given growth rate of real GDP, there is an unavoidable tradeoff between the two, a constraint that can only be relaxed by achieving more rapid growth of real GDP.

Salazar-Xirinachs (2011) notes studies that show that, in response to increased imports and/or trade liberalization, some developing countries have experienced an increase in capital intensity in manufacturing, contrary to the predictions of trade theory. His policy recommendation is therefore flexibility: to continue to promote employment growth, and yet not to focus exclusively on promoting labor-intensive export manufacturing with the short-sighted exclusive goal of creating employment, since competitiveness – sometimes based on mechanization – can be critical to sustaining many manufacturing subsectors.

Ideally, what we would like see is rapid enough growth in real GDP to allow both for substantial employment growth and for significant growth in labor productivity. South Korea underwent such rapid growth, in the 1970s, with growth rates of real GDP of 12 to 15 percent, and the elasticity of manufacturing employment with respect to value added in manufacturing was 0.7; in consequence, the "Lewis transition" took place (based on Arthur Lewis's model of economic development with an unlimited supply of labor), with enough workers exiting the agricultural sector to drive up agricultural earnings and therefore also real industrial wages (Khan 2007). Real wages rose at the same rate as overall income per capita.

Khan (2007) suggests that income distribution is a variable that is relevant in this context. For example, in seven of the eight Asian country studies that his study reviewed, employment growth was inadequate, and in all seven countries income distribution also worsened. The eighth country, Malaysia, was the only one in which employment growth was adequate and the only one in which income distribution did not worsen.

2.2 How does employment usually respond to growth in output?

2.2.1 The economy-wide output elasticity of employment

The output elasticity of employment (OEE) for a given time period is the ratio of the percent change in employment to the percent change in real output over that period.[6] The OEE for the Palestinian economy as a whole (excluding Israel and the settlements) was 0.46 for 2006-2010, meaning that a one percent increase in real GDP was associated with a 0.46%

[6] Empirically it can be estimated by a statistical regression, to get a point elasticity, rather than taking the actual percent change in employment divided by the percent change in real output, which gives an arc elasticity. For the Palestinian economy we have calculated arc elasticities.

increase in employment. It is also sometimes called the *employment intensity of growth.*

Worldwide, for 160 countries, the average OEE for 1991-1995 was 0.34, rising to 0.38 for 1995-1999, and then falling to 0.30 for 1999-2003 (Salazar-Xirinachs 2011, citing ILO 2006). The economywide OEE for the Palestinian economy, 0.46 for 2006-2010, is higher than this; and the OEE for the West Bank, 0.37 over this period, is higher than the 1999-2003 world average, and about equal to the 1995-1999 average. ILO publications generally regard these values as unacceptably low. ILO (2009: 49-50), in discussing future prospects for recovery of employment from the world economic crisis, refers to a 0.60 OEE as "strong", and a 0.40 OEE as "weak" employment intensity of growth, so that the overall 0.46 OEE for the Palestinian economy is about in the middle, and the West Bank elasticity is weak, relative to what the ILO regards as desirable. An OEE > 1, that is, with employment growing faster than output, implies that labor productivity is actually declining (Kapsos 2005). We should add, however, that it means *average* labor productivity is declining; but in a growing economy, since many new workers have been added, it is possible that productivity of previously employed workers has risen, while the lower productivity of newly hired workers has dragged down average productivity.

To be sure, there are measurement issues with OEEs. Output elasticities of employment can be quite volatile. This can be true even when the OEEs are calculated over multi-year periods. Where output growth is very small, it is particularly likely that the OEE may change sharply from one period to the next; one study observed that the time period he studied was "only" 13 years, so that statistical noise could be considerable (Kapsos 2005). The same study noted that sectoral elasticities could also be volatile. Here we are studying even shorter time periods; and some of the OEEs, even at a highly aggregated sectoral level, are indeed volatile. Notably, the output elasticity of employment for the Gaza Strip was -1.87 for 2006-2009, but 1.19 for 2006-2010. This is because the denominator – the percent change in output – was negative for the first period, and rather small but positive for the full 2006-2010 period.

Also, elasticities reported from different sources may not be completely comparable. For example, the elasticities reported in Kapsos (2005) were all based on measures of real GDP in constant local currency units, while the real GDP figures for the Palestinian economy used in the present study were all in constant US dollars of 2004, because from 2006 on, the PCBS

ceased to report real GDP in Israeli shekels.[7] In theory the conversion from current dollars to constant dollars to obtain real output should compensate for that problem; in practice it is possible that conversion of transactions from different currencies is done with insufficient precision to avoid inaccuracy in OEE estimates for the Palestinian economy. Hence the reported numbers should be taken as approximate only.[8]

For Arab Mediterranean countries the output elasticity of employment reportedly has on average been much higher in the last decade or so than the world averages up to 2003 reported above in Salazar-Xirinachs (2011). European Commission (2010a: 35) compiled estimates of OEEs from various sources, and although it said they were somewhat "sketchy" and "disparate", the (unweighted) average labor demand elasticity calculated by the ILO for Morocco, Algeria, Tunisia, Egypt, Jordan and Lebanon was 0.86. While such robust employment growth might seem good, there are two problems with it. First, the quality of much of this employment is reportedly poor, in work that is precarious and poorly paid. Second, the fact that employment growth is so high means that labor productivity is hardly growing at all, and in some countries it has been falling (European Commission 2010a). A group of estimated OEEs to MENA countries compiled in the same source from a wider variety of studies, including some by the World Bank, ranged from the very low level of 0.1 for Lebanon during 1997-2007 to the very high level of 1.37 for Algeria during an unspecified period. However, estimates for individual countries from different sources differed by as much as 0.5, and the source does not make clear how these estimates were made, or whether these differences arose because they covered different time periods.

A number of sources assert that the OEEs have been declining, both in the world and in particular countries. As already noted, Salazar-Xirinachs (2011) cites ILO data showing a decline in the period 1999-2003 in the

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[7] In the Palestinian economy the most commonly used currency in ordinary street transactions is the Israeli shekel, although employees of some organizations are paid in dollars, and some rents are paid in dollars, and universities typically pay employees and collect tuition in Jordanian dinars.

[8] The PCBS converts all transactions for a year at the (simple) average exchange rate for the entire year. If the volume of transactions fluctuates seasonally, and if there is substantial exchange rate fluctuation during the year, it appears to be quite possible for the reported growth rate in constant Israeli shekels to differ from the reported growth rate in constant US dollars by as much as 1-2%. Also, note also that Kapsos (2005) estimates point elasticities by statistical regressions, rather than arc elasticities, as we have done here for the sake of transparency. He argues that a problem with arc elasticities is that they are volatile, being highly dependent on the particular years for which the calculation is made; he acknowledges, however, that point elasticities also are often volatile and highly dependent on the years covered.

world OEE compared to earlier periods, and several papers report similar declines in some countries since about 2000, although this is not a universal phenomenon. Yeldan (2011) reports that in the last decade or so, widespread speculative activity in Turkey has retarded investment in goods production and therefore slowed employment creation. European Commission (2010a) says that OEEs (which were quite high) have been declining in MENA countries.

2.2.2 Sectoral output elasticities of employment

Data on typical values are also available to some extent for individual sectors, such as manufacturing, agriculture, services, and so on, although in comparing sectoral elasticities across countries it is crucial to check that sectors are defined the same way. European Commission (2010: 35) reports that the average OEE in the industrial sector in the Arab Mediterranean countries was 0.35, and in the service sector was 0.5 (the time period covered is not reported in the source). For Egypt, Nassar (2011) reports an overall OEE of 0.81 for 2000-2007, and a sectoral output elasticity of employment of 0.65 for the manufacturing and mining sector alone; 0.73 for "industry", defined as mining, manufacturing, electricity, gas, water, and construction – a definition that differs from that used in the Palestinian economy where construction is always separate from manufacturing); and 0.73 for "services", defined as finance, trade, transport, communications, and community, social and personal services (also differently defined from the Palestinian services sector, which does not include transport or communication). Even agriculture in Egypt has a positive OEE of 0.51, while in some other countries over some time periods the OEE in agriculture is found to be negative. Sectoral elasticities also are sometimes marred by the lack of sectoral price deflators, which introduce inaccuracies. For example, in Ronnås (2011), a study of jobless growth in Mongolia, the mining sector, which mines mainly copper but also some gold, enjoyed a large increase in nominal value added from 2003 to 2007, due in very large part to a fourfold increase in the price of copper. Because no sectoral price deflators were available, the nominal sectoral values were deflated only by the overall GDP deflator, greatly distorting the estimated OEE for the sector.

The sectoral elasticities found in the present study, and to be presented in Chapter 4 in detail, were above 0.50 for four of six broad sectors in the rapidly growing West Bank Palestinian economy for 2006-2010. For a fifth sector, Transport and Communication, the elasticity was 0.06, largely due to phenomenal growth in telecommunications accompanied by little

growth in that sector's employment. The sixth sector (Agriculture and Fishing) had a negative OEE in this period due to a decline in reported employment along with an increase in real GDP. For the Gaza Strip the elasticities for 2006-2010 were all either negative or greater than 1. This is because in three of six sectors employment fell while real value added grew; in one sector, employment grew while real value added fell; and in two sectors, employment grew by a larger percent than real sectoral value added.

2.3 Conclusion

The recent experience of Palestine with growth, employment, and wages takes place in a world context of widespread concern about employment creation that is insufficient to reduce unemployment rates or poverty. Growth in employment and in labor productivity are both important, and for a given growth rate of real output, there is a tradeoff between the two. An output elasticity of employment higher than 0.40 and lower than 1.00 seems to be regarded as preferable by the ILO, and the elasticities to be presented in detail in Chapter 4 do fall in that range for the West Bank, though not for the Gaza Strip.

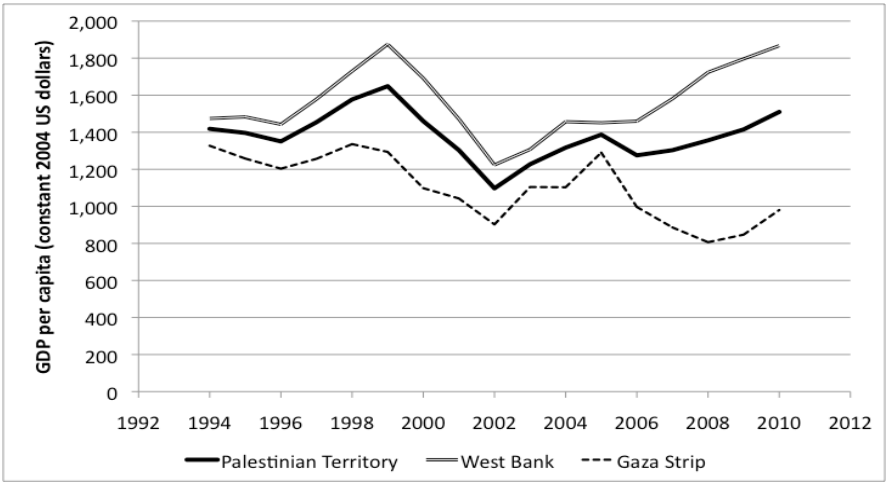
Chapter 3: Changes in real output

3.1 Overview

Real GDP in the Palestinian economy as a whole grew from $4.3 billion in 2006 to $5.8 billion in 2010 (in constant dollars of 2004), an increase of 33.1% over four successive years of rapid overall growth. This was the consequence of two opposite trends over the period. West Bank real GDP grew by 42.7%, from $3.0 billion to $4.3 billion. Meanwhile, the economy of the Gaza Strip collapsed under a strangling blockade, with real GDP there falling from about $1.3 billion in 2006 to 6.3% below that level by 2009, and only recovering to $1.5 billion, 11.9% above its 2006 level, by 2010.

Real per capita GDP for the Palestinian economy, after having declined steeply during the Second Intifada, grew at a substantial pace beginning in 2007, but as Figure 3.1 shows, by 2010 still was below its previous peak reached in 1999. In constant dollars of 2004, per capita GDP grew from $1275 in 2006 to $1510 in 2010, an increase of 18.4%. For the West Bank, this measure grew from $1460 to $1867, a 27.9% increase, during 2006-2010, while for the Gaza Strip it fell from $996 to $980, a decline of 1.6%. In the Gaza Strip, by 2010 average income was still almost one-fourth lower than at its previous peak of $1336 in 1998. This chapter focuses on changes in real output. Chapter 4 will present data on employment and the output elasticity of employment.

Figure 3.1 Average income by 2010 had still not reached its previous peak even in the West Bank, much less in the Gaza Strip



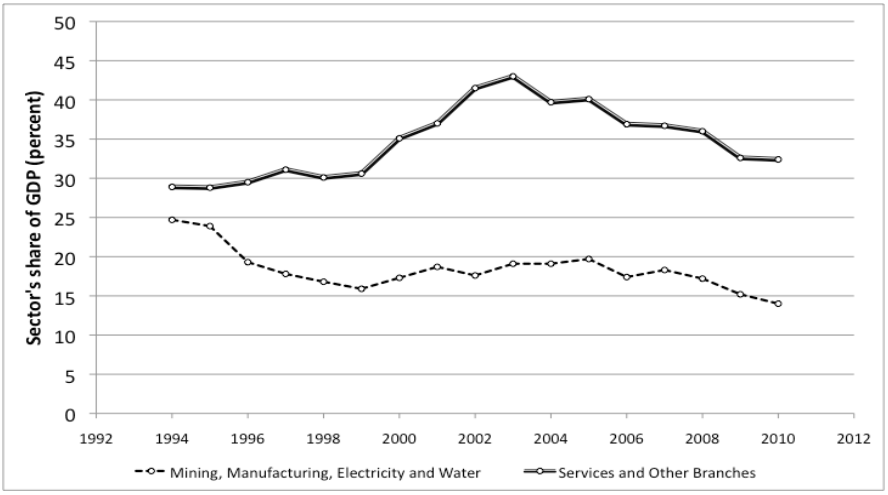
Source: PCBS data.

3.2 Value added by economic activity

From 2006 to 2010, all sectors grew in real terms in the West Bank, while in the Gaza Strip many sectors initially shrank, but recovered enough by 2010 so that they showed some growth over 2006; only one (*Transport, Storage and Communication*) was reported by the PCBS to have shrunk absolutely in Gaza over the period, and we discuss that shortly.

Figures 3.2a, b and c and Table 3.1 show the trends in real value added by economic activity in the West Bank. All economic activities are divided into six broad categories, the same ones used in the *Labor Force Survey*, in order to link changes in real output with changes in employment.[9] In Figures 3.2 (West Bank) and 3.3 (Gaza Strip) as well as Tables 3.1-3.2, all numbers represent the share of the economic activity in regional GDP. The share of an economic activity in regional GDP will remain constant if that activity's value added grows at exactly the same rate as regional GDP. For example, in the West Bank, real value added in *Agriculture and Fishing* grew from $150.0 million in 2006 to $212.2 million in 2010, an increase of 41.5% over the period, very close to the overall growth in real GDP of 42.7%; as a result this sector's share of GDP was reported by the PCBS to be the same in 2010 (5.0%) as it was in 2006.

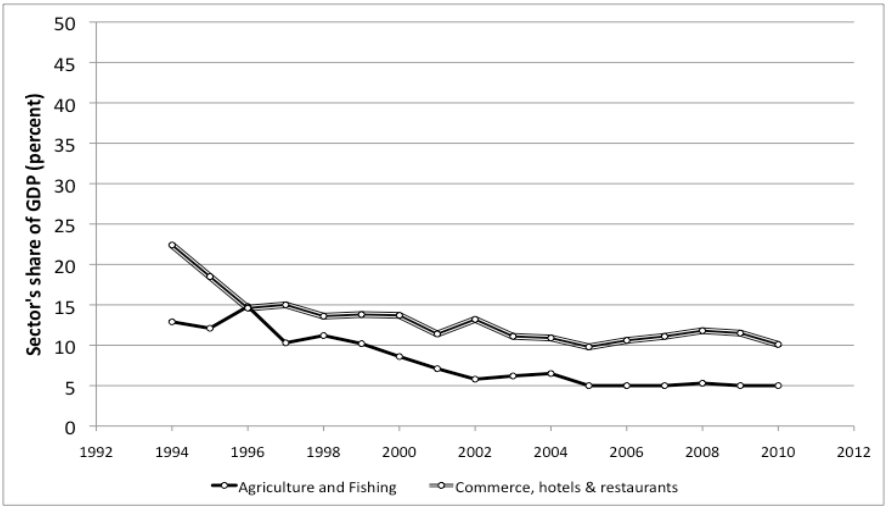
Figure 3.2a: Major economic activities whose share of West Bank GDP, in constant dollars of 2004, fell by more than one percentage point from 2006 to 2010



Source: Author's calculation from PCBS (n.d.) and PCBS (2012, Table 8).

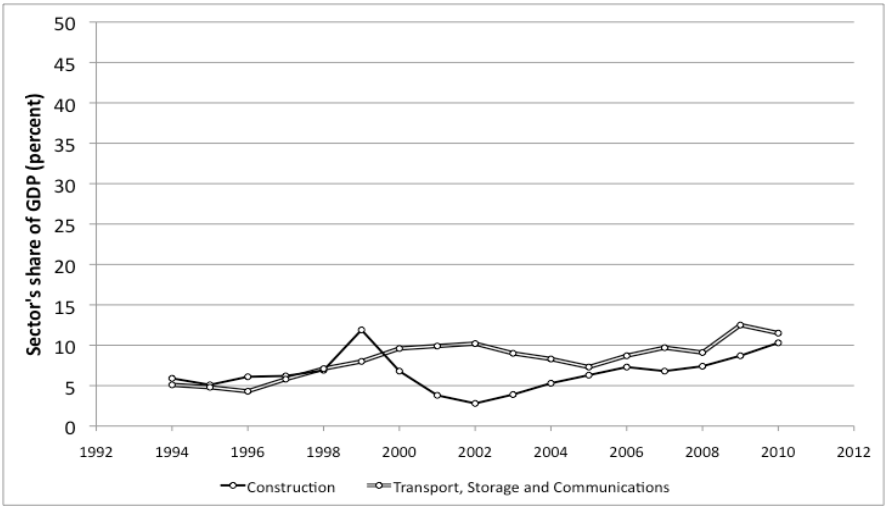
[9] In a later section we have approached the link between growth in real output and growth in employment in a different way, using the Economic Survey data in which the two variables are collected by the same method in the same survey.

Figure 3.2b: Major economic activities whose share of West Bank GDP, in constant dollars of 2004, changed by less than one percentage point from 2006 to 2010



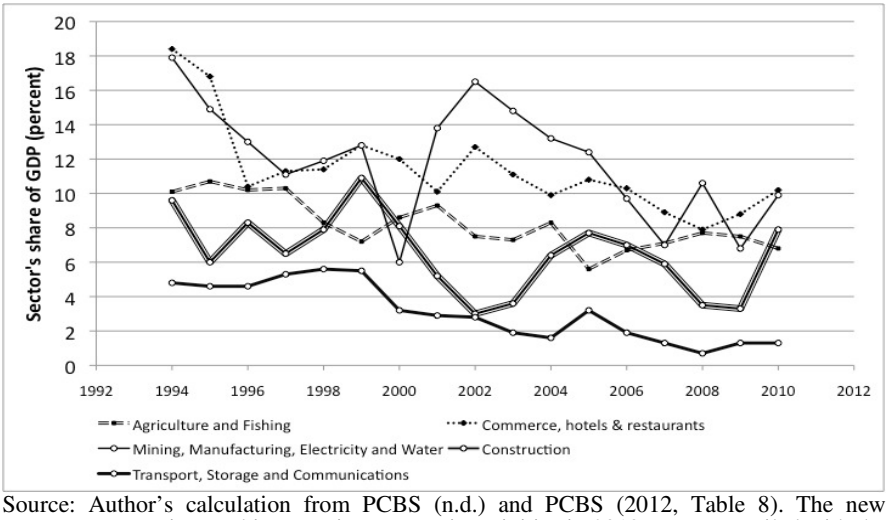
Source: Author's calculation from PCBS (n.d.) and PCBS (2012, Table 8).

Figure 3.2c: Major economic activities whose share of West Bank GDP, in constant dollars of 2004, rose by more than one percentage point from 2006 to 2010



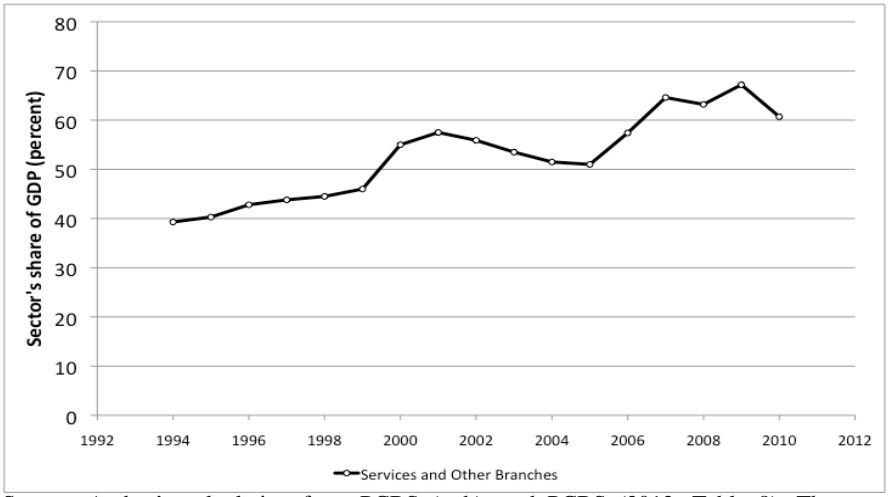
Source: Author's calculation from PCBS (n.d.) and PCBS (2012, Table 8).

Figure 3.3a: Major economic activities whose share of Gazan GDP, in constant dollars of 2004, changed by less than one percentage point from 2006 to 2010



Source: Author's calculation from PCBS (n.d.) and PCBS (2012, Table 8). The new categories used in reporting economic activities in 2010 were reconciled with the previous categories.

Figure 3.3b: Major economic activity whose share of Gazan GDP, in constant dollars of 2004, rose by more than one percentage point from 2006 to 2010



Source: Author's calculation from PCBS (n.d.), and PCBS (2012, Table 8). The new categories used in reporting economic activities in 2010 were reconciled with the previous categories.

Table 3.1: Percentage contribution to GDP by economic activity, West Bank, 2006-2010, at constant prices.

West Bank	2006	2007	2008	2009	2010
Agriculture and fishing	**5.0%**	**5.0%**	**5.3%**	**5.0%**	**5.0%**
Mining, manufacturing, elect. & water	**17.4%**	**18.3%**	**17.2%**	**15.2%**	**14.0%**
Mining and quarrying	0.7%	0.6%	0.6%	0.6%	0.6%
Manufacturing	17.4%	18.3%	13.8%	12.9%	11.5%
Electricity and water supply	2.5%	2.8%	2.8%	1.7%	1.9%
Construction	**7.3%**	**6.8%**	**7.4%**	**8.7%**	**10.3%**
Wholesale and retail trade 2009-2010: & repair of motor vehicles & motorcycles	**9.7%**	**10.3%**	**11.1%**	**11.1%**	**9.5%**
Transport, storage and communications	**8.7%**	**9.7%**	**9.1%**	**12.5%**	**11.5%**
Financial intermediation 2009-10: **Financial & insurance activities**	**4.3%**	**5.8%**	**6.4%**	**5.7%**	**5.8%**
Services	**16.7%**	**16.0%**	**16.5%**	**17.5%**	**18.0%**
Real estate, renting and business services 2009-10: Real estate activities	6.6%	6.1%	6.3%	5.9%	5.9%
Community, social and personal services	1.0%	1.0%	1.5%		
Hotels and restaurants 2009-10: Accommodation & food service activities	0.9%	0.8%	0.7%	0.4%	0.6%
Education	5.7%	5.7%	5.7%	5.9%	5.3%
Health and social work 2009-10: Human health & social work activities	2.5%	2.4%	2.3%	2.8%	2.8%
2009-10: Professional, scientific & technical activities				1.2%	1.7%
2009-10: Arts, entertainment, and recreation				0.2%	0.4%
2009-10: Other service activities				1.0%	1.2%
Public administration and defense	**12.8%**	**11.6%**	**11.3%**	**9.7%**	**9.1%**
Households with employed persons	**0.1%**	**0.1%**	**0.1%**	**0.1%**	**0.1%**
Public owned employed persons	**3.9%**	**4.0%**	**2.4%**		
Less: FISIM	-2.6%	-4.6%	-6.3%	-4.9%	-4.9%
Plus: Customs duties	7.6%	6.6%	7.7%	7.6%	8.8%
Plus: VAT on imports, net	9.1%	10.4%	11.8%	11.8%	12.8%
Gross Domestic Product	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Sources: PCBS (2012) and http://www.pcbs.gov.ps/Portals/_pcbs/NationalAccounts/B1%20percent%2094-08.htm. Some changes were made in the classification system for 2009-2010.

Table 3.2: Percentage contribution to GDP, by economic activity, Gaza Strip, 2006-2010 at constant prices.

Gaza Strip	2006	2007	2008	2009	2010
Agriculture and fishing	**6.7%**	**7.1%**	**7.7%**	**7.5%**	**6.8%**
Mining, manufacturing, elec. and water	**9.7%**	**7.0%**	**10.6%**	**6.8%**	**9.9%**
Mining and quarrying	0.0%	0.0%	0.0%	0.0%	0.0%
Manufacturing	6.3%	2.7%	2.4%	2.2%	1.5%
Electricity and water supply	3.4%	4.3%	8.2%	4.6%	8.4%
Construction	**7.0%**	**5.9%**	**3.5%**	**3.3%**	**7.9%**
Wholesale and retail trade 2009-2010: & repair of motor vehicles & motorcycles	**9.3%**	**8.1%**	**7.3%**	**7.6%**	**9.1%**
Transport, storage and communications	**1.9%**	**1.3%**	**0.7%**	**1.3%**	**1.3%**
Financial intermediation 2009-10: **Financial & insurance activities**	**4.1%**	**6.6%**	**3.7%**	**3.3%**	**2.1%**
Services	**26.2%**	**32.4%**	**33.9%**	**36.0%**	**33.3%**
Real estate, renting and business services 2009-10: Real estate activities	7.8%	11.0%	11.2%	13.6%	9.6%
Community, social and personal services	1.3%	2.1%	1.8%		
Hotels and restaurants 2009-10: Accommodation & food service activities	1.0%	0.8%	0.6%	1.2%	1.1%
Education	12.9%	14.8%	16.1%	15.4%	14.5%
Health and social work 2009-10: Human health & social work activities	3.2%	3.7%	4.2%	3.9%	4.0%
2009-10: Professional, scientific & technical activities				0.9%	1.1%
2009-10: Arts, entertainment, and recreation				0.2%	0.6%
2009-10: Other service activities				0.7%	1.6%
Public administration and defense	**22.2%**	**22.0%**	**22.8%**	**28.9%**	**26.3%**
Households with employed persons	**0.0%**	**0.0%**	**0.0%**	**0.2%**	**0.1%**
Public owned employed persons	**5.9%**	**4.4%**	**3.4%**		
Less: FISIM	-3.8%	-8.3%	-3.7%	-2.8%	-1.8%
Plus: Customs duties	4.6%	4.9%	3.8%	3.0%	2.0%
Plus: VAT on imports, net	7.5%	6.2%	8.6%	4.9%	3.0%
Gross Domestic Product	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Sources: PCBS (2012); http://www.pcbs.gov.ps/Portals/_pcbs/NationalAccounts/B1%20percent%2094-08.htm.

3.2.1 The West Bank

While real GDP in the West Bank was growing at an average annual rate of 9.3% from 2006 to 2010, there were two sectors that shrank as a share of GDP, as they grew more slowly than GDP as a whole; two sectors whose share of GDP remained about the same; and two sectors whose shares of GDP grew. Figure 3.2a shows that the *Mining, Manufacturing, Electricity and Water* sector continued a long term declining trend in its share of GDP, a trend that dates from 2005 in the West Bank, although there was an earlier decline from 1994 to 1996 as well. Despite the fact that this sector's value added grew in real terms, its share of GDP nevertheless fell from 17.4% in 2006 to 14.0% in 2010. Within the sector, the decline occurred almost entirely in the manufacturing subsector. The real value added generated in West Bank manufacturing increased from $420 million in 2006 to $489 million in 2010, a slower rate of growth than in the West Bank economy as a whole, while in Gaza real manufacturing value added collapsed from $85 million to $23 million. The net effect was a very small absolute increase in manufacturing value added economy wide, and a large decline in its share of GDP, from 14.2% to 11.5%. Real value added in the Electricity and Water Supply subsector remained roughly constant as a share of GDP overall, falling in the West Bank and rising in Gaza.

Services and other Branches was the other sector whose share of GDP fell, from 36.9% in 2006 to 32.4% in 2010. This also continued a longer term trend that began in 2003: The sector's real output as a share of real GDP had grown from less than 30% in 1994 to 43.0% in 2003, and then begun a long decline. As we will see, however, the services sector in the Gaza Strip expanded sharply during 2006-2010 as a share of Gazan real GDP.

For the West Bank, Figure 3.2b shows the two sectors in the West Bank whose share of real GDP remained roughly constant from 2006 to 2010, namely, *Agriculture and Fishing*, already mentioned above, and *Commerce, Hotels, and Restaurants*, whose share fell slightly, from 10.6% in 2006 to 10.1% in 2010.[10]

[10] It is perhaps worth mentioning that the share of a sector in GDP is here reported as in the National Accounts data, Table [1]. However, the total of the sectoral shares does not add up to 100%, simply because the part of GDP which is not allocated to sectors, but consists of adjustments made in the aggregate to all sectors (FISIM + Customs Duties + net VAT) has risen gradually over time. If we divide the reported sectoral share by (GDP – FISIM – Customs Duties – net VAT), the trends are qualitatively similar, but the shares are somewhat different. The difficulty with this procedure is that in fact the customs duties very likely should not be allocated equally across sectors, since not all sectors likely have similar import propensities – but we do not have the data needed to properly allocate them.

The sectors that grew rapidly enough to somewhat increase their share of real West Bank GDP are shown in Figure 3.2c. *Construction*'s share grew from 7.3% in 2006 to 10.3% in 2010, all of this growth taking place in 2009-2010. In the West Bank, the share of *Transport, Storage, and Communication* grew from 8.7% in 2006 to 11.5%, with a large jump in 2009.

3.2.2 The Gaza Strip

Turning to the Gaza Strip, the pattern was much different, as shown in Figures 3.3a and 3.3b. Reporting the data only from 2006 to 2010 is a little misleading, because several sectors contracted sharply, both absolutely and relative to the whole, in the intervening years, and then recovered significantly in 2010. The share of *Agriculture and Fishing* has been declining over the long term, partly because of the worsening water quality that long ago destroyed export production of citrus – historically the main crop in Gaza. However, as the manufacturing and construction sectors declined, and real GDP as a whole declined, agriculture's share (but not its absolute value added) rose – from 6.7% in 2006 to 7.7% in 2008, with a decline by 2010 as other sectors recovered somewhat. Real agricultural value added in 2010 (in 2004 dollars) was $102 million, somewhat higher than the $90.3 million in 2006, but substantially lower than the $129.0 million peak in 1997 or the more recent peak of $115.6 million in 2004.
In Gaza, *Mining, Manufacturing, Electricity and Water* also declined over the long term, but with two quite distinct periods: a sharp decline from 17.9% of GDP in 1994 to 6.0% in 2000, followed by a rapid recovery to 16.5% in 2002, and then another sustained decline to 9.7% in 2006 and further to 7.0% in 2007. Over the period 2006 to 2010, the sector's share fluctuated sharply – presumably as a result of intermittent availability of inputs – ending in 2010 at 9.9%, almost the same share as in 2006. However, the lack of a trend in this aggregate category masks two sharply opposing trends: *Manufacturing* declined from 6.3% of Gazan GDP in 2006 to 1.5% of GDP in 2010, while the share of the electricity and water sectors together grew from 3.4% to 8.4%.

Construction's share also has fluctuated widely over the long term in Gaza. At its peak in 1999 it produced over 10% of value added, but by 2002 its share was only 3.0%. From 7.0% in 2006 the sector's share declined to 3.3% in 2009 and then recovered strongly in 2010 to 7.9% of GDP, presumably both because of relaxation of import restrictions and because an increasingly wide range of inputs were becoming available through enlarged and reinforced tunnels (Pelham 2011).

The share of *Commerce, Hotels and Restaurants* similarly dipped after 2006 and then recovered by 2010, so that over the whole period there was essentially no change from its share of 10.3% in 2006 to its share of 10.2% in 2010. Here, too, this followed a long term declining trend.

Finally, the share of the *Transport, Storage and Communications* sector is reported by the PCBS to have declined over the 2006-2010, also after a long decline with some interruptions. From 1.9% in 2006 its share fell slightly to 1.3% in 2010. In some ways this trend is surprising, in light of the fact that until 2010 most goods were entering through Rafah and would need to be transported to other parts of the Gaza Strip. However, quite possibly the bulk of the value added was allocated in the national accounts to commerce or some other sector. It is also possible that not all of these activities are actually captured in GDP, or that there are significant measurement problems.[11]

Within these trends, a few subsectors are worthy of special note. In the Gaza Strip, within *Services and Other Branches*, health and education together – which together contributed over half of the service sector's value added – grew from 16.1% of GDP in 2006 to 18.5% in 2010, with the bulk of it being education. One possible reason for this is that in many countries, when employment is scarce more people tend to enroll in educational programs.

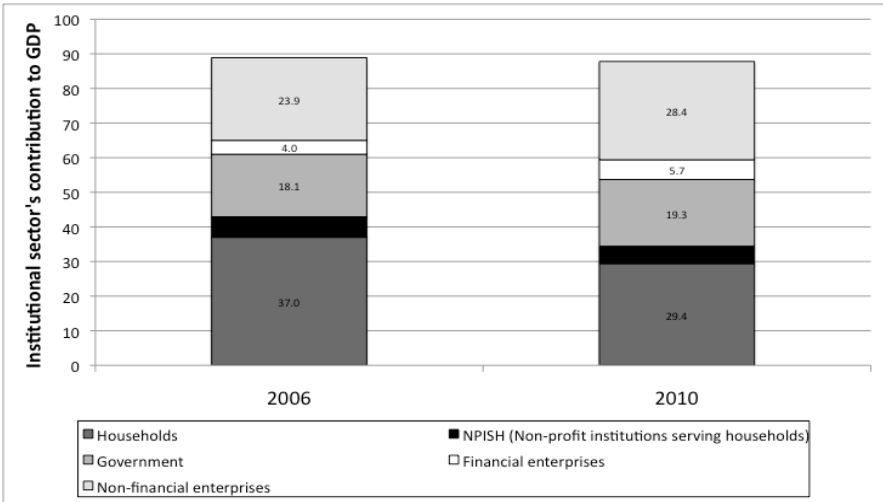
Also within *Services and Other Branches*, public administration and defense, which contributed only 22.2% of Gaza's GDP in 2006, made up fully 28.9% in 2009, though this receded again to 26.3% in 2010. In constant dollars of 2004, the total spent in Gaza in 2010 on public administration and defense was $396.0 million, the largest annual expenditure ever there, and much higher than the pre-2006 peak of $317.2 million in 2005. This clearly does not include expenditures by the PA to pay the salaries of its employees in Gaza, which a PA spokesperson has recently reported have been $120 million per month continuously since 2007 (Abdalla 2012).

Turning to sectors defined by the type of entity that engages in economic activity, during 2006-2010 the household sector's contribution to GDP declined from 37.0% to 29.4%, and there was an increase in the contribution of the financial and non-financial enterprise sectors combined

[11] For example, real GDP was initially reported by the PCBS at 0.1% higher in 2010 than in 2006, but the revised figures showed 11.9% higher real GDP in 2010 than in 2006.

(27.9% to 34.1%; Figure 3.4), while the share of the NPISH sector (Non-profit sector serving households) in GDP declined slightly, after fluctuating during the period. The government sector's contribution increased from 18.0% to 19.3%, apparently in part because both the PA and Hamas were paying government employees in Gaza (some of whom, primarily outside the health and education sectors did not continue to work, but did continue to receive pay).[12] Data on institutional sectoral shares of output are not published by region, so we do not know how trends in the West Bank may have differed from trends in the Gaza Strip.

Figure 3.4 Changes in contributions of sectors to GDP, 2006-2010: shrinking household sector, growing financial and non-financial enterprise sectors.



Source: PCBS (2009b, Table 15; 2012, Table 15).
The percentages are derived from data in current prices.

3.3 Conclusion

There was a robust economic boom in the West Bank economy from 2006 to 2010, even as the Gazan economy was being crushed by the siege of imports and blockage of exports, and then beginning to recover. The private sector (financial and non-financial enterprises) expanded its contribution to real GDP by about $0.8 billion in absolute terms, from $1.2

[12] The total of the five institutional sectors does not add up to 100% because there are three additional items: FISIM (Financial Intermediate Services Indirectly Measured), Customs Duties, and Value Added Tax, whose total also increased from 2006 to 2010).

billion to $2.0 billion – an increase of about 65% – while the household sector's contribution only barely grew in absolute terms, from $1.6 to $1.7 billion, falling sharply as a share of GDP. The government sector increased its contribution to real GDP from $0.8 billion in 2006 to $1.1 billion in 2010, an increase that raised its share of GDP somewhat.

Chapter 4: Changes in employment

4.1 Employment in the Palestinian territory

Employment rose substantially during 2006-2010. In 2006, there were 636,000 employed; by 2010, after four years of growth, 108,000 more Palestinians were working, for a total of 744,000, an increase of 17.0% (see Table 4.1). Yet the unemployment rate economy-wide remained at 23.7%. Cumulative employment growth in the Palestinian economy – excluding Israel and the settlements – was only slightly greater in the West Bank, at 14.6%, than in the Gaza Strip at 14.2% (see Tables 4.2 and 4.3). The next section gives some historical background on high unemployment rates, and explains how it happened that employment growth during 2006-2010 was only just sufficient to employ new entrants into the labor force, so that the unemployment rate did not fall.

The chapter continues by describing the shifting mix toward more income-earning employment and especially more wage employment, particularly in the private sector. It goes on to analyze which sectors, governorates, and demographic groups benefited most and least from overall growth – or, in the Gaza Strip, which groups were hurt most, and which least, by the economic crisis. In particular, it analyzes employment trends by gender, age, years of schooling, and refugee status. Finally, it explores what we can discern from PCBS data about improving job quality over this period, mainly in the form of a shift from underemployment to regular employment, and from unpaid to income-earning work.

Table 4.1: Growth of real GDP, employment, GDP per worker, and GDP per capita, Palestinian territory (West Bank and Gaza).

Occupied Palestinian territories (West Bank and Gaza)*	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Real GDP (millions of constant 2004 US dollars)	4560	4322	4554	4878	5239	5754
Growth rate, real GDP		-5.2%	5.4%	7.1%	7.4%	9.8%
Cumulative growth of real GDP over 2006			5.4%	12.9%	21.2%	33.1%
Average annual growth of real GDP, 2006 on			5.4%	6.2%	6.6%	**7.4%**
Total persons employed (1000s)		636	690	667	719	744
Growth rate of employment			8.5%	-3.3%	7.8%	3.5%

Occupied Palestinian territories (West Bank and Gaza)*	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Cumulative growth of employment over 2006			8.5%	4.9%	13.1%	**17.0%**
Average annual growth, employment, 2006 on			8.5%	2.4%	4.2%	**4.0%**
Persons employed, except in Israel & settlements		581.4	629	600	646	665.8
GDP per person employed in producing that GDP		7436	7245	8135	8115	8642
Growth rate of GDP per employed person			-2.6%	12.3%	-0.3%	6.5%
Cumulative growth of GDP/L over 2006			-2.6%	9.4%	9.1%	16.2%
Average annual growth of GDP/L, 2006 on			-2.6%	4.6%	3.0%	3.8%
Cumulative growth rate of employment over 2006, excluding Israel and the settlements			8.1%	3.2%	11.1%	**14.5%**
Average annual growth of employment 2006-2010, excluding Israel and the settlements						**3.5%**
Output elasticity of employment, 2006-2010						**0.46**
GDP per capita (in US dollars of 2004)	1387	1275	1303	1356	1416	1502
Growth rate, GDP per capita		-8.1%	2.2%	4.1%	4.4%	6.1%
Cumulative growth, GDP per capita, over 2006			2.2%	6.3%	**11.0%**	**17.8%**
Average annual growth, GDP per capita, 2006 on			2.2%	3.1%	3.5%	4.2%

SOURCES: Real GDP and real GDP per capita: PCBS (2011d, 2012); Employment: PCBS *Labor Force Survey 2010* (PCBS 2011b); and author's calculations.

In this table, "persons employed" is the sum of "employment" and "underemployment" as reported by the PCBS *Labor Force Survey*.

1. (*) The data exclude those parts of Jerusalem which were annexed by Israel in 1967.
2. For real GDP, the base year for 2004-2010 is 2004.
3. Output elasticity of employment is calculated from average annual growth rates.
4. In 2006, the PCBS reported that 11.7% of the 467,000 employed persons in the West Bank were working in Israel and the settlements, while in 2010 the same category of workers was 14.2% of the 551,000 employed persons in the West Bank (PCBS LFS 2010, Tables 1 and 20). These are 54,639 and 78,242, rounded off here and in Table 1.2 to 54,600 and 78,200. Of Gazan residents, 0% worked in Israel or the settlements in this period, according to the *Labor Force Survey*. However, OCHA (2008: 4) reports that 64,000 Palestinians worked in Israel and the settlements in 2006, citing the IMF's *Medium Term Macroeconomic and Fiscal Framework for the West Bank and Gaza* for 2007 (OCHA 2008: FN12). Table 1.1 and 1.2 rely on the PCBS numbers, however. For 2006 and 2010 only, one decimal place is retained for clarity and consistency here and in the text, since 78,200 – 54,600 = 23,600, and rounding these off would compel us to say that 78,000-55,000 = 24,000, which is not true.

Table 4.2: Growth of real GDP, employment, and GDP per worker, West Bank.

West Bank*	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Real GDP (millions of constant US dollars of 2004)	**2877**	**2978**	**3317**	**3717**	**3980**	**4250**
Growth rate of real GDP		3.5%	11.4%	12.0%	9.5%	6.8%
Cumulative growth of real GDP over 2006			11.4%	24.8%	36.7%	**42.7%**
Average annual growth of real GDP, 2006 on			11.4%	11.7%	11.0%	**9.3%**
Total persons employed (1000s)		**467**	**489**	**489**	**530**	**551**
Growth rate of employment			4.7%	0.0%	8.4%	4.0%
Cumulative growth of employment over 2006			4.7%	4.7%	13.5%	18.0%
Average annual growth of employment from 2006 on			4.7%	2.3%	4.3%	4.2%
Persons employed, except in Israel and settlements		412.4	428	422	456	472.8
GDP per person employed in producing it (2004 USD		**7221**	**7753**	**8817**	**8721**	**8989**
Growth rate of GDP per employed person			7.4%	13.7%	-1.1%	3.1%
Cumulative growth rate of GDP/L over 2006			7.4%	22.1%	20.8%	24.5%
Average annual growth of GDP/L, from 2006 on			7.4%	10.5%	6.5%	5.6%
Cumulative growth of employment over 2006, except Israel and the settlements			3.8%	2.2%	10.7%	14.6%
Average annual growth rate of employment, excluding Israel and the settlements						**3.5%**
Output elasticity of employment, 2006-2009						**0.37**

SOURCES: GDP: PCBS (2009b, 2010a, 2011a, 2012). Employment: PCBS 2011b; and author's calculations. "Persons employed" is the sum of "employment" and "underemployment" as reported by the PCBS Labor Force Survey.

1. (*) The data exclude those parts of Jerusalem which were annexed by Israel in 1967.
2. For real GDP, the base year for 2004-2010 is 2004.
3. Output elasticity of employment is calculated from average annual growth rates.

Table 4.3: Growth of real GDP, employment, and GDP per worker, Gaza Strip.

Gaza Strip	2005	2006	2007	2008	2009	2010
Real GDP (millions of constant US dollars of 2004)	**1683**	**1345**	**1237**	**1162**	**1260**	**1505**
Growth rate of real GDP		-20.1%	-8.0%	-6.1%	8.4%	19.5%
Cumulative growth of real GDP over 2006			-8.0%	-13.6%	-6.3%	11.9%
Average annual growth of real GDP, 2006 on			-8.0%	-7.1%	-2.2%	**2.9%**
Total persons employed (1000s)		**169**	**201**	**178**	**189**	**193**
Growth rate of employment			18.9%	-11.4%	6.2%	2.1%
Cumulative growth of employment over 2006			18.9%	5.3%	11.8%	14.2%
Average annual growth, employment, 2006 on			18.9%	2.6%	3.8%	**3.4%**
GDP per employed person (2004 USD)		**7956**	**6153**	**6525**	**6665**	**7797**
Growth rate of GDP per employed person			-22.7%	6.0%	2.1%	17.0%
Cumulative growth rate, GDP/L, over 2006			-22.7%	-18.0%	-16.2%	-2.0%
Average annual growth of GDP/L, 2006 on			-22.7%	-9.4%	-5.7%	-0.5%
Output elasticity of employment, 2006-2010						**1.18**

SOURCES: GDP: PCBS (2009b, 2010a, 2011a, 2012). Employment: PCBS 2011b; and author's calculations. "Total persons employed" here refers to the sum of what the PCBS reports as "employment" and what it reports as "underemployment".

1. For real GDP, the base year for the period 2004-2010 is 2004.
2. Output elasticity of employment is calculated from average annual growth rates.

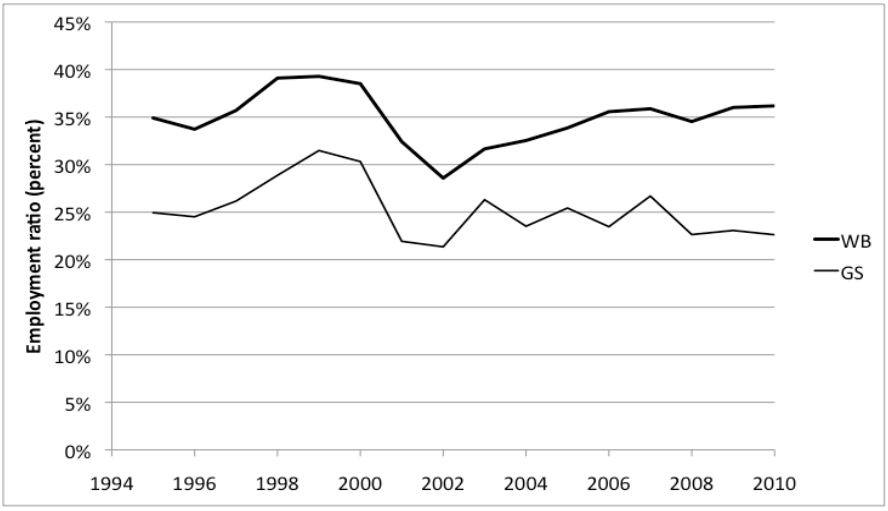
4.2 A legacy of unemployment and underemployment

4.2.1 Historical trends

The Palestinian economy entered into this period of growth mired in unemployment and underemployment, and the significant employment growth just described was not enough to erase this legacy. In 1999, the unemployment rate in the West Bank was 9.5%, and in the Gaza Strip, 17.1%. By 2006, years of disruptions during the Second Intifada, together with restrictions on movement, access, imports and exports, had caused unemployment rates to double – to 18.8% in the West Bank and an astonishing 34.7% in Gaza. At the same time, the labor force was growing

rapidly with the addition of large new cohorts reaching working age, born in an era of higher birth rates than those that currently prevail.

Figure 4.1 Employment ratio: Employed persons (including underemployed) as percent of population 15+ years



Source: Author's calculation from PCBS (2011b, Table 1).

In Figure 4.1, these trends are reflected to some extent in the movements of the *employment ratios* for the two regions, showing what percent of the working age population (15+ years) was employed. For any particular demographic group – or the regional population as a whole, as here – the employment ratio (ER) is found by multiplying the group's Labor Force Participation Rate by its employment rate (defined as what the PCBS reports as the "employment rate" plus what it reports as the underemployment rate).[13]

As Figure 4.1 shows, about 35% of the working age population in the West Bank was employed in 2010, compared to about 23% in the Gaza Strip. The employment ratios for the West Bank and the Gaza Strip moved in tandem until about 2003, peaking in 1999. Thereafter they diverged somewhat, with the West Bank ER falling and then partly recovering, while the Gaza Strip ER declined much further, widening the regional gap. By 2010 the ER in the Gaza Strip was barely above its historic low in 2002, while in the West Bank it was one-fourth higher than in 2002. In the

[13] As explained in Chapter 1, if for a specific population group N is the number employed, L is the number in the labor force, and P is the number of persons of working age, then
Employment rate = N/L Labor Force Participation Rate = L/P
Employment ratio = $N/P = (N/L)(L/P)$ = (employment rate)(LFPR).

period from 2006 to 2010, however, the changes were surprisingly small, with only a slight net increase in the employment ratio in the West Bank, and a slight net decrease in the ER in the Gaza Strip. Gaza's ER has long been lower, in part because of the very low female LFPR there, just 8.1% in 2006, compared to 17.9% in the West Bank; the male LFPR in the Gaza Strip is also lower, especially in the youngest cohort of the male labor force.

4.2.2 Rapid labor force growth and the unemployment rate

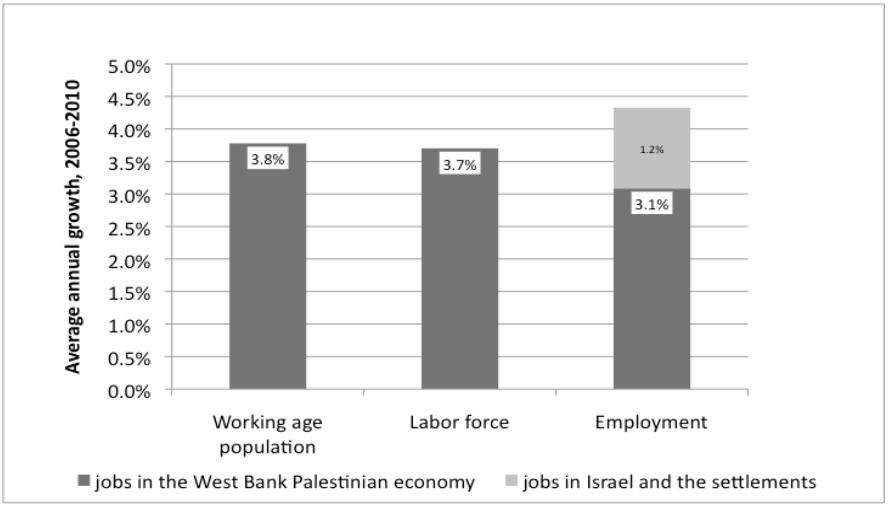
While employment creation in the Palestinian economy as a whole was fairly rapid in this period (3.5% per year), it was slower than the growth rate of the labor force (4.0%), a rate that was among the highest in the world (WDI 2011). Despite the creation of about 84,400 in new employment in the Palestinian economy and about 23,600 in Palestinian employment in Israel and the settlements, the unemployment rate in the Palestinian territory by the conventional definition was the same in 2010 (23.7%) as in 2006. Only new employment in Israel and the settlements prevented the unemployment rate from rising. As pointed out in section 4.1, the rate of employment growth in the Palestinian economy proper was similar in the West Bank and the Gaza Strip, despite the divergent rates of growth of real GDP. There are two reasons why the unemployment rate nevertheless fell in the West Bank from 18.8% in 2006 to 17.2% in 2010, but rose in the Gaza Strip from 34.8% in 2006 to 37.8% in 2010.

The first is that in the West Bank, jobs for Palestinians in Israel and the settlements grew, pushing the unemployment rate down. In the West Bank the net increase in employment from 2006 to 2010 was 84,000, so that the total number employed rose from 467,000 to 551,000 (see Table 4.4). In percentage terms, there was an 18.0% increase in the number employed in the West Bank, including the increase in the number employed in Israel and the settlements. If we exclude the roughly 23,600 newly employed West Bank Palestinians in Israel and the settlements, the increase in total employment was about 60,400, or 12.9%. Employment in Israel and the settlements added 5.1% to West Bank employment.

In the West Bank the average annual growth rate of the working age population was 3.8% from 2006 to 2010, and of the labor force was 3.7% (see Figure 4.2a). The 4.2% average annual growth of total employment, including employment in Israel and the settlements, provided jobs in numbers sufficient to employ the new labor force entrants (although typically they were not the ones actually hired), but not much more. Employment producing Palestinian GDP accounted for only 3.1 percentage points of annual employment creation, however, and growth in

the number of West Bank Palestinians working in Israel and the settlements accounted for the remaining 1.2 percentage points, or about 28% of new employment.[14] This 3.1 percent growth rate was not enough by itself to employ all the new labor force entrants in the West Bank. Without the new employment in Israel and the settlements, the West Bank unemployment rate would actually have risen (as would the unemployment rate for the whole Palestinian territory). Although in the West Bank new employment was created from 2006 through 2010 at a rate somewhat typical for a growing economy, with 0.37% growth in employment producing West Bank GDP for every 1.00% annual growth in real GDP, the unemployment rate remained high.

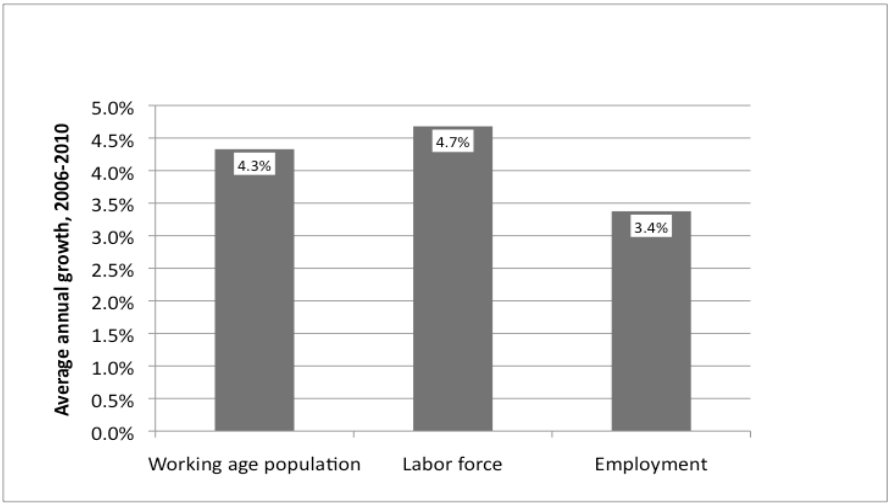
Figure 4.2a: Average annual growth in measures of labor force status, West Bank, 2006-2010



Source: Author's calculation using PCBS (2007, 2011b, Table 1).

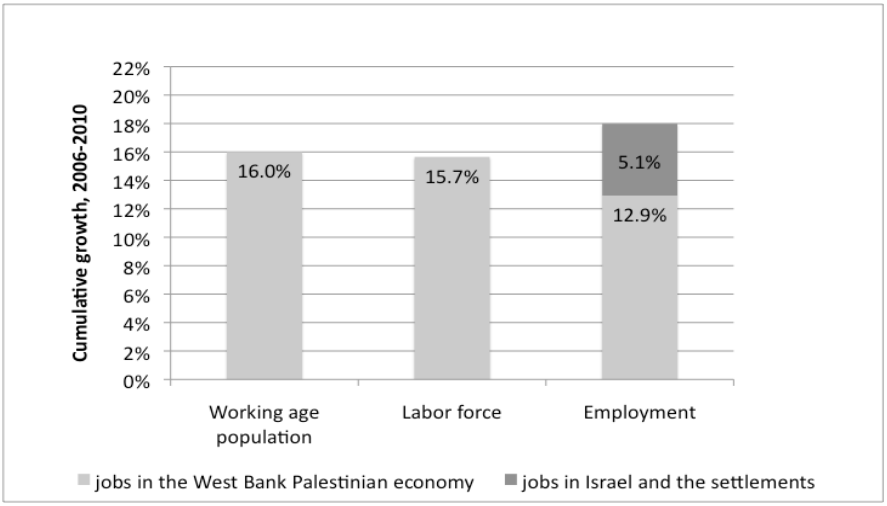
[14] If for the West Bank we use a 2006 employment base of 412,400, *excluding* Palestinians working in Israel and the settlements, then the increase in employment in the Palestinian economy was 60,400 or 14.6%. If instead we use a 2006 employment base of 467,000, *including* those Palestinians working in Israel and the settlements, then the 60,400 increase in employment was 12.9%, and the increase in employment in Israel and the settlements was 23,600 or 5.1%, for total West Bank employment growth of 84,000, or 18.0%.
Similarly, if for the Palestinian Territory we use a 2006 employment base of 581,400, *excluding* Palestinians working in Israel and the settlements, then employment growth in the Palestinian economy was 84,400 or 14.4%. If instead we use a 2006 employment base of 636,000, *including* those Palestinians working in Israel and the settlements, then the 84,400 growth in employment in the Palestinian economy was an increase of 13.3%, and the 23,600 employment increase in Israel and the settlements was 3.7%, for total employment growth of 17.0%.

Figure 4.2b: Average annual growth in measures of labor force status, Gaza Strip, 2006-2010



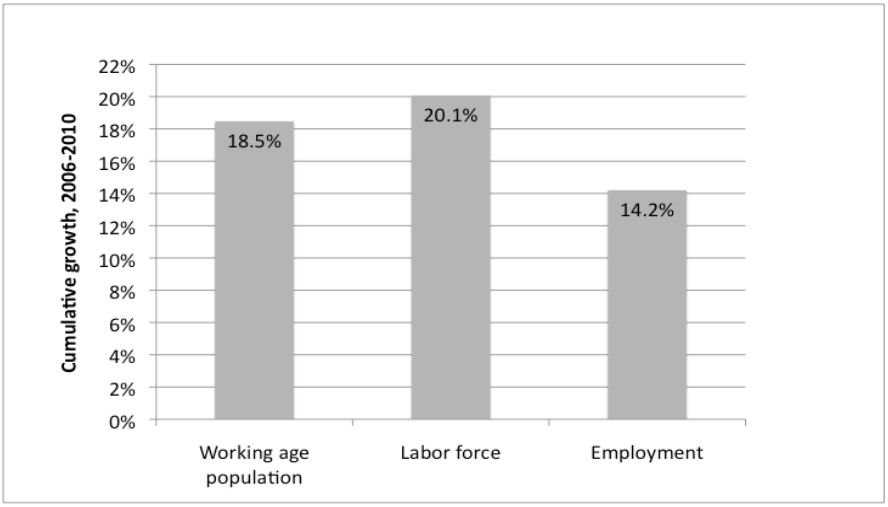
Source: Author's calculation using PCBS (2007, 2011b, Table 1).

Figure 4.3a: Cumulative growth in measures of labor force status, West Bank, 2006-2010



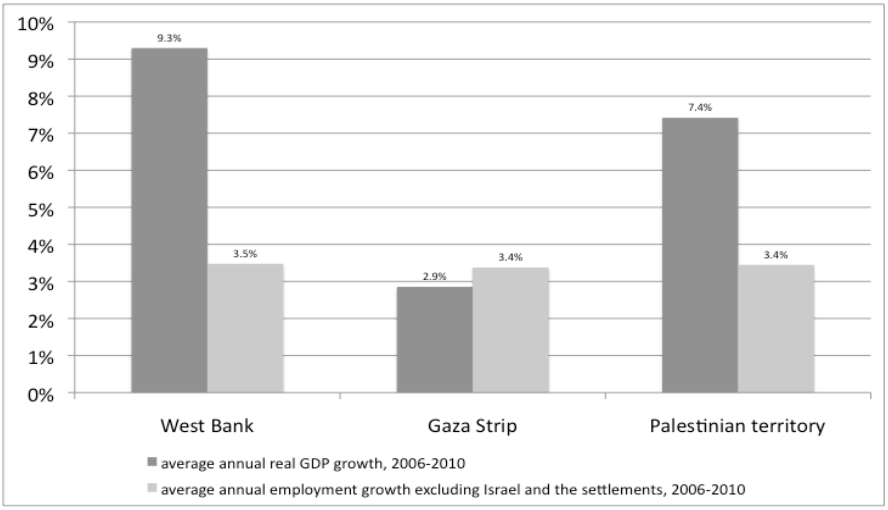
Source: Author's calculation using PCBS (2007, 2011b, Table 1).

Figure 4.3b: Cumulative growth in measures of labor force status, Gaza Strip, 2006-2010



Source: Author's calculation using PCBS (2007, 2011b, Table 1)..

Figure 4.4: Growth of real GDP and of employment in producing it, 2006-2010



Source: Author's calculation from PCBS (2011b, Tables 1, 41) and PCBS (2012, Table 11).

Table 4.4: Growth in working age population, labor force, and number employed, West Bank

West Bank	2006	2007	2008	2009	2010
Total working age population (15+)	1313	1363	1416	1469	1523
Annual growth rate of working age population		3.8%	3.9%	3.7%	3.7%
Cumulative growth of working age population over 2006		3.8%	7.8%	11.9%	**16.0%**
Average annual growth of 15+ population					**3.8%**
Total persons in labor force (1000s)	575	596	609	643	665
Annual growth rate of labor force		3.7%	2.2%	5.6%	3.4%
Cumulative growth of labor force over 2006		3.7%	5.9%	11.8%	**15.7%**
Average annual growth of labor force					**3.7%**
Total persons employed (1000s)	467	489	489	529	551
Annual growth rate of number employed		4.7%	0.0%	8.2%	4.2%
Cumulative growth of employment over 2006		4.7%	4.7%	13.3%	**18.0%**
Average annual growth of employment					**4.2%**
Change in total number employed (1000s)					**84**
Persons regularly employed (not underemployed)	412	433	445	489	500
Change in number regularly employed, 2006 to 2010					88
Persons underemployed	55	56	44	40	51
Change in number underemployed, 2006 to 2010					-4
Total number employed, except Israel + settlements	412.4	428	422	456	472.8
Annual growth rate of workers creating Palestinian GDP		3.8%	-1.5%	8.3%	3.6%
Cumulative growth of this measure over 2006		3.8%	2.2%	10.7%	**14.6%**
Average annual growth of employment except Isr + sett					**3.5%**

SOURCES: PCBS (2011b) and author's calculations. "Total persons employed" here refers to the sum of what the PCBS reports as "employment" and what it reports as "underemployment".

Table 4.5: Growth in working age population, labor force, and number employed, Gaza Strip.

Gaza Strip	2006	2007	2008	2009	2010
Total working age population (15+)	720	753	786	819	853
Annual growth rate of working age population		4.6%	4.4%	4.2%	4.2%
Cumulative growth of working age population over 2006		4.6%	9.2%	13.8%	**18.5%**
Average annual growth of 15+ population					**4.3%**
Total persons in labor force (1000s)	259	286	299	308	311
Annual growth rate of labor force		10.4%	4.5%	3.0%	1.0%
Cumulative growth of labor force over 2006		10.4%	15.4%	18.9%	**20.1%**
Average annual growth of labor force					**4.7%**
Total persons employed (1000s)	169	201	178	189	193
Annual growth rate of number employed		18.9%	-11.4%	6.2%	2.1%
Cumulative growth of employment over 2006		18.9%	5.3%	11.8%	**14.2%**
Average annual growth of employment					**3.4%**
Change in total number employed (1000s)					**24**
Persons regularly employed (not under employed)	157	187	159	172	175
Change in number regularly employed, 2006 to 2010					18
Persons underemployed	12	14	19	17	18
Change in number underemployed, 2006 to 2010					6

SOURCES: PCBS (2011c) and author's calculations. "Total persons employed" here refers to the sum of what the PCBS reports as "employment" and what it reports as "underemployment".

The second reason why the Gaza Strip's already painfully high unemployment rate rose, while the West Bank's fell, is that labor force growth was more rapid in the Gaza Strip. There, in a devastated economy, the average annual growth in employment (3.4%) fell well short of labor force growth (4.7%) that far exceeded that in the West Bank (see Figure 4.2b and Table 4.4). Gaza's unemployment rate, after rising from 34.8% in 2006 to a peak of 40.6% in 2008 and with 121,000 unemployed, fell by 2010 to 37.8% with the number of unemployed still at 118,000. (More recently it has fallen below 30%, though still well above the unemployment rate in the West Bank.) Figures 4.3a and 4.3b show the same data, but in cumulative growth from 2006 to 2010 in the working age population, the labor force, and employment (see also Tables 4.4 and 4.5). Figure 4.4 compares average annual growth in real GDP with annual

growth in employment for both regions and the whole Palestinian economy.

4.3 Employment in Israel and the settlements

As has long been true, to fully understand the Palestinian labor market requires understanding the changing role of Palestinian employment in Israel and the settlements. In this period it provided more than one-fifth of the total growth in employment.

During much of the 1980s and 1990s, the West Bank and Gaza were both heavily dependent on wages earned by Palestinians employed in Israel and the settlements (Roy 2004), but in the Gaza Strip this was especially true. While these earnings allowed Palestinians to have a higher standard of living, they also removed from the Palestinian economy some highly productive manual workers. In addition, since college-educated workers had few opportunities in either Israel or the settlements, the result was to reduce the incentive to get a college education, as well as to deform and distort the economy, especially in Gaza (Roy 2004). When at the beginning of the First Intifada, Israel reduced the opportunities for Palestinian employment in Israel and in the settlements, the Palestinian economy suffered badly. By 1999, the Palestinian economy once again became heavily dependent on employment in Israel and the settlements; among Palestinian workers resident in the oPt, those employed in Israel and the settlements made up 23% of the total at their peak in 1999. The start of the Second Intifada and the closures and curfews imposed by the Israelis brought that share down again, to 8% by 2004 (PCBS 2011b: Table 20).

During 2006-2010 there was a smaller surge in the number of Palestinians working in Israel and the settlements than in the 1990s or 1980s, together with an exceptional increase in the average daily wage in such employment. Among all employed persons in the West Bank, the share who worked in Israel and the settlements grew from 11.7% in 2006 to 14.2% in 2010. Among employed West Bank males, 30.2% worked in Israel and the settlements in 1999, while following the steep decline in this number during the Second Intifada, 14.5% worked in such jobs in 2006, and this grew to 17.3% in 2010 (PCBS 2011b: Table 20). In contrast, among employed women in the West Bank, an insignificant number – only 0.8% – worked in Israel and the settlements in 2006, and only 1.1% in 2010.

These numbers include workers both with and without permits. Permits for work in Israel and the settlements are issued by the Israeli agency Coordinator of Government Activities in the Territories (COGAT), and the number of such permits is reported, and has been compiled in, for example, ILO (2009). The number of permits need not correspond to the number actually employed each year, because some permits may not be used. But some Palestinians, including some children, work without permits, sometimes recruited by labor contractors, often under dangerous working conditions which, in light of their lack of permits, means that if they are injured they have no medical insurance. Vanden Boer (2010) reports cases of this in the Jordan Valley settlements, but there are reportedly other cases in other areas. ILO (2009: 13) reports that PCBS (2009) estimated that 75,000 Palestinians worked in Israel and the settlements in 2008, "implying that approximately 27,000 worked without a permit." This is larger than the total of 67,000 implied by the Labor Force Survey data for 2008.[15]

The recent rise in Palestinian employment is Israel and the settlements has, at least in part, been the result of deliberate Israeli policy decisions. In 2009 an ILO mission was told by General Mishlev, head of the Coordinator of Government Activities in the Territories (COGAT) "that his policy was to gradually increase the number of Palestinians working in Israel, particularly in the construction sector" (ILO 2009: 25). A position paper published by the Peres Center for Peace discussed the rationale from Israel's standpoint for further increasing Palestinian employment in Israeli (and Israeli settlement) construction and agriculture, arguing, among other things, that no Israeli workers would be displaced because the construction and agricultural work that the Palestinians would do is "particularly arduous labor…that Israelis are not willing to do" (Gal, Stern, and Greenapple 2010: 3), such as hothouse and field work in agriculture, and scaffolding, iron rods, plastering and flooring in construction. ILO (2009: 12) also pointed out that in 2009, "As in 2008, the [ILO] mission heard worrying reports of the Israeli authorities attempting to recruit collaborators in exchange for issuing or renewing a work permit," and this may also help to explain the desire to issue additional work permits.

The rise in employment in Israel and the settlements contributed substantially to employment growth in the West Bank and the Palestinian territory as a whole in this period. By identifying and separating out its

[15] The Labor Force Survey reports that in 2008, 10.1% of all the 667,000 Palestinians resident in the Palestinian territories who were employed were working in Israel and the settlements (PCBS 2011b: Table 41).

effects, we are better able to focus on the dynamic effect of growth in Palestinian GDP on Palestinian employment and wages.

4.4 Changes in income-earning employment and wage employment

While total employment in the Palestinian economy grew at a pace that was only about average by world standards for given GDP growth, *income-earning employment* grew faster than total employment, while *wage employment* grew considerably faster, and *private-sector wage employment* grew still more rapidly. Total employment in producing Palestinian GDP grew by about 84,400, from 581,400 in 2006 to 665,800 in 2010, and the cumulative growth in both the West Bank and Gaza Strip was 14-15%. However, the PCBS divides total employment into four mutually exclusive categories, one of which is work unpaid in one's own family's business, while the others are three different kinds of income-earning employment: self-employed, employers, and wage employees. During this period, among those employed in the West Bank there was a substantial shift from unpaid to income-earning employment. The cumulative growth in income-earning employment was 20%, and – like growth in total employment in the Palestinian economy – was almost exactly the same in both the West Bank and Gaza Strip. In the whole Palestinian economy, this group grew from 510,000 in 2006 to 611,000 in 2010, an increase in income-earning employment of 101,000.

Within income-earning employment, the cumulative growth in the single category of *wage employment* in the Palestinian economy was even greater – 30% overall – and again, almost identical in the West Bank (at least 31%) and Gaza Strip (30%). In the West Bank, the 328,000 wage employees in 2006 grew to about 425,000 in 2010, an increase of about 97,000.[16] The particularly rapid growth in wage employment occurred because the bulk of those who shifted from unpaid to income-earning employment became wage employees, and in some cases other categories of income-earning employment actually declined. In the Gaza Strip, for example, there was an actual fall in the combined number of self-

[16] Data on wage employment in the West Bank Palestinian economy in 2010 are approximate, and therefore the change in wage employment in the West Bank may be slightly underestimated. This caution affects total income-earning employment as well, and private sector wage employment. (All the data in this section are for the Palestinian economy alone, that is, they do not include employment in Israel and the settlements. The estimate here assumes that in 2010 all those employed in Israel and the settlements were wage employees. In 2006, 91% were, and in 2007, 93% were; the PCBS then changed its reporting so that we lack data for 2010. If only 95% were wage employees, then wage employment in the West Bank Palestinian economy rose by 33% rather than 31%. Appendix 2 explains in detail.

employed and employers, as manufacturing and construction businesses suffered a catastrophic decline.

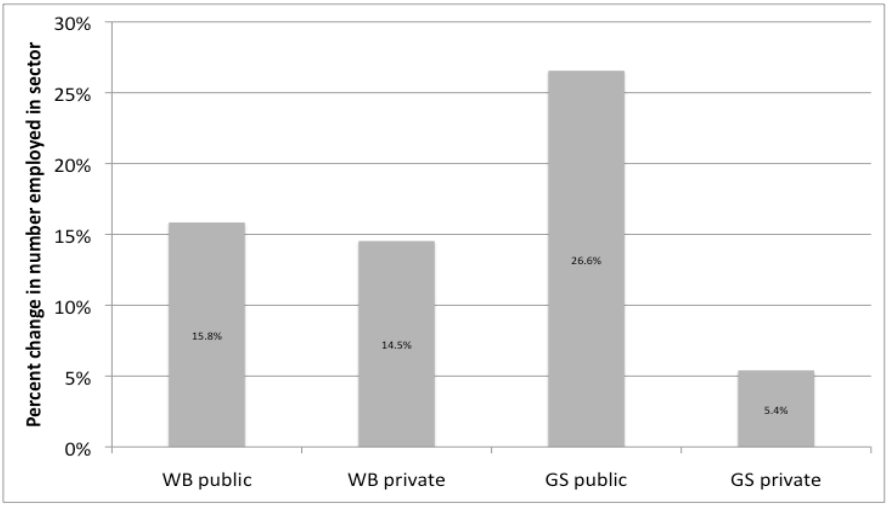
Private sector wage employment grew still faster than overall wage employment. In the West Bank, private sector wage employment grew by about 40% from 2006 to 2010, and in the Gaza Strip by 34%, for overall growth in private sector wage employment in the Palestinian economy of 39%. In the public sector, wage employment in the West Bank grew 16%, while in the Gaza Strip it grew by 27%.

4.5 Public and private sector employment

Total public sector employment grew as fast as overall employment in the West Bank, but not faster: public sector employment continued to be about one-fifth of all employment throughout 2006-2010. In the Gaza Strip, in contrast, public sector employment was already two-fifths of total employment at the beginning of this period, and its share grew by 2010, as most of the added employment was in the public sector. In fact, at least since the year 2000, the public sector has loomed larger in employment in the Gaza Strip than in the West Bank. From 2000 through 2006 the public sector there accounted on average for 38% of all employment in the Gaza Strip, while in the West Bank public sector employees averaged only 19% of all those employed in Palestinian economy there (excluding employment in Israel and the settlements) during the same period. By 2006 Gaza's public sector share had grown to 42%, and it rose further to 46% by 2010. In the West Bank public sector employment was 19% of all employment in the Palestinian economy in 2006, and still 19% in 2010. Figure 4.5 shows that public sector employment in the West Bank grew only at roughly the same rate as overall employment in the West Bank Palestinian economy: private sector non-Israel/settlements employed grew by 14.5%, while public sector employment grew by 15.8%. The same figure also shows the large disparity between the public and private sector growth rates in the Gaza Strip, with public sector employment growing by 26.6% while employment in the private sector grew by only 5.4%.

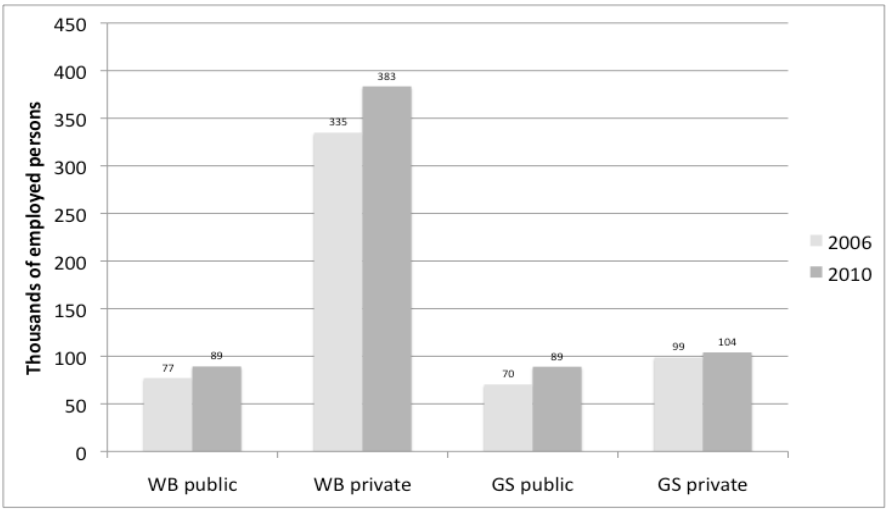
It is worthwhile to look at the absolute number employed in 2006 and 2010 as well, and this is shown in Figure 4.6. Employment rose by 48,000 in the private sector in the West Bank, but only by 5,000 in the private sector in the Gaza Strip, due to the almost total curtailment of inputs to production, especially in the industrial and construction sectors. In the public sector, the West Bank employment grew by 12,000, reaching a total of 89,000, while the Gaza Strip added 19,000 public sector employees, also coincidentally reaching the same total of 89,000.

Figure 4.5: Percent change in employment in public and private sector, West Bank and Gaza Strip, 2006-2010



Source: Author's calculation using PCBS (2007, 2011b, Table 41).

Figure 4.6: Number employed in the public and private sector, West Bank and Gaza Strip, 2006 and 2010



Source: Author's calculation using PCBS (2007, 2011b, Table 41).

Public employment in the Gaza Strip was somewhat anomalous in this period, because of the conflict between Fateh and Hamas. After Hamas

was elected, and took power in the Gaza Strip, the PA told its employees there that they would continue to be paid their salaries. A Palestinian Authority spokesperson has said that at 80,000 PA employees still receive salaries in the Gaza Strip (Abdalla 2012), although apparently only a fraction of them still provide public services, mostly in health and education. It is not clear how many of these are included in the total given in Figure 4.6. Possibly the larger public sector in Gaza partly reflects the Hamas/Fateh split; without it, it is not clear what would happen to the size of public employment there.

4.6 Employment by sector (economic activity), by region and governorate

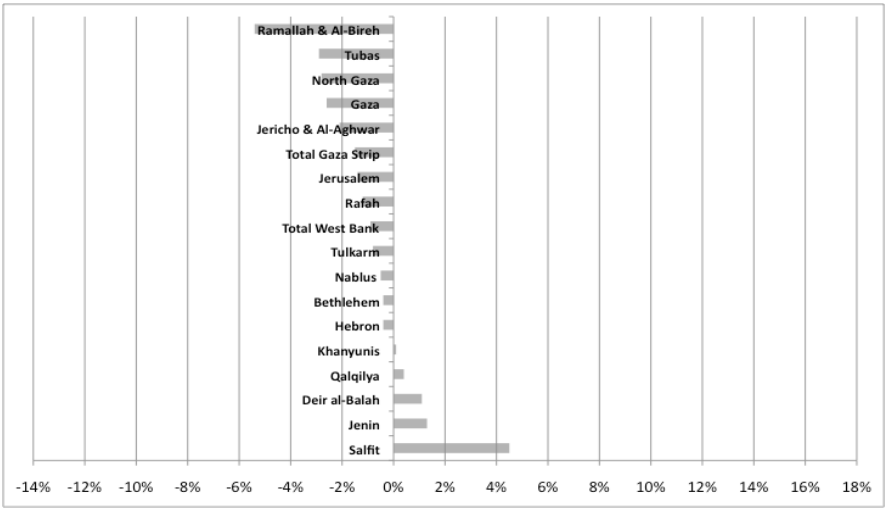
The sectoral pattern of employment creation and destruction had some similarities in the West Bank and Gaza Strip during 2006-2010: in both places, industrial and agricultural employment shrank as a percentage of total employment, although for somewhat different reasons; and the share of employment in the services sector grew.[17] But there were also important differences. Construction employment expanded in the West Bank (partly due to new employment in Israel and the settlements) and contracted in the Gaza Strip. In the other two sectors – commercial activities and transport/storage/communication – employment changed little as a share of the total in most governorates. Figures 4.7a through 4.7f show these changes. All data in this section include employment in Israel and the settlements.

The share of manufacturing and construction employment in total employment has been shrinking over the long term in the entire Palestinian territory. In 1999, fully 40% of persons employed in the West Bank and 31% of those employed in the Gaza Strip worked either in industry (*Mining, Quarrying, and Manufacturing*) or in *Construction* (PCBS *LFS* 1999: Table 27). Yet even by 2006, the beginning of our period, this total had fallen to below 15% in the West Bank and to below 7% in the Gaza Strip. By 2010 industrial employment's share had fallen further in both places; in contrast, construction's share grew in the West Bank, and after a

[17] Employment data are classified into six economic activities, and are reported both by region (West Bank, Gaza Strip) and by governorate (LFS 2010 and 2006, Tables 30 and 31). The data are reported by each broadly defined economic activity's share of total employment in the governorate or region in question. However, the governorate is the place of residence, rather than the place of employment, of the respondent. So, for example, someone living in Nablus but working on a construction project in Ramallah is reported as a construction worker in Nablus governorate.

catastrophic collapse in Gaza, partly recovered in 2010. As a result, the combined share of employment in the two sectors rose slightly in the West Bank and fell in the Gaza Strip during the period of this study.

Figure 4.7a: Percentage points change in governorate's industrial employment (mining, quarrying, and manufacturing) as percent of all governorate employment, 2006-2010

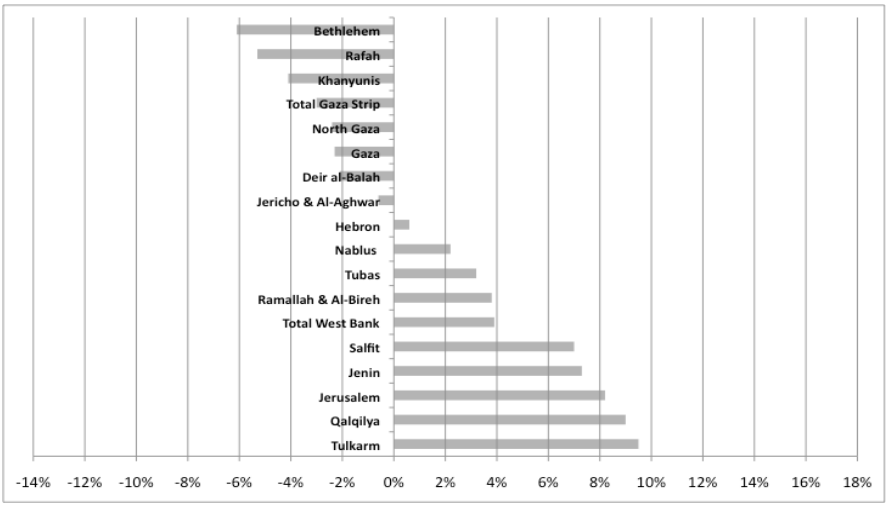


Source: PCBS (2007, 2011b, Tables 30 and 31).

Considering industrial employment (*Mining, Quarrying, and Manufacturing*) separately, its share of total employment fell by 0.9 percentage point for the whole West Bank (from 14.6% in 2006 to 13.7% in 2010), and by 1.5 percentage points for the whole Gaza Strip (from 6.3% to 4.8%). In the West Bank, the regionwide decline in industrial employment as a percent of all employment was reflected, as shown in Figure 4.7a, in declines in most, but not all, governorates. The governorates in which industrial employment grew faster than total employment, so that its share of all employment grew, were Salfit (+4.5 percentage points), Jenin, and Qalqilya. At the other end of the spectrum, the governorate in which the share of industrial employment declined most was Ramallah/Al-Bireh, where it fell from 16.4% to 11.0% of all employment.[18]

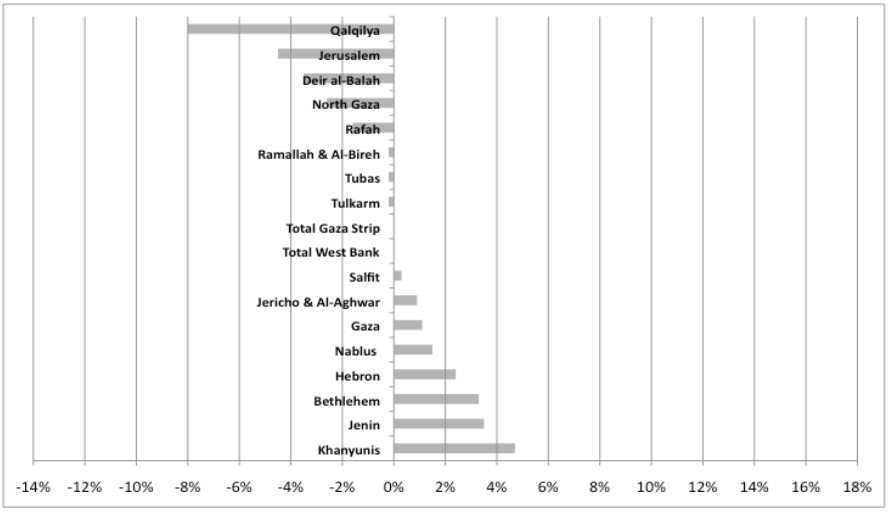
[18] Remember, however, that this could mean that those working in industry in Ramallah governorate increasingly lived in other governorates and commuted to work, as living in the city of Ramallah became more expensive with the construction boom. We cannot verify whether this was the case.

Figure 4.7b: Percentage points change in governorate's employment in construction as percent of all governorate employment, 2006-2010.



Source: PCBS (2007, 2011b, Tables 30 and 31).

Figure 4.7c: Percentage points change in governorate's employment in commerce, hotels, and restaurants as percent of all governorate employment, 2006-2010



Source: PCBS (2007, 2011b, Tables 30 and 31).

As for construction, in the West Bank an increase of 32,000 in construction employment raised its share of total employment from 12.9%

in 2006 to 16.8% in 2010, and every governorate except Bethlehem also enjoyed an increase in this measure.[19] Those governorates where construction employment increased most as a share of the total were Jenin, Salfit, Tulkarm, Jerusalem, and Qalqilya, with increases of 4 to 9 percentage points in the share of construction employment in each governorate's total employment (see Figure 4.7b). In Jenin, Salfit, Tulkarm, and Qalqilya, construction employment began rising suddenly as a share of the total in 2008.

As already observed, employment in Israel and the settlements accounted for a total of approximately 23,600 of the employment added between 2006 and 2010, and of these about two-thirds, or nearly 16,000, were in construction (author's calculation from Labor Force Survey data). In other words, half of the 32,000 increase in construction employment that West Bank Palestinians obtained between 2006 and 2010 was in Israel and the settlements. In 2006, of all West Bank Palestinians who worked in Israel and the settlements, 39.1% were construction workers, while in 2010, 49.2% were (LFS 2010 and LFS 2006: Table 23). When Palestinian workers in Israel and the settlements are included in total employment, a 16.8% share of all West Bank employment in 2010 was in construction; but excluding workers in Israel and the settlements from total West Bank employment, construction workers were only 11.4% of the total in the same year. By comparison, in 2006, these numbers were 12.9% and 9.0%

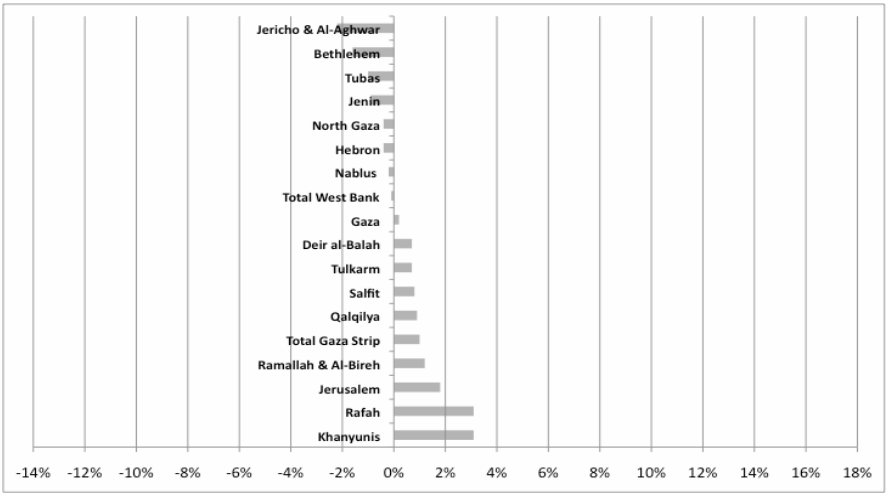
Employment in *Commerce, Hotels and Restaurants* was unchanged as a percent of total employment over the period in the West Bank as a whole (19.9%). However, there were shifts within governorates (see Figure 4.7c): commercial employment's share rose substantially in Jenin, Bethlehem, Hebron, and Nablus, while there were substantial declines in Qalqilya and Jerusalem.

The share of *Transport, Storage, and Communication* employment in total employment changed very little anywhere, as shown in Figure 4.7d, falling in the West Bank as a whole only from 5.8% to 5.7%. Small increases of less than 2 percentage points in Ramallah/Al-Bireh, Qalqilya, Salfit, and Tulkarm were more than offset by declines of similar size in other governorates: Jericho/Al-Aghwar, Bethlehem, Tubas, and Jenin.

The two remaining sectors are *Services and Other Branches* and Agriculture*, Hunting, and Fishing*, for which employment changes are shown in Figures 4.7e,f. In the West Bank, 29.0% of those employed were reported to have worked in the service sector in 2006, and this rose slightly to 30.6% in 2010.

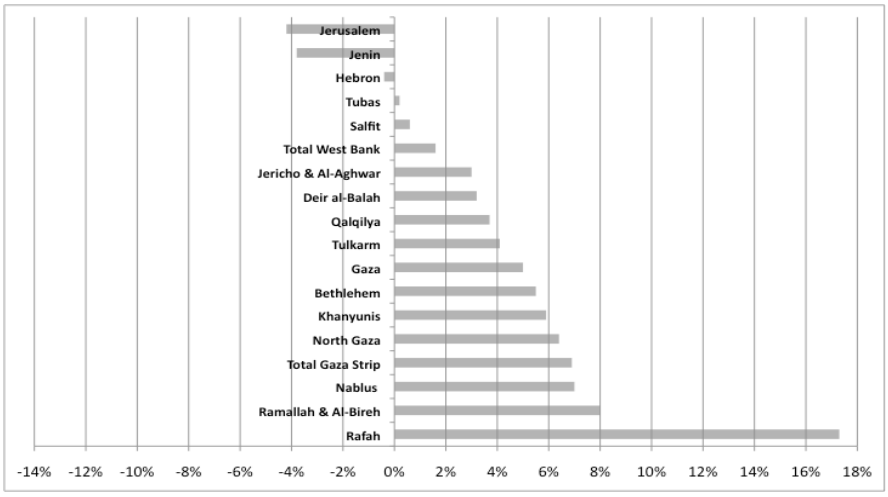
[19] (16.8%)(551,000) – (12.9%)(467,000) = 32,325.

Figure 4.7d: Percentage points change in governorate's employment in transport, storage, & communication as percent of all governorate employment, 2006-2010



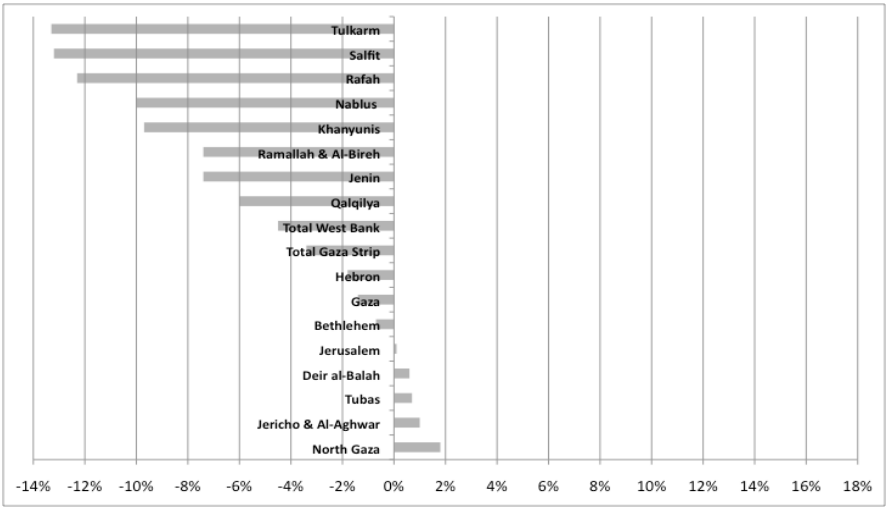
Source: PCBS (2007, 2011b, Tables 30 and 31).

Figure 4.7e: Percentage points change in governorate's employment in services & other branches, as percent of all governorate employment, 2006-2010



Source: PCBS (2007, 2011b, Tables 30 and 31).

Figure 4.7f: Percentage points change in governorate's agricultural employment as percent of all governorate employment, 2006-2010



Source: PCBS (2007, 2011b, Tables 30 and 31).

Agriculture's share of those employed was reported to have dropped sharply, from 17.8% to 13.3%. Published Labor Force Survey data show a large, sudden, and puzzling shift from agriculture to services employment in both the West Bank and Gaza Strip during this short four-year period. In fact, the data say that this large shift took place entirely among females, and entirely in the two years 2008 and 2009. Female employment in agriculture reportedly fell from 37.0% of all female employment in the West Bank in 2006 to 25.4% of all female employment (a decline of 11.6 percentage points), while female employment in the service sector rose from 44.5% of all female employment in the West Bank in 2006 to 55.5% in 2010, an increase of 11.0 percentage points. In fact, this change took place from 2007 to 2009 in two almost exactly equal steps. Over the whole period, the sum of female agricultural and service sector employment was a very nearly constant percent of total female employment in the West Bank. No such sudden large decline took place in male agricultural employment in the West Bank. The PCBS assured the author that there was no change in coding procedure or practices that would explain the suddenness of the reported change, yet it remains puzzling.

We turn now to a more detailed examination of trends in the Gaza Strip. A leading Palestinian industrialist told an ILO mission that in this period it became a "graveyard of industries" (ILO 2010: 4). Industrial employment

there (mostly in manufacturing), following a long-term trend exacerbated by the Israeli siege, declined further, from 6.3% of all employment in 2006 to 4.8% in 2010. The decline was particularly large in North Gaza (from 6.3% to 2.9%), Gaza (from 9.9% to 7.3%), and even Rafah (3.5% to 2.3%), despite Rafah's tunnel economy, which ought to offer a source of industrial inputs and perhaps of demand for industrial output. The only governorates in the Gaza Strip in which industry's share of employment rose noticeably was Deir al-Balah (+1.1 percentage points).

Construction is the sector of the greatest contrast between the West Bank and the Gaza Strip: as construction employment grew in the West Bank, it shrank in Gaza. Due to the strangling blockade of imports of cement and other building materials, construction employment as a percent of total employment declined in every Gaza Strip governorate. Eventually the tunnels became able to deliver construction materials, in part because they were enlarged (Pelham 2011), and by 2010 Israel also allowed imports of some construction materials under extremely strict controls. However, construction employment had been 18% of total employment in 1999, and in 2005 was still 9.3% of the total. In 2006 it fell to 6.0%, but in 2008 and 2009 it almost vanished, tumbling to 0.9%. The return to 3.0% of total employment in 2010 was a partial recovery, but still catastrophically low relative to historical levels.

In other sectors in the Gaza Strip, changes were smaller. Employment in *Commerce, Hotels, and Restaurants* remained constant at 17.3% of total employment, though its share rose in Khanyunis and Gaza and declined in Deir al-Balah, North Gaza, and Rafah. *Transport, Storage, and Communication* gained 1.0 percentage points as a share of total employment, from 5.6% of total employment in 2006, with gains in both Khanyunis and Rafah and smaller gains in Deir al-Balah and Gaza, only partly offset by a small decline in North Gaza. Possibly the main impetus to these increases was the need to transport to all parts of the Gaza Strip the items coming through the tunnels in Rafah, at the southern end.

In the Gaza Strip, the already large *Services and Other Branches* sector enjoyed by far the greatest growth. In 2006 it already accounted for 53.7% of total employment, and this grew to 60.6% in 2010. As Figure 4.7f shows, Rafah governorate gained the largest increase in the service sector's share of employment, with an increase from 50.8% to 68.1% of employment, a 17.3 percentage point increase. In all other Gaza governorates, the service sector's share grew more slowly than in the Gaza Strip as a whole, with increases ranging from 3.2 percentage points in Deir

al-Balah (where the service sector already accounted for 63.5% of employment in 2006) to 6.4 percentage points in North Gaza. By 2010, well over half of all employment in every governorate was *Services and Other Branches* employment.

On the other hand, agriculture's share of those employed in the Gaza Strip dropped sharply, from 11.1% to 7.7%. The shift in female agricultural employment described earlier for the West Bank also appears in the data for the Gaza Strip, where an even more striking change was reported to have taken place. In 2006, fully 20.4% of employed females in the Gaza Strip were reportedly working in agriculture, a percent that reportedly declined by 17.3 percentage points, to 3.1% by 2010, while the 69.8% working in the *Services and Other Branches* sector rose to 91.3% of total employment by 2010 – a shift of 21.5 percentage points. Both absolutely and relatively, the change that took place in male employment in agriculture and services was far, far smaller. In 2006, 9.9% of employed males in Gaza worked in *Agriculture, Hunting, and Fishing*, a share that dropped slightly to 8.3% by 2010; meanwhile, the 51.7% share who worked in services in 2006 rose to 56.6% in 2010. No explanation has so far emerged to explain the remarkably sudden shift of females from agriculture to services.

4.7 Output elasticities of employment

4.7.1 National and regional output elasticities of employment

For the Palestinian economy as whole, we are interested in the percent by which employment rose as a result of each one percent increase in real Palestinian GDP. To capture the dynamic behavior of the Palestinian economy alone, we exclude employment in Israel and the settlements from both 2006 and 2010. The output elasticity of employment was the ratio of the average annual increase in total employment (3.4%) to the average annual increase in real output (7.4%), or 0.46 (see Table 4.6).

As we have seen, expansion in income-earning employment and in wage employment was greater than in total employment. For each 1% increase in *total* output in the whole Palestinian economy, income-earning employment increased by 0.62% and wage employment increased by 0.93%. We do not have data on the output of income-earning employed persons as whole, or on the output of wage employees alone; so when we say the output elasticity of income-earning employment was 0.62, and the output elasticity of wage employment was 0.93 (for example in Table 4.6), the output we are referring to is total output. It is worth emphasizing that

wage employment grew almost as rapidly as real GDP. (However, as we will see in the next chapter, total payments to wage employees grew much more slowly.)

For just the West Bank Palestinian economy, defining these elasticities in the same terms, the output elasticity of total employment over 2006-2010 was 0.37, while for income-earning employment it was 0.50, and for wage employment it was 0.75.

Table 4.6: Output elasticities of employment for the Palestinian economy, 2006-2010

Data exclude Palestinian employment in Israel and the settlements

	2006	2010	Percent change	Annualized percent change	Output elasticity of employment
Palestinian Territory					
Real GDP	4322.3	5754.3	33.1%	7.4%	
Total employment	581.4	665.8	14.5%	3.4%	**0.46**
Income-earning employment	510.0	611.2	19.8%	4.6%	**0.62**[2]
Wage employment[1]	325.3	424.5	30.5%	6.9%	**0.93**[2]
West Bank					
Real GDP	2977.7	4249.5	42.7%	9.3%	
Total employment	412.4	472.8	14.6%	3.5%	**0.37**
Income-earning employment	352.5	423.2	20.1%	4.7%	**0.50**[2]
Wage employment[1]	207.7	272.2	31.1%	7.0%	**0.75**[2]
Gaza Strip					
Real GDP	1344.6	1504.8	11.9%	2.9%	
Total employment	169.0	193.0	14.2%	3.4%	**1.18**
Income-earning employment	157.5	188.0	19.3%	4.5%	**1.58**[2]
Wage employment[1]	117.6	152.3	29.5%	6.7%	**2.34**[2]

Source: Author's calculations from PCBS data.

[1] For wage and income-earning employment in the West Bank and the Palestinian territory, estimates are lower bounds based on the assumption that all Palestinian employees in Israel and the settlements were wage employees. (Such employees are excluded from these results, but the number of them affects the results.) In 2006, 91.0% were wage employees, and in 2007, 93.2% were; the PCBS then changed its reporting so that we lack data for 2010. If only 95% were wage employees, then wage employment in the West Bank Palestinian economy rose by 33% rather than 31%. Appendix 2 explains in detail.

[2] Only the output elasticity of *total* employment represents an elasticity in the ordinary sense that the percent change in employment is divided by the percent change in *output produced by that employment*. What is listed in the table as the output elasticity of income-earning employment is actually the percent change in *income-earning employment* divided by the percent change in *output produced by total employment, including both income-earning and non-income-earning employment*. Similarly, what is listed as the output elasticity of wage employment is the percent change in *wage employment*, divided by the output produced by *total employment* (not only wage employment, but also all other employment).

For the Gaza Strip the output elasticities were all greater than one, implying that labor productivity in Gaza (and productivity of income-earning labor, and of wage-earning labor) fell over this period. The output elasticity of total employment was 1.18, while for income-earning employment it was 1.58, and for wage employment it was 2.34. Gaza's elasticities might be encouraging if we were only interested in creation of paid employment; on the other hand, in some circumstances an OEE > 1 is rather discouraging for the long term because it shows declining labor productivity in the sense of value added per person employed. However, since in the Gaza Strip the large majority of the employment created was in the public sector, this is less of a concern, since of course competitiveness on the world market is not directly an issue for the public sector.

4.7.2 Sectoral output elasticities of employment

Output elasticities of employment for the six broad sectors described earlier in this chapter are shown in Table 4.7.[20] These were calculated using National Accounts data for six broad economic activities, and Labor Force Survey data collected in a household survey but classified into the same six economic activities. Most, but not all, of the elasticities are between 0 and 1, the most plausible range for most sectors in the rapidly growing West Bank economy. The mining and manufacturing sector, however, had an OEE greater than one, suggesting that labor productivity slightly fell, which suggests that some labor hoarding may have occurred during the period – many employers keeping workers employed although value added was stagnant or falling.

There are at least two anomalies. One anomaly, pointed out in a previous section, is that female employment in agriculture was reported to have declined suddenly and in a straight-line fashion in 2008 and 2009 in the West Bank, and female employment in *Services and Other Branches* to have increased by almost exactly the same percent of total employment, so that the sum of the shares of female agricultural and service employment over that period remained almost exactly constant. Such a sudden change is rather implausible in the real world. Moreover, no such change took place among males, whose employment share in agriculture and services changed very little over the same period.

[20] Output elasticities of employment were calculated separately for the West Bank (again excluding employment in Israel and the settlements) and for the Gaza Strip using national accounts data together with data from the Labor Force Survey. The growth rates of output and employment come from data for 2006 and 2010, and were each converted to average annual growth rates before the elasticity was calculated.

Table 4.7: Sectoral output elasticities of employment, six broad economic activities, 2006-2010. Data are from the National Accounts and the Labor Force Survey

	Real GDP (millions of 2004$)		Employed persons (exc. Israel/settlements)				Real GDP	Employment	Sectoral output
			% of total		Number (1000s)				
West Bank	**2006**	**2010**	**2006**	**2010**	**2006**	**2010**	percent change	percent change	elasticity of employment
Agriculture and Fishing	150.0	212.2	19.2	14.2	79.1	67.2	41.5%	-15.1%	-0.44
Mining, Mfg., Electricity & Water	517.1	593.2	13.8	13.9	56.9	65.7	14.7%	15.6%	1.06
Construction	217.6	438.8	9.0	11.4	37.1	53.9	101.7%	45.4%	0.51
Commerce, Hotels, and Restaurants	316.2	428.6	19.7	20.5	81.2	97.0	35.5%	19.5%	0.58
Transport, Storage & Communications	260.3	487.9	6.3	5.7	26.0	27.0	87.4%	3.9%	0.06
Services and Other Branches	1101.1	1377.6	32.0	34.3	131.8	162.2	25.1%	23.1%	0.92
	Real GDP (millions of 2004$)		**Employed persons**				**Real GDP**	**Employment**	**Sectoral output**
			% of total		**Number (1000s)**				
Gaza Strip	**2006**	**2010**	**2006**	**2010**	**2006**	**2010**	**percent change**	**percent change**	**elasticity of employment**
Agriculture and Fishing	90.3	102.7	11.1	7.7	18.8	14.9	13.7%	-20.8%	-1.73
Mining, Mfg., Electricity & Water	131.5	149.3	6.2	4.8	10.5	9.3	13.5%	-11.6%	-0.94
Construction	94.7	119.1	5.9	3.0	10.0	5.8	25.8%	-41.9%	-2.15
Commerce, Hotels, and Restaurants	139.1	153.9	17.3	17.3	29.2	33.4	10.6%	14.2%	1.32
Transport, Storage & Communications	25.2	18.9	5.6	6.6	9.5	12.7	-25.0%	34.6%	-1.11
Services and Other Branches	771.2	912.6	53.7	60.6	90.8	117.0	18.3%	28.9%	1.52

Source: Author's calculations from employment data in PCBS (2011, Tables 1, 23-24, and 41), PCBS (2007, Tables 1, 23-24, and 41), and value added by economic activity in constant 2004 dollars from national accounts data in PCBS (2009b, 2012). Percent change from 2006 to 2010 was converted to average annual percent change to calculate each elasticity. See also chapter 4 on changes in employment by economic activity, sex, and governorate, for a discussion of anomalies in agriculture and services employment data.

In fact, when we check the elasticities that would have resulted if the large shift of women out of agriculture and into services had not taken place in the West Bank, we find that reversing this shift makes agriculture's output elasticity of employment (which is -0.44 based on the reported data) positive and more plausible, while at the same time it also reduces the somewhat high services elasticity (0.92) to a level that is at least equally plausible. Although we have no evidence of any shift in coding Labor Force Survey responses, it is hard to think of an explanation for this massive shift of women from agriculture to services within the space of two years. Perhaps the only plausible answer is that women who were already working 40% time in services and 60% time in agriculture shifted to working 60% time in services and 40% time in agriculture, and so reported a different "main" economic activity beginning in 2008. Further research would be of interest.

The quite low output elasticity of employment (0.06) in *Transport, Storage and Communications* in the West Bank appears to come mainly from the fact that the communications sector (including mobile phone service) experienced a several hundred million dollar increase in Gross Value Added with only a small increase in employment. Although the ability of a given size firm to deliver rapidly increasing telecommunications services with little increase in cost might be considered an improvement in physical productivity, noncompetitive pricing evidently also played a role. This will be discussed at more length in Chapter 5 when we analyze the Economic Survey data on individual narrowly defined sectors.

The output elasticities of employment for the Gaza Strip, calculated in the same way, are entirely another matter, all of them being outside the 0 to 1 range, either because they are negative or because they are greater than one. Real GDP is reported to have risen by at least 10% in five of the six sectors, and to have fallen in Transport, Storage, and Communications by 25%. At the same time, employment is reported to have fallen in agriculture, industry, and construction, and to have increased in commerce, transport/communications, and services. Hence there are four sectors in which either the numerator or the denominator of the output elasticity is negative, but not both, and thus we end up with four negative elasticities and two positive elasticities. What can these puzzling numbers possibly mean?

One clue comes from the electricity and water subsectors, whose value added grew as manufacturing value added declined. There, the answer is presumably an increase in prices of electrical power, which of course can

be achieved without additional labor power. This might explain the negative elasticity in the industrial sector of which electricity and water are a part.

When a sector has an output elasticity of employment greater than 1, this implies that labor productivity has fallen. In Gaza the two sectors with elasticities greater than 1 are *Commerce, Hotels, and Restaurants*, and *Services and Other Branches*, because employment increased by a greater percentage than real output. It is certainly possible that employers in both these sectors might have taken on additional workers despite slowing growing value added, possibly as an act of charity toward relatives or families in need. Sectors with declining employment but rising real value added are more puzzling. Although the electricity sector may have had rising "real output" due to rising prices (if that sector's output were not deflated individually, so that the effect of rising prices was not fully removed), the explanation for the construction sector – with a 26% increase in real output but a 42% decline in employment – was likely something else.

4.8 Employment changes by demographic group

4.8.1 Employment by gender and region

In this section we focus on gender differences in employment gains or losses from 2006 to 2010, measured by changing employment ratios. First, however, it is useful to review the overall trends in employment ratios for both men and women combined.

In the Palestinian territory as a whole, including employment in Israel and the settlements, the employment ratio for all employed persons was essentially constant over this period (31.3% in 2006, 31.4% in 2010). This is the lowest reported employment ratio for any country in the world. This unchanging ER resulted from divergent trends in the two regions, with the ER higher in the West Bank and rising from 35.6% to 36.2%, while in the Gaza Strip it was lower and falling from 23.5% to 22.6%. As Figure 4.1 showed, there has long been a gap between West Bank and Gaza Strip employment ratios, partly because of women's lower LFPR in Gaza, but also because the male LFPR is lower in Gaza (63.7% in 2006, compared to 69.8% in the West Bank, and this gap had widened a little by 2010).

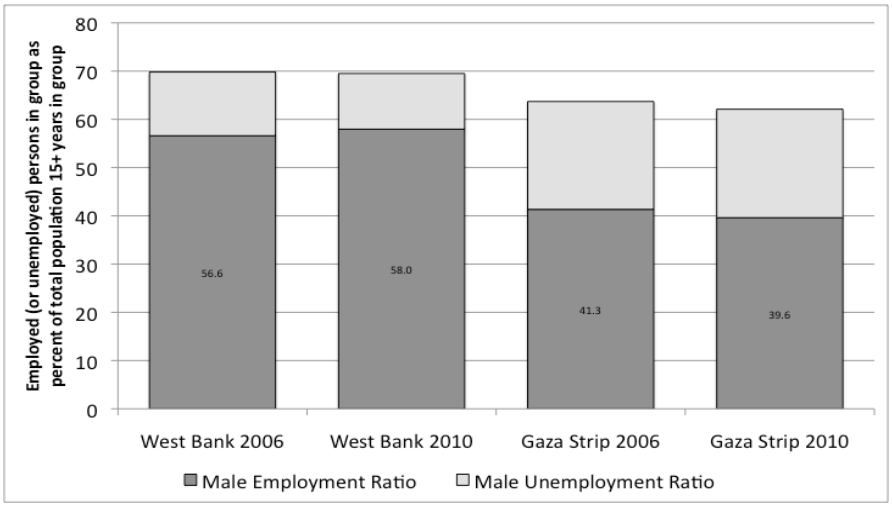
Since employment in the Palestinian economy grew at quite similar rates in the two regions, the regional difference in the trends in employment

ratios flowed mainly from two sources. One was the faster growth of the working age population in the Gaza Strip than in the West Bank, and the other was the increase in the West Bank in employment in Israel and the settlements.

Against this background, the employment ratio for males in the West Bank rose, while for females it fell. In the Gaza Strip the male employment ratio fell, while the female ER was nearly constant over the period. Let us examine these trends in some detail, first overall, and then by age and years of schooling.

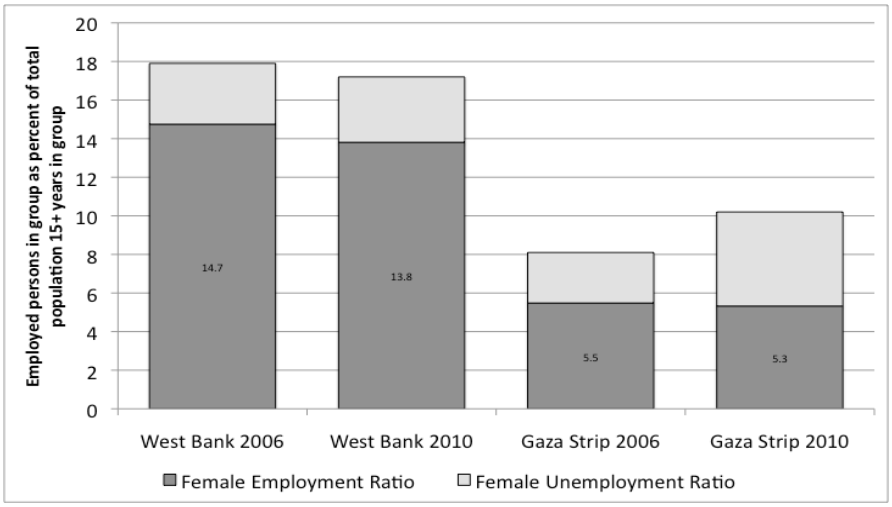
In the West Bank, the male employment ratio in 2006 was much higher than in the Gaza Strip, and this gap widened by 2010 as the male ER rose in the West Bank, but fell in Gaza, as shown by the dark grey portion of Figure 4.8a. In the West Bank, the rise in the male ER was from 55.7% in 2006 to 58.0% in 2010, an increase of 2.3 percentage points. In contrast, in Gaza, the male ER fell from 40.9% in 2006 to 39.6% in 2010, a loss of 1.3 percentage points. Since the full height of the stacked column represents the labor force participation rate in each category, we can see that the male labor force participation rate was nearly constant in the West Bank while in the Gaza Strip it was lower in 2006, and declined further by 2010.

Figure 4.8a: Change in male employment ratio and Labor Force Participation Rate in West Bank and Gaza Strip, 2006-2010. The full height of each stacked bar is the LFPR.



Source: Author's calculation from PCBS (2007, 2011b, Table 4).

Figure 4.8b: Change in female employment ratio and Labor Force Participation Rate in West Bank and Gaza Strip. The full height of each stacked bar is the LFPR



Source: Author's calculation from PCBS (2007, 2011b, Table 4).

It is somewhat surprising that in a rapidly growing West Bank economy the employment ratio for women fell. As shown by the dark grey portion of the columns in Figure 4.8b, in the West Bank, the female ER was 14.7% in 2006, and declined to 13.8% in 2010, a fall of 0.9 percentage point. This suggests the hypothesis that perhaps among married couples, when men obtained employment, their wives stopped working, and some withdrew from the labor force; and this hunch is consistent with the fact that the female LFPR in the West Bank, represented by the heights of the stacked columns on the left hand side of Figure 4.8b, declined from 17.9% in 2006 to 17.2% in 2010. Another possibility, however, is that the share of all working age females enrolled in higher education increased, and that most of these additional students did not work.

In the Gaza Strip, the female employment ratio declined only imperceptibly from 5.5% in 2006 to 5.3% in 2010 (shown by the dark grey portion of the columns in Figure 4.8b). This was the result of a large increase in the labor force participation rate, from 8.1% to 10.2%, that was offset by a large decline in the employment rate, from 67.7% to 52.2%. An increased number of younger Gazan women obtained college educations and entered the labor force, but there were not sufficient jobs to employ them, or at least to employ them continuously.

Employment by gender, region and governorate

Although the overall male ER rose in the West Bank, not all governorates shared in that increase. The West Bank governorates in which male ERs fell sharply were those in which the apartheid Wall partly or almost entirely surrounds the main city: Qalqilya and Tulkarm. Qalqilya's male ER fell by 4.8 percentage points, from 59.5% in 2006 to 54.7% in 2010, while Tulkarm's fell by 4.4 percentage points, from 54.6% to 50.3%. By 2010 these two governorates had the lowest male ERs in the West Bank. Strikingly, the governorates with the largest decline in female ERs were also Qalqilya and Tulkarm. Qalqilya's female employment ratio fell by 4.6 percentage points, from 15.7% in 2006 to 11.1% in 2010, while Tulkarm's also fell by 4.6 percentage points, from 14.3% in 2006 to 9.7% in 2010. By 2010 these two governorates had the lowest female ERs in the West Bank except for Jerusalem governorate, where the female ER was 7.3% in 2010 after falling 2.9 percentage points from its 2006 level (PCBS 2007, 2011b: Tables 17, 18).

In the Gaza Strip, the governorate of Rafah fared best, with the male ER rising by 3.7 percentage points, from 39.7% to 43.5% (by 2010 the highest ER in the Gaza Strip) and the female ER rising 0.6 percentage points, from 5.5% to 6.1%. For males, this was the result of a large increase in the LFPR, together with a small increase in the unemployment rate. Gaza governorate suffered a large decline in the male ER, from 44.8% to 40.0%, with a large decline in the LFPR and a much smaller increase in the unemployment rate; the female ER rose by 0.8 percentage points. In the other three governorates, employment ratios declined by lesser amounts for both males and females.

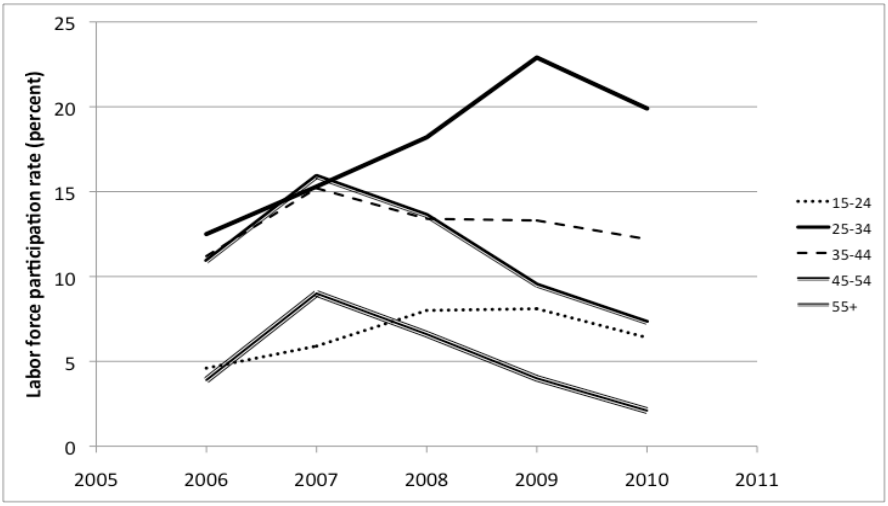
Employment by gender, region, and age

In some ways during this period the patterns of change in employment and labor force participation with respect to gender, region, age, and years of schooling are what would we expect, but there are also some surprises, such as the fact noted above that the female employment ratio in the West Bank declined, even as the male employment ratio rose.

As mentioned in the previous section and shown in Figure 4.1, the overall employment ratio in the West Bank rose slightly from 2006 to 2010, while it fell slightly in the Gaza Strip. In the Gaza Strip, the employment ratio had been 5 to 8 percentage points lower than in the West Bank since data started being collected in 1995. In part this is because of the lower female employment ratio in Gaza (5.5% in 2006, 5.3% in 2010), stemming from the lower female labor force participation rate there (8.1% in 2006, 10.1%

in 2010; see Figure 4.9), compared to the West Bank, where the female employment ratio was 14.7% in 2006 and fell to 13.8% in 2010.

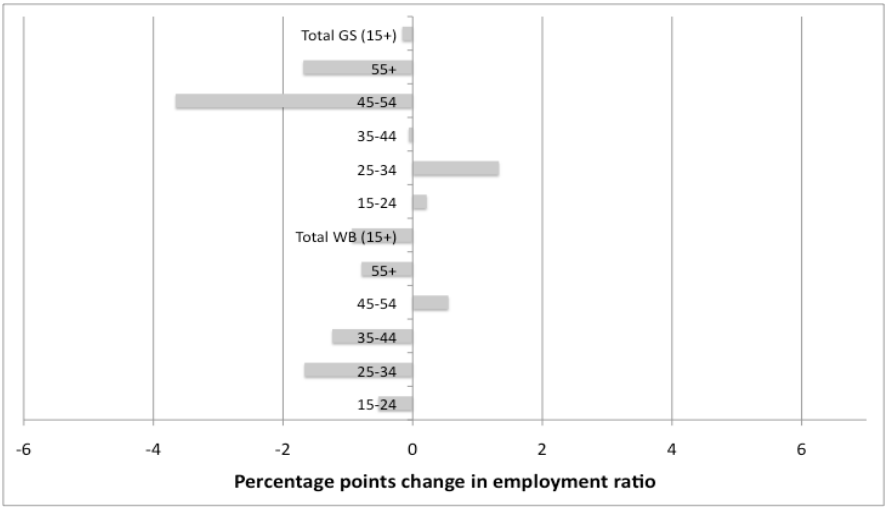
Figure 4.9 Changing women's labor force participation in the Gaza Strip, by age, 2006-2010



Source: PCBS Labor Force Survey 2006, 2007, 2008, 2009, 2010, Tables 3 and 4.

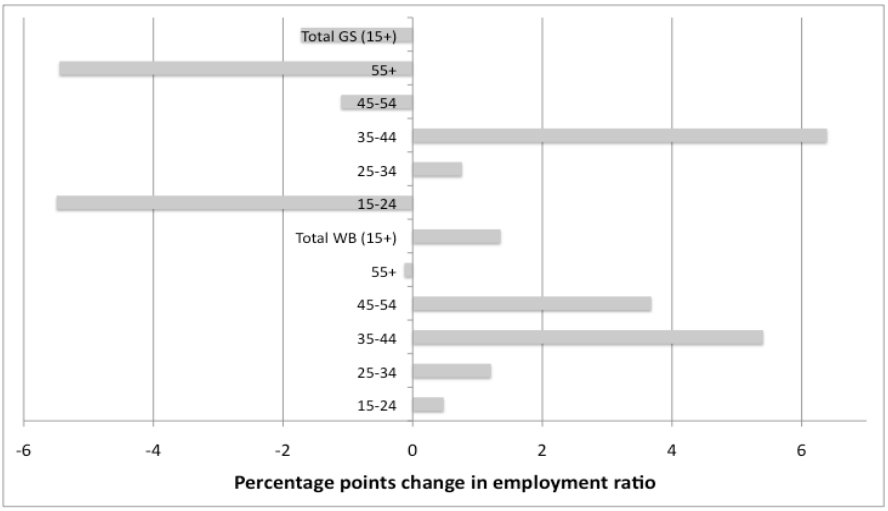
However, in Gaza, the oldest (55+) and youngest (15-24) males of working age also had far lower labor force participation rates than their West Bank counterparts. Among young males 15-24 the LFPR in Gaza in 2006 of 37.0% was much lower than their 47.7% LFPR in the West Bank (see Figure 4.10a). This gap widened by 2010 as Gazan males of that age group reduced their labor force participation to 33.9%, while the LFPR in the West Bank was unchanged. This withdrawal of Gazan youth from the labor force was very likely driven by lack of opportunity, after the employment rate among Gazan males 15-24 fell from 45.1% in 2006 to 31.7% in 2010. In the West Bank, in contrast, the employment rate among young males began enormously higher, at 62.9% in 2006, and rose slightly to 63.5% in 2010. Gazan men 55 and older also had falling labor force participation rates following a decline in their employment rate over the period. Due to the very high birth rate in Gaza, however, the oldest group is only a small part of the whole and has little influence on the overall LFPR.This regional gap in male LFPRs existed only for the youngest and oldest males; for males 25-54 there was hardly any regional difference in LFPRs.

Figure 4.10a: Percentage points change in employment ratio, males 15+, by age group, West Bank and Gaza Strip, 2006-2010



Source: Author's calculation from PCBS (2007, 2011b, Tables 3 and 4).

Figure 4.10b: Percentage points change in employment ratio, females 15+, by age group, West Bank and Gaza Strip, 2006-2010

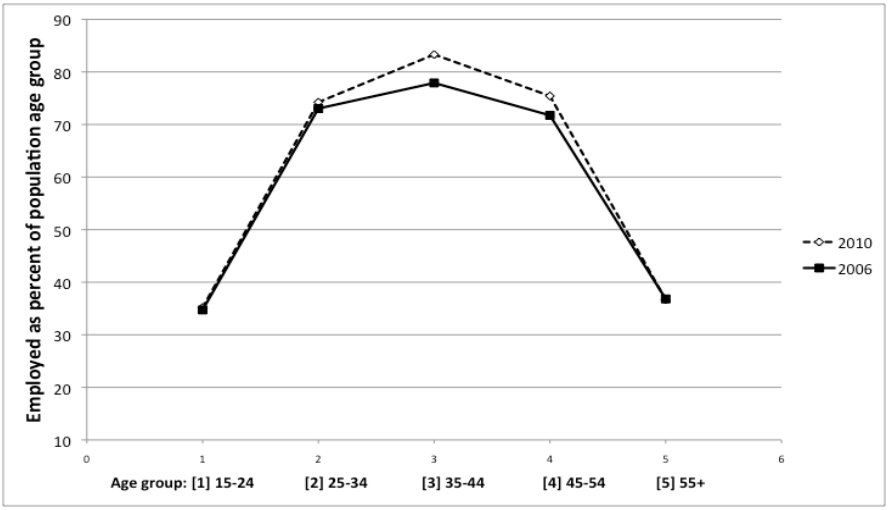


Source: Author's calculation from PCBS (2007, 2011b, Tables 3 and 4).

For males, employment ratios changed in a pattern similar to that of LFPRs but more dramatic, as Figures 4.10a and 4.11a show. The age profile of ERs (as well as LFPRs, not shown) shows a strong inverted-U

shape; but in addition, while ERs for West Bank males all increased except for those 55 years and older, Figure 4.11a clearly shows that the *changes* also showed an inverted-U shaped pattern, elongating and sharpening the age profile. Men ages 35-44 enjoyed the largest increase in employment ratio (5.4 percentage points), while men ages 45-54 also gained 3.7 percentage points in ER, and the younger age groups gained less. The oldest male group, 55 and older, actually lost slightly, though this might represent voluntary withdrawal from work as younger male family members found employment.

Figure 4.11a: Employment ratio by age group, West Bank males, 2006 and 2010

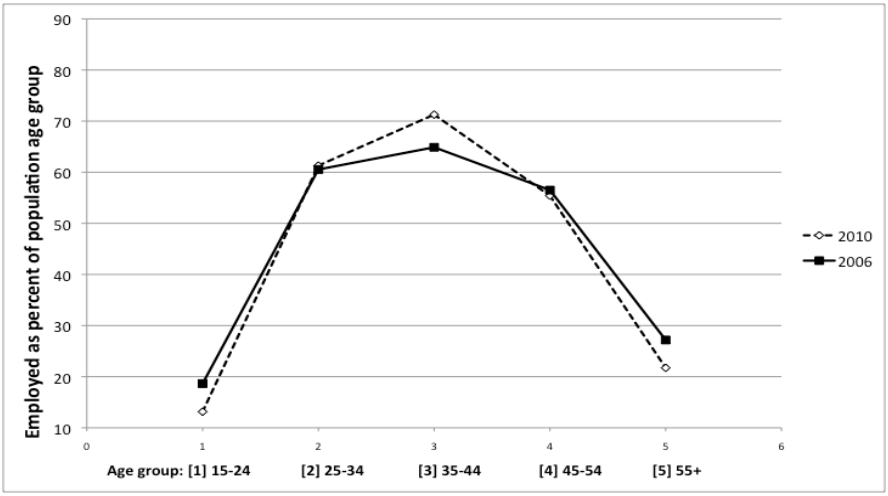


Source: Author's calculation from PCBS (2007, 2011b, Table 3).

In the Gaza Strip, like in the West Bank, the employment ratio for middle-aged men ages 35-44 rose by 6.4 percentage points, from 64.9% to 71.3% in 2010 (Figures 4.10b and 4.11b). However, the only other male group that gained in Gaza was the 25-34 age group, with a small gain from 60.5% to 61.3%. As in the West Bank, the changes in age profile also showed an inverted-U shape, and elongated and sharpened the existing inverted-U profile – but through falling ERs in the older and younger age groups. The patterns for young Gazan males discussed above in terms of LFPRs are also reflected in employment ratios. Gazan males 15-24 already in 2006 had a far lower employment ratio (18.6%) than young males in the West Bank (34.7%). But by 2010 the gap was magnified, as the West Bank young male employment ratio rose slightly to 35.2%, while the Gaza Strip young male employment ratio fell to 13.2%. Except for the 25-44 age groups mentioned earlier in this paragraph, all other age groups of Gazan

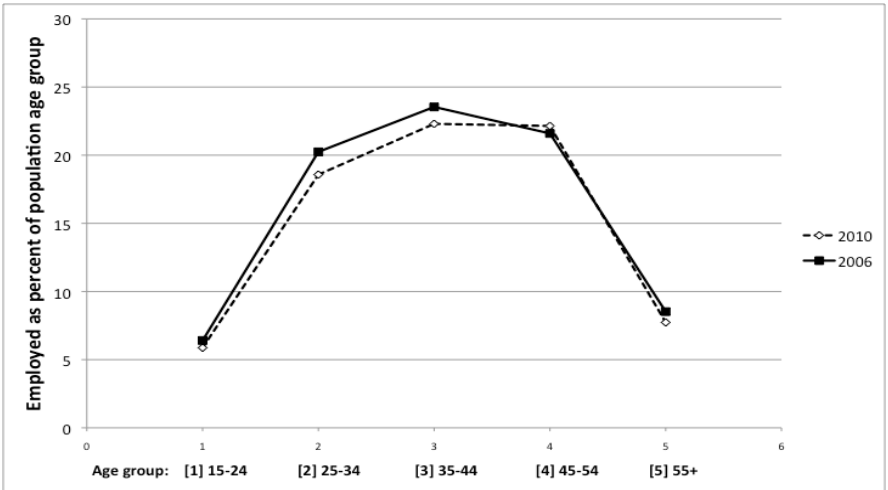
males lost, as is clear from Figures 4.10a and 4.11b. Gazan males 55 and over also suffered a 5.4 percentage point drop in their employment ratio over the period, while there was essentially no change in the ER for West Bank males this age.

Figure 4.11b: Employment ratio by age group, Gaza Strip males, 2006 and 2010



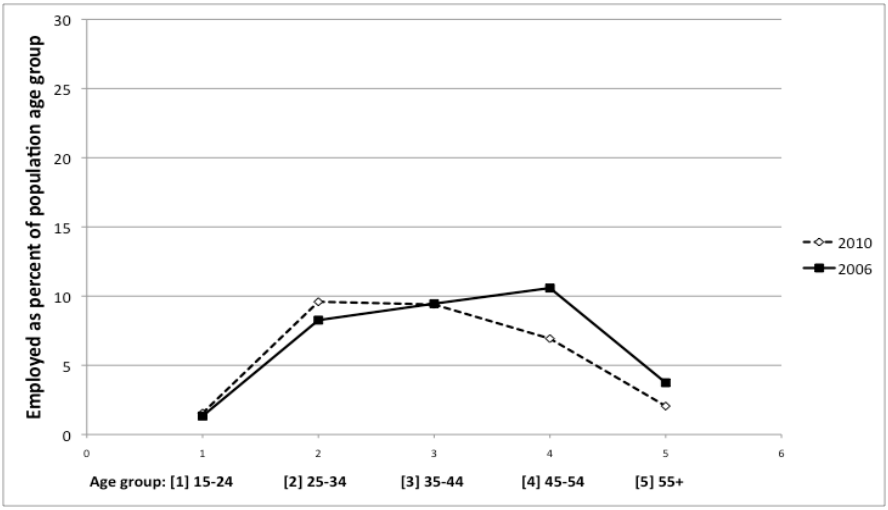
Source: Author's calculation from PCBS (2007, 2011b, Table 4).

Figure 4.11c: Employment ratio by age group, West Bank females, 2006 and 2010



Source: Author's calculation from PCBS (2007, 2011b, Table 3).

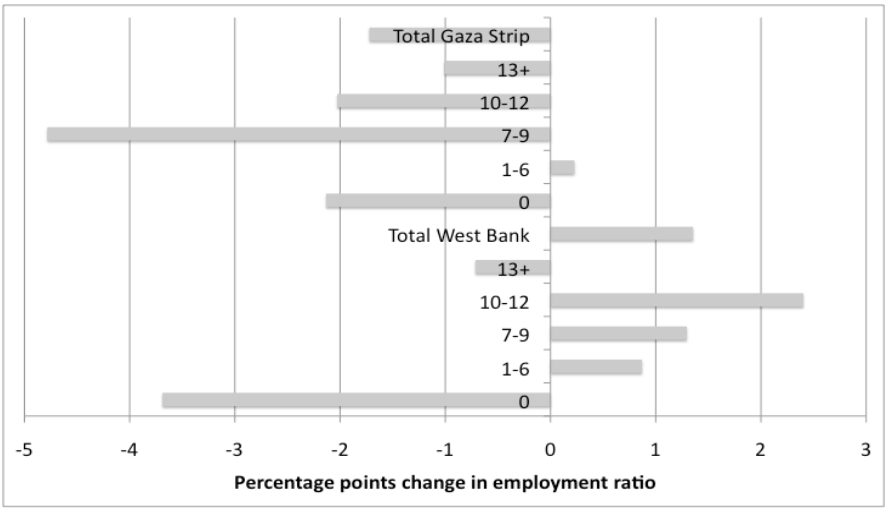
Figure 4.11d: Employment ratio by age group, Gaza Strip females, 2006 and 2010



Source: Author's calculation from PCBS (2007, 2011b, Table 4).

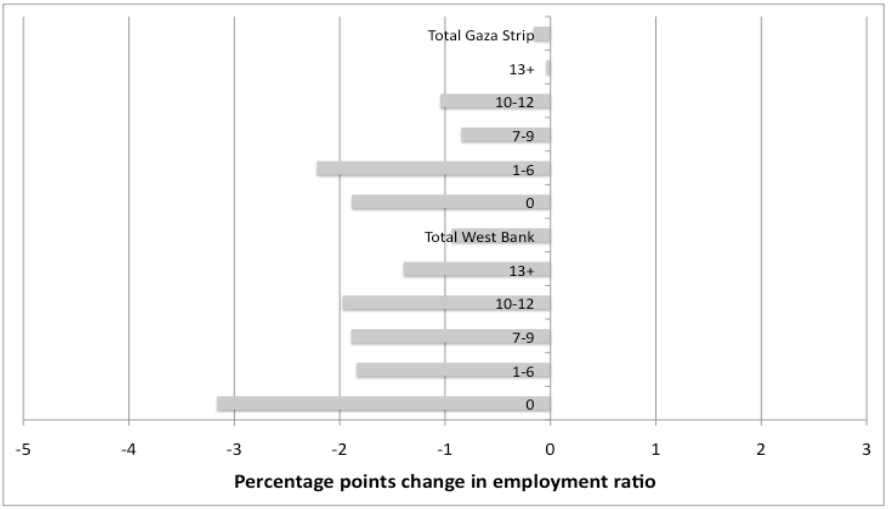
In contrast, for females the age profile of ERs in both the West Bank and Gaza Strip tilted – and in different directions – as shown in Figures 4.11c and 4.11d. In the West Bank, ERs fell for the younger age groups and rose for those 45 and over. Because the younger groups are larger, the net effect was a noticeable decline in the female employment ratio in the West Bank, from 14.7% to 13.8%. In the Gaza Strip, it was just the opposite: employment ratios fell sharply for the two groups of women 45 years and over, while they rose for females 15-34. Again, the older age groups are much smaller, and so in the Gaza Strip the net effect was only a very small decline in the female ER, from 5.5% to 5.3%.

Figure 4.12a: Percentage points change in employment ratio, males 15+, by years of schooling, West Bank and Gaza Strip, 2006-2010



Source: Author's calculation from PCBS (2007, 2011b, Tables 6 and 7).

Figure 4.12b: Percentage points change in employment ratio, females 15+, by years of schooling, West Bank and Gaza Strip, 2006-2010



Source: Author's calculations from PCBS (2007, 2011b, Tables 6 and 7).

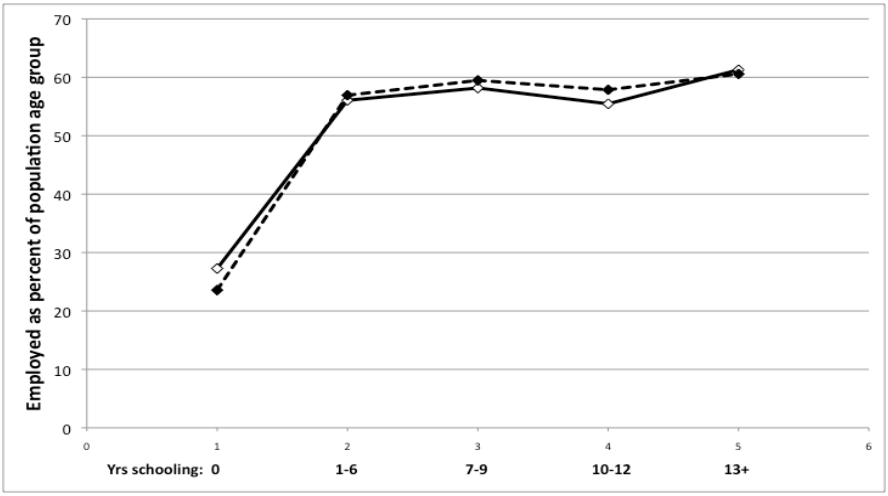
Employment by gender, region, and years of schooling

Turning to years of schooling, the patterns for men and women are markedly different, as shown in Figures 4.12a and 4.12b. The female

pattern across both regions is uniform, in the sense that for women *the employment ratio for every category of years of schooling but one fell in both the West Bank and the Gaza Strip*, as shown in Figures 4.13b and 4.13d; the only exception was college-educated women in the Gaza Strip, whose ER stayed essentially constant. In the West Bank, the overall decline in the ER was 0.9 percentage points, although the fall in the ER of every group except college-educated women was 2-3 percentage points. Even college-educated women's ER fell from 31.4% to 30.0%. However, because of a general increase in the educational level of women, the net decline in the overall female employment ratio was smaller in both regions than the declines in individual groups by years of schooling.

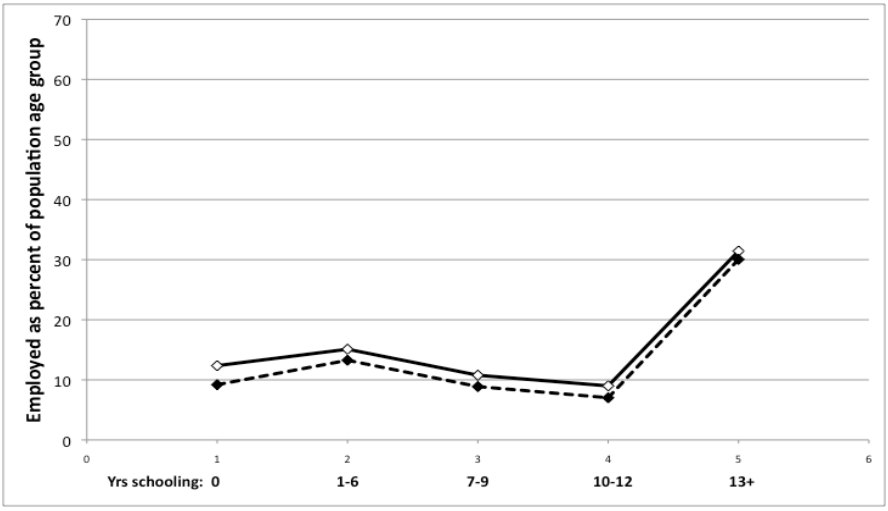
In the Gaza Strip, what stands out is that nearly the only women who are in the labor force are college-educated women, as shown in Figure 4.13d. This was true in *2006*, with ERs in all four groups of non-college-educated females that were no more than 4%, and it was even truer in 2010, when these four groups all had ERs of less than 1.5%. In contrast, the employment ratio for college-educated women stayed nearly constant, at 20.0% in 2006 and 20.1% in 2010, while the size of this group grew as more young women went to college. This group, then, explains the "tilt" in the age profile toward younger women, and it also explains why the employment ratio in the Gaza Strip as a whole hardly changed over this period.

Figure 4.13a: Employment ratio by years of schooling, West Bank males, 2006 (solid) & 2010 (dashed)



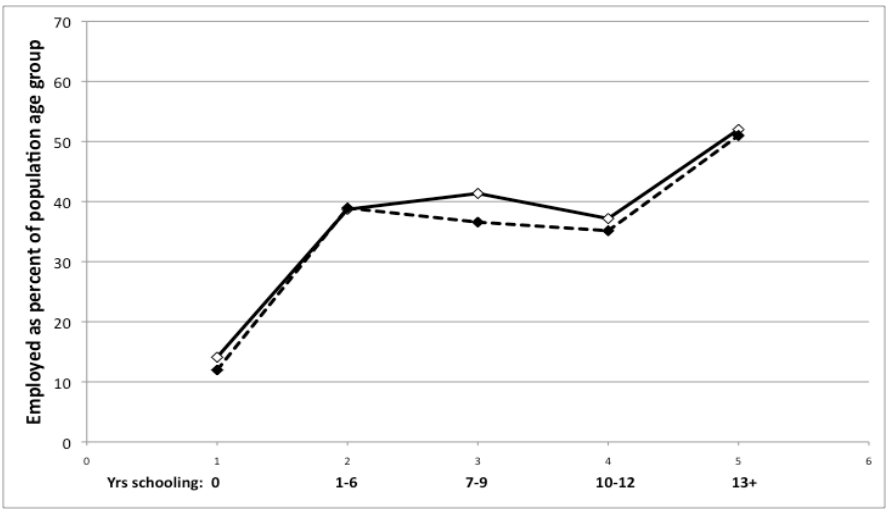
Source: Author's calculation from PCBS (2007, 2011b, Table 6).

Figure 4.13b: Employment ratio by years of schooling, West Bank females, 2006 (solid) & 2010 (dashed)



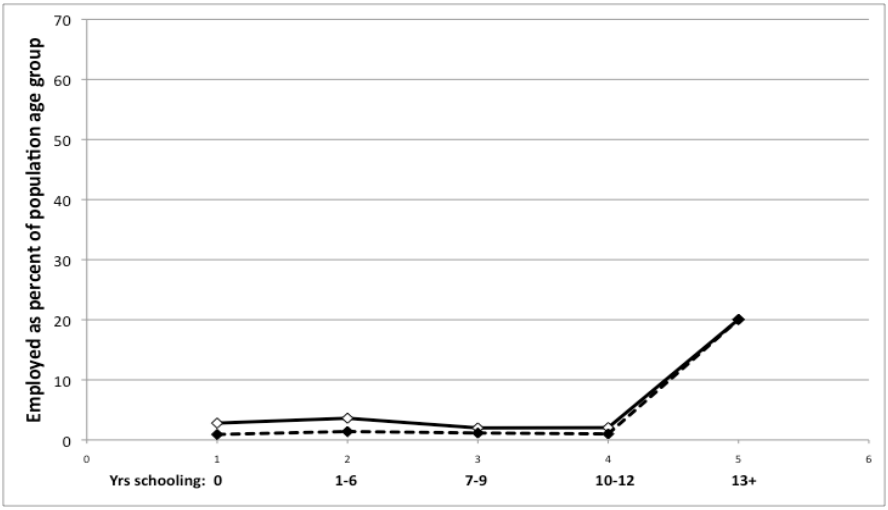
Source: Author's calculation from PCBS (2007, 2011b, Table 6).

Figure 4.13c: Employment ratio by years of schooling, Gaza Strip males, 2006 (solid) & 2010 (dashed)



Source: Author's calculation from PCBS (2007, 2011b, Table 7).

Figure 4.13d: Employment ratio by years of schooling, Gaza Strip females, 2006 (solid) & 2010 (dashed)



Source: Author's calculation from PCBS (2007, 2011b, Table 7).

For men, the only two groups by years of schooling whose ERs declined in both the West Bank and the Gaza Strip were the most and the least educated – those with at least some college, and those with no schooling at all (see Figures 4.12a, 4.13a, and 4.13c). In the Gaza Strip, the ER fell or stayed essentially the same for all groups; the ER of those with 7-9 years of schooling fell the most, by almost 5 percentage points, from 41.4% to 36.6%. Among West Bank males, the three middle groups by years of schooling did better than the groups with the highest and lowest levels of schooling: employment ratio of males with 10-12 years of schooling rose from 55.5% to 57.9%, while for those with 7-9 years of schooling it rose from 58.2% to 59.5%, and for those with 1-6 years of schooling it rose only from 56.1% to 56.9%.

4.8.2 Employment by refugee status and region

Refugees were not equal beneficiaries of economic growth in this period, for two reasons. One was that the majority of refugees live in the Gaza Strip, where they suffered through the economic catastrophe with everyone else. The other reason was that for those refugees living in the West Bank, the employment gap relative to non-refugees grew, as the employment ratio of non-refugees rose and the employment ratio of refugees fell. In this section we examine data from 2007 to 2010, because the Labor Force Survey only began publishing data on refugees in 2007.

Over this three-year period, employment ratios overall declined in the whole Palestinian territory, from 32.9% in 2007 to 31.4% in 2010, because employment did not keep pace with growth of the working age population.[21] However, for refugees in the Palestinian territory, the employment ratio not only was substantially lower than for non-refugees in 2007, but also fell further by 2010. In 2007, of working age refugees, 29.9% were employed, while of non-refugees, 35.1% were employed. By 2010, the employment ratio for refugees had fallen to 27.3%, a decline of 2.6 percentage points; for non-refugees the decline was to 33.9%, a fall of only 1.2 percentage points.

The patterns of change in employment ratios diverged in the West Bank and Gaza Strip. In the West Bank, refugees overall lost ground relative to non-refugees, even as in the whole West Bank, the employment ratio for everyone (including employment in Israel and the settlements) remained almost exactly constant, at 36.3% in 2007 and 36.2% in 2010. In the West Bank, the employment ratio for non-refugees rose somewhat, from 36.8% to 37.2%, while the employment ratio for refugees – already lower in 2007 at 34.9% – fell by 2010 to 33.3%, almost entirely due to a decline in refugees' LFPR. In other words, the initial gap of 1.9 percentage points between refugee and non-refugee employment ratios widened to a 3.9 percentage point gap. The data provided in PCBS (2008c) suggest no obvious demographic reason for this change, such as a strikingly different composition in terms of age or schooling among West Bank refugees.

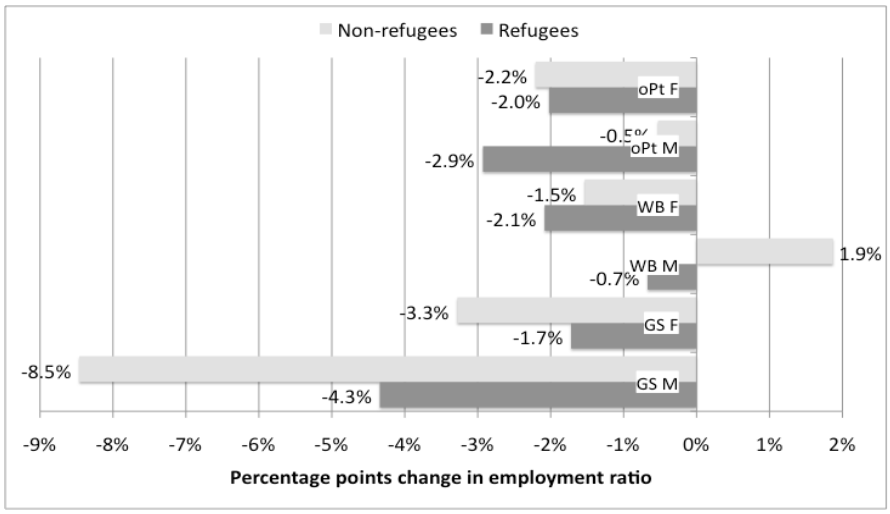
At the same time, however, in the West Bank, for those living in refugee camps, the employment ratio actually grew slightly from 30.7% to 31.2%, as the LFPR remained almost constant and the unemployment rate fell. The loss in employment ratio (and decline in LFPR) therefore was for refugees not living in refugee camps.

In the Gaza Strip, in 2007 refugees were disadvantaged by a substantially lower employment ratio (25.8%) than non-refugees (28.4%), but by 2010 the two groups' ERs had almost equalized (and refugees' ER was actually slightly higher than non-refugees'), as the ER for refugees fell by 3.0 percentage points, exactly half the 6.0 percentage point decline in the non-refugee ER (see Figure 4.14). This was bad news for both refugees and non-refugees, of course, but it was worse news for non-refugees. However, the fact that the bulk of refugees live in the Gaza Strip, and the fact that

[21] However, the employment ratio for the whole Palestinian territory was 31.3% in 2006, almost the same as in 2010. In 2007 there was a sudden rise in the LFPR and a significant drop in the unemployment rate.

they *did* lose a substantial number of jobs, meant that in the Palestinian economy as a whole refugees' employment situation worsened relative to non-refugees.

Figure 4.14: Number of percentage points change in employment ratio, refugees & non-refugees, 2007-2010, by sex (M, F) and region (oPt, West Bank, Gaza Strip)



Source: Author's calculation from PCBS (2007, 2011b, Table 19).

Employment by refugee status, region, and gender

In the West Bank, both male and female refugees had lower employment ratios than non-refugees, and for both genders the gap grew from 2007 to 2010. In 2007 in the West Bank, male refugees had an ER of 54.6%, several percentage points lower than the 57.5% ER of their non-refugee counterparts. By 2010 this gap had nearly doubled, as the ER for male refugees fell to 53.9%, while the ER for male non-refugees rose to 59.3%. Because the female LFPR is low, this widening gap faced by male refugees largely accounts for why the ER of the whole West Bank refugee population, male and female together, fell further behind the ER of the non-refugee population.

The West Bank female refugee ER also fell further behind the ER of non-refugee females, but only slightly. In 2007 female refugees' employment ratio was 14.8%, while for non-refugees it was 15.7%. By 2010 both numbers had fallen, but for female refugees the ER had fallen a little

further – to 12.7%, while for non-refugees it had declined just to 14.2%; hence a 0.9 percentage point gap grew to a 1.5 percentage point gap.

In this period the absolute employment situation of both refugees and non-refugees in the Gaza Strip worsened, but for non-refugees it worsened more. Hence the employment situation of refugees in the Gaza Strip, both male and female, improved relative to non-refugees. In fact, among male refugees, who in 2006 were disadvantaged by employment ratios lower than those of non-refugee males, the disadvantage had disappeared by 2010. Refugee females in the Gaza Strip already had a substantially *higher* employment ratio than non-refugee females in 2007, and this advantage had grown by 2010.

For Gazan males in 2007 the refugee ER, at 44%, was substantially below the non-refugee ER of 48% - a gap entirely explained by a large difference in labor force participation rates between refugee males (63%) and non-refugee males (68%), since their unemployment rates were almost exactly the same in 2007. By 2010 the non-refugee male ER had fallen about twice as far as the refugee male ER, so that the refugee and non-refugee male ERs were both 40%. This was because for non-refugee males in the Gaza Strip, there was both a larger drop by 2010 in their LFPR and a larger increase in their unemployment rate than for refugee males.

The employment position of Gazan refugee females relative to non-refugee females also improved, even as both groups' absolute position worsened. The difference from the male situation was that in 2007, female refugees' ER (8%) was already well above that of their non-refugee counterparts (7%). This advantage widened by 2010 because the female refugee ER fell only about half as far as the female non-refugee ER. This resulted partly from a divergence in labor force participation by the two groups, with refugee women's LFPR staying almost constant at about 12%, and non-refugee women's LFPR falling from 9% to 7%. The other contributing cause was an enormous increase in unemployment rates for both groups – with an increase that was even larger for female non-refugees (from 22% to 50%) than for female refugees (from 32% to 47%).[22]

[22] In examining data on women's employment in Gaza it is always useful to keep in mind that nearly all Gazan women in the labor force are college-educated.

4.9 Evidence of improvement in job quality

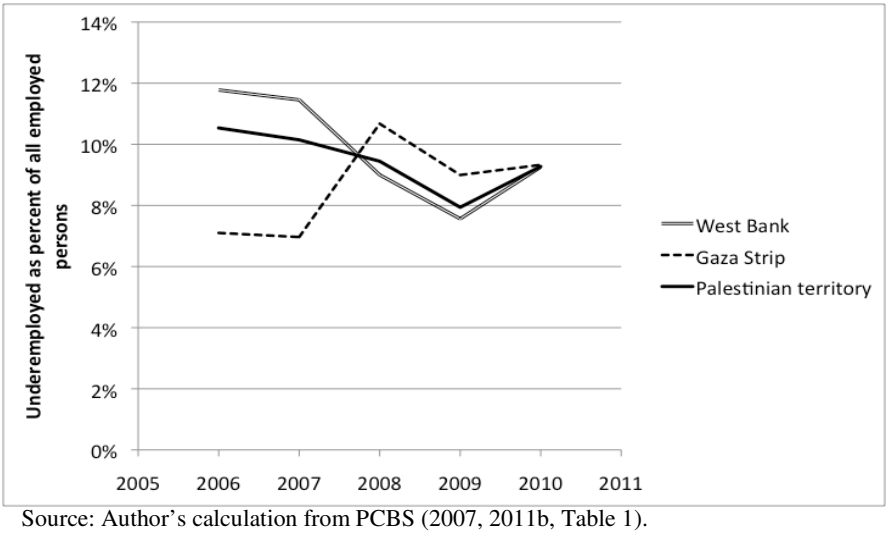
There is some evidence that the quality of work improved in the West Bank over this period, at least along certain dimensions. Such improvement is always a potential benefit of output growth. Growth can give marginal workers – those working part time, or intermittently, or for no explicit remuneration, or only in precarious self-employment – a chance to get regular, full time wage jobs. While we do not have comprehensive data that would allow a full assessment of changes in job quality, by several measures there was some improvement in job quality in the West Bank. The picture is more mixed in the Gaza Strip, where, for example, a much larger share of the workforce was engaged in casual or seasonal labor by 2010 than in the West Bank.

We consider two main indicators. One indicator is the percent of all employed persons who were underemployed.[23] There are three main reasons why a respondent is classified as underemployed under the operational definition used by the PCBS. One, defined as *visible* underemployment, is that the respondent either worked less than 35 hours per week, or else worked less than the normal hours of work in their occupation. The second and third reasons, both defined as *invisible* underemployment, are that a person who does not fit the definition of being visibly underemployed *either* wants to change jobs because of not receiving insufficient income, *or* works in an occupation that does not fit that person's qualifications.

In the West Bank the fraction of all those employed who were underemployed fell from 2006 to 2010, while in the Gaza Strip it rose. Figure 4.15 shows this shift in both regions. It also makes clear that the largest shift for the West Bank was from 2007 to 2009, when the share of all those employed who were underemployed fell in the West Bank from 11.5% to 7.6%, while in Gaza it rose in one year from 7.0% in 2007 to 10.7% in 2008. In both regions the trends partly reversed in the last year or two of the period, so that both ended up at 9.3%.

[23] As is standard, the PCBS reports underemployment as a percent of the labor force, so to get the number of underemployed as a share of all employed persons, we divide the underemployment rate by the sum of the employment rate and the underemployment rate.

Figure 4.15: Changes in underemployment as a percent of all employment, 2006-2010



Source: Author's calculation from PCBS (2007, 2011b, Table 1).

We must be cautious in interpreting the data, however, because an increase in the underemployment rate (the number underemployed as a percent of the labor force), and hence possibly in the share of all employed persons who were underemployed, could happen for either good or bad reasons. A good reason would be that those previously without work found part time employment, or employment that did not fit their qualifications, and so left the category of unemployed and joined the ranks of the underemployed. A bad reason would be that those previously fully and regularly employed in jobs that suited their qualifications had been forced to move into underemployment, that is, either to less than full time work or to work that did not suit their qualifications. Thus an increase in the underemployment rate, viewed in isolation, might be either a good or a bad thing, depending on the reasons for it.

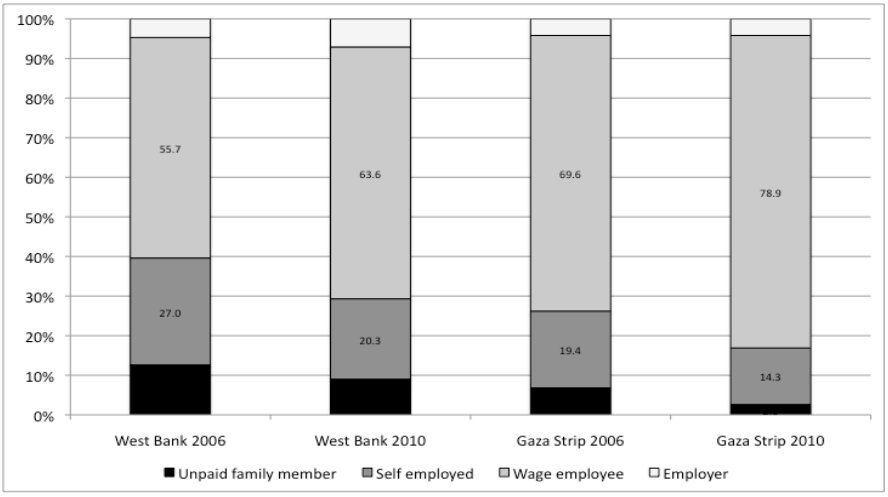
In this case, in the West Bank the number regularly employed[24] increased from 412,000 to 500,000 over the period, while the number underemployed actually fell from 55,000 to 51,000, so there was a clear gain in job quality in this sense. In the Gaza Strip, on the other hand, underemployment increased from 12,000 to 18,000, while regular employment grew from 169,000 to 193,000, so that, as noted above, underemployment grew as a share of total employment, suggesting an overall decline in job quality in this respect.

[24] "Regular" employment here means persons categorized as "employed" rather than "underemployed" in the PCBS Labor Force Survey.

There have been other job quality concerns in the Gaza Strip as well, notably the increase in the number of very dangerous jobs working in tunnels (Pelham 2011). In addition, in 2010 a much larger share of employment in Gaza was reported to be casual or seasonal than in the West Bank. Fully 92% of wage employees in the West Bank had permanent full-time work, while only 62% of wage workers in the Gaza Strip did. Put another way, 32% of Gazan wage employees held seasonal or casual jobs, but only 5% of wage employees in the West Bank did (PCBS 2011b: Table 65). These data only began to be reported in 2010, so we have no comparison with earlier years.

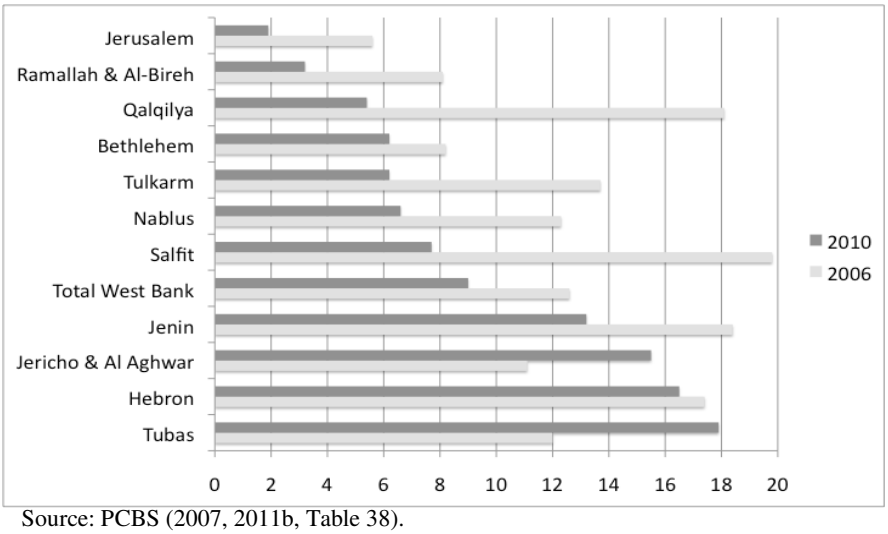
As mentioned in section 4.4, from 2006 to 2010 a rather large number of employed persons shifted out of unpaid employment in a family business, and many of them became wage employees (see Figures 4.16 and 4.17). For the economy as a whole, the share of all those employed who were wage employees increased from 59% in 2006 to 68% in 2010 (LFS: Table 38). The same happened in the West Bank, with wage employment growing from 56% to 64% of the total, while in Gaza wage employment was already a higher share (70%) of the total number employed, and rose even more over the period, to 79%. The increase in Gaza was likely due partly to an increase in public employment as a share of the total, partly to employment generation projects by NGOs, and partly to wage employment in the tunnel economy. In the West Bank increased employment in Israel and the settlements likely played some role.

Figure 4.16: Percent of all employed persons who are unpaid family members, self-employed, wage employees, or employers



Source: PCBS (2007, 2011b, Table 38).

Figure 4.1: Unpaid family members as percent of all employed persons, West Bank, by governorate, 2006 and 2010

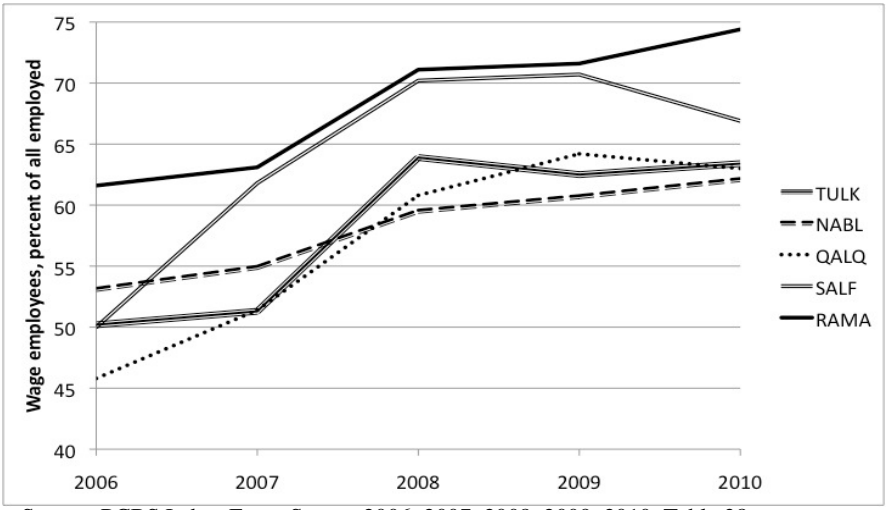


Source: PCBS (2007, 2011b, Table 38).

The shift out of either self-employment or else unpaid work as a family member was concentrated in a few governorates: in the West Bank, the largest increases in wage employment as a share of all employment were in Qalqilya (+17 percentage points), Salfit (+17), Tulkarm (+13), Ramallah/al-Bireh (+13), and Bethlehem (+10) (see Figure 4.18). In contrast, in Hebron there was only a 2 percentage point increase in wage employment over the period. The changes in the West Bank may partly reflect the 16,000 or so added jobs in construction in Israel and the settlements, since the three governorates where wage employment increased by the largest number of percentage points (Qalqilya, Salfit, Tulkarm) are also those where construction employment increased the most as a share of all employment. In addition, the main jump in wage employment's share in these governorates took place in 2008, as Figure 4.18 shows. This was also the first year of a three-year rising trend in the average daily wage in Israel and the settlements, from 130.1 NIS in 2007 to 138.3 NIS in 2008, rising further in annual increments of about 10 shekels each to 158.0 NIS in 2010.

As for the Gaza Strip, there was a 16 percentage point increase in wage employees' share in all employment in the governorate of Rafah, while Deir al-Balah had only a 6 percentage point increase, and the other three governorates had increases in the 8 to 9 percentage point range.

Figure 4.18 Wage employees as share of all employed persons in selected West Bank governorates, 2006-2010



Source: PCBS Labor Force Survey 2006, 2007, 2008, 2009, 2010, Table 38.

Can we interpret these changes as an overall improvement in job quality? A shift from unpaid work for a family business to paid employment appears likely to be generally regarded as a clear improvement in job quality if it is a voluntary change. A shift to self-employment in the context of a growing economy would probably be regarded as an improvement, and a shift from any other category to employer almost surely would be. Hence in this dimension, job quality can probably be judged to have risen in the West Bank.

The same was not necessarily true in the Gaza Strip over this period, however. The shift away from self-employment and employer status surely resulted in large part from the collapse of many businesses there, and so very likely reflects a decline in job quality, in the sense that those who preferred to work for themselves were no longer able to do so.

4.10 Weekly hours and monthly days worked

Average weekly work hours and average monthly workdays did not show strong trends over the period. As with employment, the change in weekly work hours somewhat reflects an economy that grew robustly in the West Bank and stagnated in the Gaza Strip. Average weekly hours grew in the West Bank from 42.2 in 2006 to 43.3 in 2010, although they fluctuated in

the intervening years, while in Gaza weekly hours fell from 39.9 to 38.8, but were higher in some intervening years. Average monthly workdays fell in both the West Bank (from 23.1 in 2006 to 22.2 in 2010) and the Gaza Strip (from 24.0 to 23.4), with some ups and downs in the interim. These may be largely composition effects, as the average number of days worked per month by new hires might be lower than for existing employees, and so might drag down the average for all employees.

4.11 Conclusion

Employment grew substantially in both the West Bank and the Gaza Strip, and the hundred thousand who newly gained employment – mostly wage employment – were clearly among the beneficiaries of growth in real GDP. Even when we focus exclusively on employment gains flowing from Palestinian production, leaving out new employment in Israel and the settlements, these employment gains are somewhat above what would be expected, based on the world average output elasticity of employment. Gains in private sector employment outpaced gains in public sector employment in the West Bank, but the reverse was true in the Gaza Strip. There is evidence of gains in the West Bank in the quality of employment as well as the quantity, while in the Gaza Strip the evidence of quality changes is quite mixed.

At the beginning of this period there was considerable slack in the labor market, in the forms of both unemployment and underemployment, and this partly explains the failure of the unemployment rate to fall; another part of the explanation is very rapid labor force growth, by world standards. Four years of rapid GDP growth in the West Bank managed to take up much of the slack, squeezing out some of the underemployment and pulling previous unpaid workers into income-earning employment. This suggests that by the end of this period, the economy was poised for a more rapid decline in the West Bank unemployment rate, and a consequent decline in the Palestinian territory unemployment rate as well, particularly as the economy revived in the Gaza Strip in 2011.

This chapter has found that among the main beneficiaries of growth in this period were West Bank males, whose employment grew at a faster rate than employment as a whole, and young college-educated women in the Gaza Strip, whose employment grew at about the same rate as the female working age population. Those who missed out on the benefits of new employment included Gazan males aged 15-24. As for refugees, the

decline in their employment ratio was less than for non-refugees in the Gaza Strip, and they did make some absolute gains in employment; and in the West Bank refugees, despite being disadvantaged relative to non-refugees, did make some absolute gains in employment as well. However, because the majority of refugees live in the Gaza Strip, hard-hit by blockade and consequent economic crisis, refugees overall did not share proportionately in the gains from increased employment.

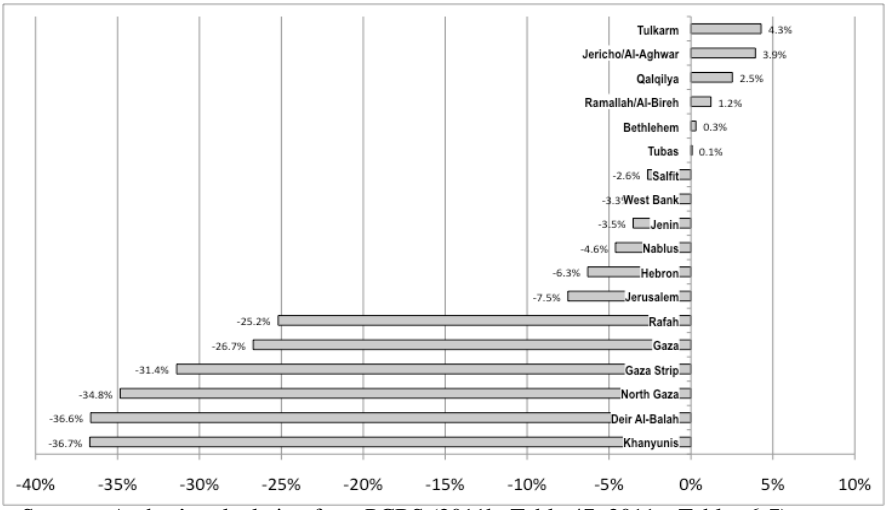
Benefits of growth in real GDP may flow partly to employment, partly to wages or salaries per person, and partly to non-labor incomes. The next chapter will investigate who were the main beneficiaries in terms of wages and other incomes.

Chapter 5:
Changes in labor incomes

5.1 Stagnation in real wages

While employment for all who seek it is an important policy goal, it is also important that work be adequately paid, and that the fruits of growing labor productivity should be divided fairly between labor and non-labor incomes. During 2006-2010, we have seen that wage employment rose 30% in the Palestinian economy. However, the news about wages was not nearly so good.

Figure 5.1: Percent change in real average daily wage, by governorate and region, 2006-2010



Sources: Author's calculation from PCBS (2011b, Table 47; 2011c, Tables 6-7).

Real average daily wages fell in both the West Bank and the Gaza Strip, although they rose for Palestinians working in Israel and the settlements. In the West Bank the change for wage employees in the Palestinian economy proper was -3.3%, the result of a cumulative increase in the nominal average daily wage of 12.2% (from 76.5 to 85.8 NIS) and cumulative inflation of 16.0%. In the Gaza Strip, the change in the real average daily wage was a catastrophic -31.4%, the result of a -15.7% change in the nominal average daily wage (from 69.0 to 58.2 NIS) and

22.9% inflation in consumer prices over 2006-2010.[25] Figure 5.1 shows these changes, as well as wage changes by governorate discussed in the next section. The net effect for the Palestinian economy as a whole was a change of -11.4% in the real average daily wage, as the nominal average daily wage rose by only a cumulative 5.7% (from 73.7 to 77.9 NIS) while cumulative inflation was 19.3%.

5.2 Wage changes by governorate and sector in the Palestinian economy

Using region-wide Consumer Price Indexes to calculate the cumulative change in real wages by governorate during 2006-2010, we find that all Gazan governorates suffered declines of 25% or more in real average daily wages, while six West Bank governorates enjoyed modest cumulative increases in real daily wages, and six suffered declines of 2% to 8%. It would, of course, be far preferable to use CPIs by governorate or municipality, but such are not available. Hence it needs to be understood that all these "real average daily wages" by governorate are only rough approximations.

The governorates with the largest nominal wage increases in percentage terms were Tulkarm, Jericho/Al-Aghwar, Qalqilya, Ramallah/Al-Bireh, and Bethlehem, and it is in these governorates that, if local inflation rates were similar to region-wide inflation rates, wage employees may have received small increases in their real wages. Since both Tulkarm and Qalqilya have terminals through which workers cross into Israel, it is likely that the real wage increase there is the indirect result of the increase in employment and wages in Israel and the settlements, either because local employers had to raise wages to prevent their workers from leaving to work in Israel, or because the general increase in incomes allowed local businesses to pay higher wages, or both.

In the West Bank, the largest declines in real wages were in Hebron and Jerusalem. In Hebron, the real average daily wage dropped 6.3%, probably caused by a combination of the continuing destruction of commercial life by encroaching settlers, together with the decline of Hebron industrial production in the face of cheaper imports from China. In Jerusalem, the daily wage fell 7.5%, likely a result of the tightening circle of settlements and the Wall, making it increasingly more difficult for those living in the

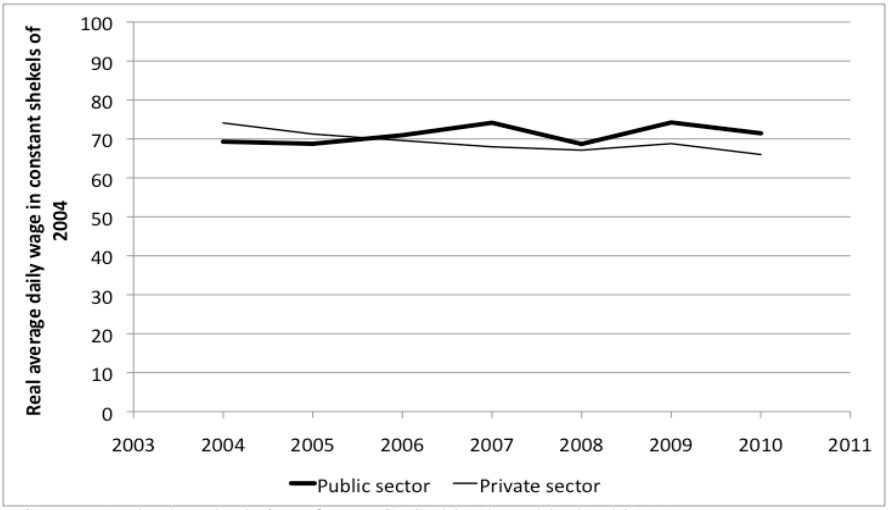
[25] West Bank: (100% + 12.2%)/(100% + 16.0%) = 96.7% = 100% - 3.3%.
Gaza Strip: (100% - 15.7%)/(100% + 22.9%) = 68.6% = 100% - 31.4%.

Jerusalem governorate in the West Bank to carry on commerce with the city of Jerusalem.

In Gaza, the collapse of real wages was on a devastating scale, with Rafah, the center of the tunnel economy and the governorate least hurt, facing a 25% decline, and the hardest hit, Deir al-Balah and Khanyounis, both suffering a more than 36% decline in the real average daily wage.

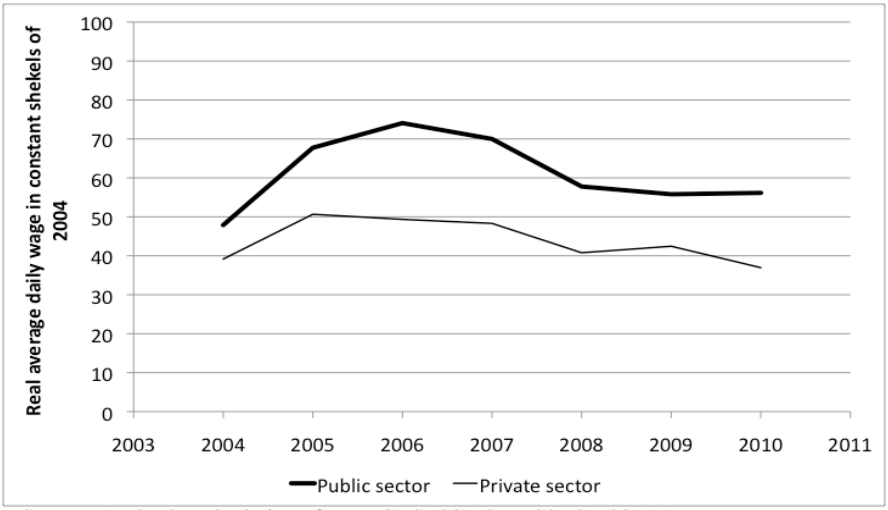
Public sector wages remained above private sector wages in both the West Bank and Gaza Strip throughout 2006-2010. Expressing all the following data in constant NIS of 2004, in the West Bank in 2006, the real average daily wage in the public sector was 71.0 NIS, higher than the real wage of 69.6 NIS in the private sector (Figure 5.2a). This gap widened by 2010, as the private sector real daily wage fell to 66.0 NIS while the public sector wage rose slightly to 71.4 NIS. In the Gaza Strip the contrast between the two sectors was far larger: in the public sector the real average daily wage in 2006 peaked at 74.1 NIS, about 50% higher than the private sector wage of 49.3 NIS in that year (Figure 5.2b). Real wages in both sectors then fell, so that by 2010 the public sector wage was 56.1 NIS, still about 50% higher than the private sector wage, which had fallen to 37.0 NIS.

Figure 5.2a: Public and private sector real average daily wage, West Bank, 2004-2010



Source: Author's calculations from PCBS (2011b, Table 41; 2011c)

Figure 5.2b Public and private sector real average daily wage, Gaza Strip, 2004-2010



Source: Author's calculations from PCBS (2011b, Table 41; 2011c).

5.3 Wage changes for West Bank Palestinians working in Israel and the settlements

The only substantial group of Palestinian workers for which real wages clearly grew faster than consumer prices was those employed in Israel and the settlements. For this group, which in 2006 was already earning on average 1.69 times the daily wage of other West Bank workers, the average nominal daily wage grew from 129.8 NIS in 2006 to 158.0 NIS in 2010, a rise of 22%, for an increase in the real average daily wage for workers in Israel and the settlements of 5% (author's calculation from PCBS 2011b, Table 46; 2011c). The ratio of the average daily wage for these workers to the average daily wage of all other West Bank wage employees also grew from 1.69 to 1.84, growth that took place entirely in 2009 and 2010. Wages from Israel and the settlements provided 18% of all wage income in the Palestinian territories in 2010, up from 14% in 2006 (author's calculation from PCBS 2011b, Table 41).

Employee compensation to Palestinians working in Israel and the settlements has been a substantial and increasing flow into the Palestinian economy. Palestinians in the West Bank and Gaza received, in current dollars, $577 million in net employee compensation from abroad in 2010,

and this likely included at least $530 million from Israel;[26] this was up from $314 million in total net employee compensation from abroad in 2006, of which probably about $270 million was from Israel (PCBS 2009b, 2012). However, these figures do not take into account the cost of a permit to work in the settlements, reported at 23 NIS per day in 2012 (Abu-Saadi 2012). If the cost per permit was unchanged from 2006 to 2010, this amounted to about $46 million in 2006 (about 35,000 permits issued) and $76 million in 2010 (about 50,000 permits issued).[27] The approximately $230 million increase from 2006 to 2010 is a rather large inflow of funds from employment in Israel and the settlements upon which the Palestinian economy is becoming increasingly dependent. This is not directly a contribution to GDP, of course, since it does not represent domestic production, but it is a contribution to Gross National Income. The remainder of this chapter largely ignores these income flows, because we are interested in who received the proceeds of growth in Palestinian real GDP.

5.4 The real wage bill

An important question is whether the labor share of value added has been rising or falling. If falling, the benefits of GDP growth will go disproportionately to non-labor incomes such as profit, interest, and rent. We are interested both in what happened overall, and whether employee compensation as a share of value added rose or fell in particular sectors. The data allow us to approach this question in two ways. The first is by estimating the real wage bill by using Labor Force Survey data on the nominal average daily wage and the number of monthly days worked, together with data on the CPI.

The real wage bill in the Palestinian economy rose only modestly during this period, as shown in Table 5.1. If the real average daily wage had remained constant in real terms and average days worked had been unchanged, the 30% increase in wage employment would have produced the same percent increase in the wage bill (30%). Since real GDP grew by 33% in the whole economy, this would have meant that labor's share of

[26] Balance of payments data from the Palestine Monetary Authority show that $1,077.2 million was received in net employee compensation in 2010, of which $991.2 million was from Israel. However, this includes recipients in East Jerusalem, while the PCBS figure for total net employee compensation from abroad does not. If we assume that, of total net employee compensation received from abroad by Palestinians in the West Bank and Gaza, the share that comes from Israel is the same as it is for the Palestinian territories *including* East Jerusalem, then net employee compensation from abroad to Palestinians in the West Bank and Gaza would be (991.2/1077.4)($577.4 million) = $531.2 million.

[27] The cost of permits is deducted in a separate item on the balance of payments (Musa 2012).

value added had stayed nearly constant. Instead, the real wage bill rose by just 11.6% from 2006 to 2010, the result of about a 30% increase in wage employment, a 3.4% decline in average days worked per month, and an 11.4% decline in the real average daily wage. So the fact that the wage bill grew much more slowly than value added simply means that labor's share of value added fell. Much of this fall occurred in the Gaza Strip. In the West Bank, the wage bill grew 21.8%. In the Gaza Strip it *fell* 13.4%, so that the much larger number of wage employees in 2010 were dividing up a much smaller stream of income than in 2006.

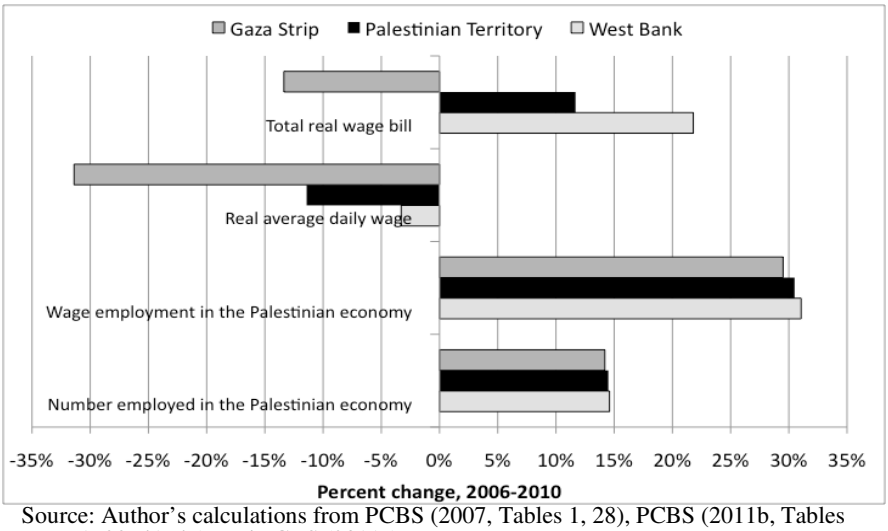
Table 5.1: Nominal and real average daily wage, and annual real wage bill, 2006 and 2010, and percent change. All data are for the Palestinian economy, excluding employment and wages of Palestinians working in Israel and the settlements

PALESTINIAN TERRITORY	2006	2010	Change	Percent change
Number of wage employees (thousands)*	325	425	99	30.5%
Nominal average daily wage	73.7	77.9	4.2	5.7%
Consumer Price Index (base year = 2004)	108.11	129.00		19.3%
Real average daily wage (2004 NIS)	68.2	60.4	-7.8	-11.4%
Monthly days worked	23.4	22.6	-0.8	-3.4%
Total real wage bill (billions of 2004 NIS)	6.23	6.96	0.73	11.7%
WEST BANK	**2006**	**2010**	**Change**	**Percent change**
Number of wage employees (thousands)*	208	272	65	31.1%
Nominal average daily wage	76.5	85.8	9.3	12.2%
Consumer Price Index (base year = 2004)	109.22	126.67		16.0%
Real average daily wage (2004 NIS)	70.0	67.7	-2.3	-3.3%
Monthly days worked	23.1	22.2	-0.9	-3.9%
Total real wage bill (billions of 2004 NIS)	4.03	4.91	0.88	21.8%
GAZA STRIP	**2006**	**2010**	**Change**	**Percent change**
Number of wage employees (thousands)	117.6	152.3	35	29.5%
Nominal average daily wage	69.0	58.2	-10.8	-15.7%
Consumer Price Index (base year = 2004)	107.20	131.79		22.9%
Real average daily wage (2004 NIS)	64.4	44.2	-20.2	-31.4%
Monthly days worked	24.0	23.4	-0.6	-2.5%
Total real wage bill (billions of 2004 NIS)	2.18	1.89	-0.29	-13.4%

* Number of wage employees for 2010 is a lower bound. See note to Table 4.3.
The number of wage employees was calculated from data in PCBS (2007: Tables 1 and 28), and PCBS (2011b: Tables 1, 38, and 41). Using the number of wage employees in the private and in the public sector resulting from these calculations, monthly days worked were calculated, using separate data on private and public sector monthly days worked. Nominal average daily wage is from PCBS (2011b, Table 47), which excludes Palestinians working in Israel and the settlements. CPIs are from PCBS (2011c).

Figure 5.3 summarizes this report's findings about changes in employment, real wages and the real wage bill in the West Bank, the Gaza Strip, and the whole Palestinian economy, excluding Israel and the settlements.

Figure 5.3 Percent change in employment, wage employment, real daily wage, and total real wage bill in the Palestinian economy, 2006-2010



Source: Author's calculations from PCBS (2007, Tables 1, 28), PCBS (2011b, Tables 1, 38, 41, 47), and PCBS (2011c).

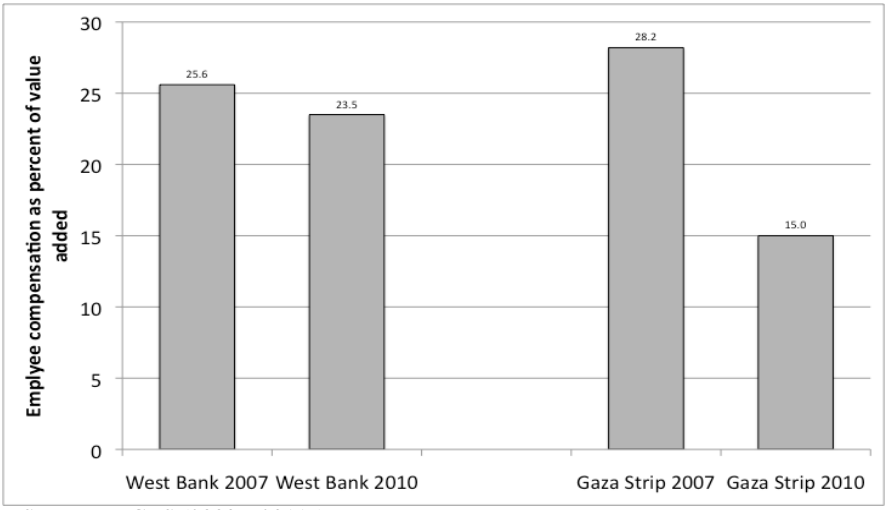
5.5 Employee compensation share of value added

The second kind of data we can use to determine labor's share of value added is Economic Survey data. In Palestine, employee compensation consists largely of wages. As of 2007 – the last time when details of compensation were published in the Economic Survey (ES) report – benefits (at least the way they are defined in the ES) were only about 4% of total compensation, and the other 96% were wage payments (PCBS 2009a). We therefore expect movements in employee compensation to parallel movements in wages.

In view of the decline in real wages already described, it is not surprising that overall ES data show compensation as a share of value added declining from 25.6% in 2007 to 23.5% in 2010 in the West Bank in the

sectors surveyed (see Figure 5.4).[28] Actually, this measure had been declining for the whole Palestinian territory since 1999, falling from 28.2% in 1999 to 21.6% in 2010. The decline averaged about 0.5 percentage points per year, but then from 2009 to 2010 it suddenly fell by almost two percentage points, from 23.2% to 21.6%. This is largely because in the Gaza Strip employee compensation as a share of value added dropped precipitously, from 28.2% in 2007 to 15.0% in 2010, with the largest part of this decline occurring in 2010.

Figure 5.4 Employee compensation as share of value added, all sectors, 2007 and 2010



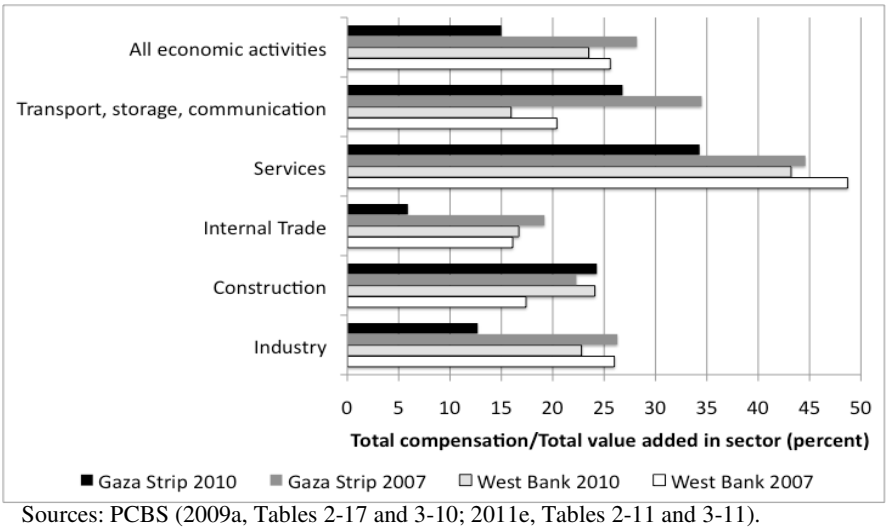
Sources: PCBS (2009a, 2011e).

Figure 5.5 shows the decline in labor's share of value added in most of the five broadly defined sectors in both the West Bank and the Gaza Strip from 2007 to 2010, with the largest decline occurring in the Gaza Strip, except for the construction sector. That is, for Gaza, the black bars for 2010 are much shorter than the dark grey bars for 2007 in all sectors but construction, where there was a slight increase in labor's share of value added. For the West Bank, the light grey bars for 2010 are somewhat shorter than the white bars for 2007 in three sectors, showing the decline in labor's share, while in construction and internal trade labor's share of

[28] The first year in which accurate data for the West Bank and Gaza Strip are reported separately was 2007. Data for 1998-2006 were revised, and only a limited number of series was published in the book of revised data (PCBS 2009d).

value added slightly grew. Overall, however, the top set of bars shows that labor's share dropped in both regions.

Figure 5.5: Total compensation to wage employees as share of gross value added, 2007 and 2010, West Bank and Gaza Strip Data are from the annual Economic Survey

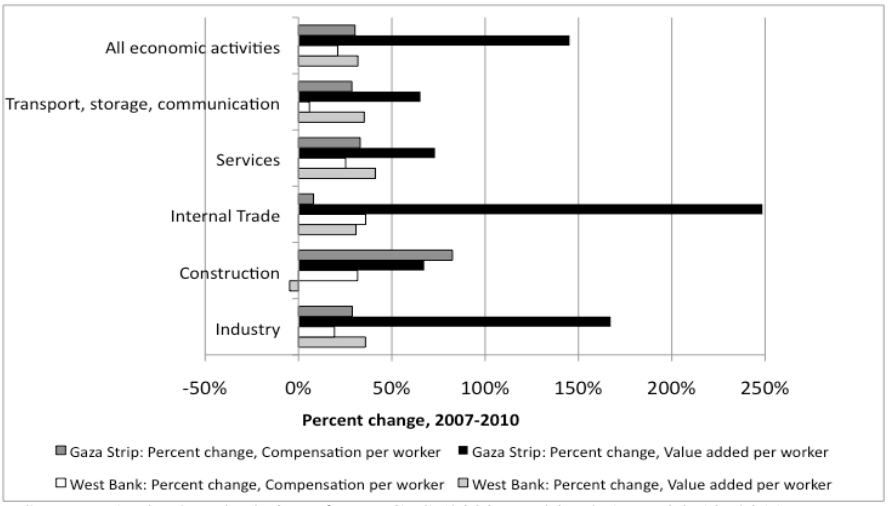


Sources: PCBS (2009a, Tables 2-17 and 3-10; 2011e, Tables 2-11 and 3-11).

Figure 5.6 displays the same information in a different way that emphasizes the key points. For 2007[29] to 2010 it compares the growth in the level of compensation per wage employee to the growth in the level of value added per wage employee, both measured in nominal terms, in the same five broadly defined sectors, again for the West Bank and the Gaza Strip separately. The black bars show the considerable growth in nominal value added per wage employee in Gaza, far exceeding the length of the dark grey bars showing growth in nominal compensation per wage employee. In the West Bank, the light grey bars are longer than the white bars, showing a similar but less dramatic comparison between substantial growth in the value added out of which labor compensation is paid, but little resulting growth in employee compensation.

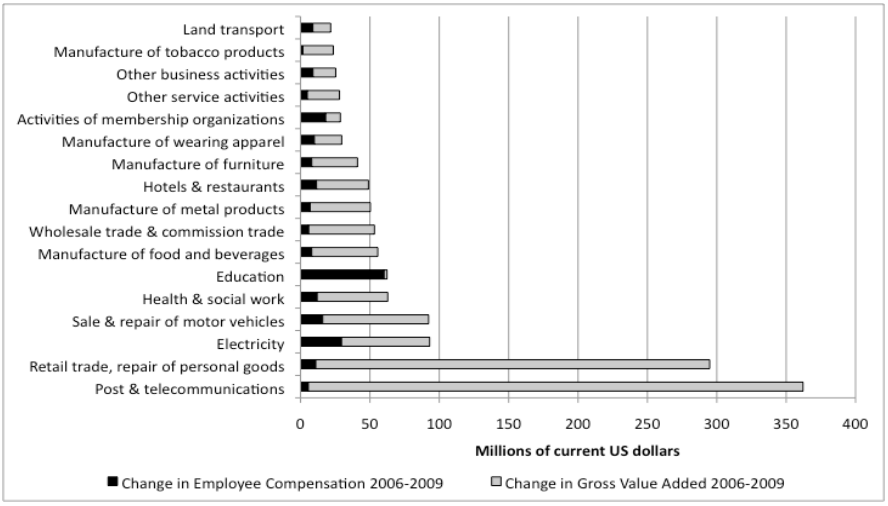
[29] The revised 2006 data are not disaggregated by region, so we use 2007 data instead.

Figure 5.6: Percent change in compensation per wage employee and value added per wage employee, five broad economic activities, West Bank and Gaza Strip, 2007-2010



Sources: Author's calculations from PCBS (2009a, Tables 2-17 and 3-10; 2011e, Tables 2-11 and 3-11).

Figure 5.7: Change in sectoral employee compensation (black) and sectoral Gross Value Added (whole bar), 2006 to 2009, ISIC sectors in which Gross Value Added grew by at least $20 million



Source: Author's calculation from PCBS (2009d, 2010c).

A more disaggregated look at those relative large and rapidly growing ISIC 2-digit sectors whose nominal Gross Value Added grew at least $20 million from 2006 to 2009[30] shows that very little of the added value went to employee compensation, except in the *Education*, *Activities of membership organizations*, and *Electricity* sectors (Figure 5.7).

If we look at a slightly different group of sectors (though with considerable overlap), those with at least $40 million in nominal GVA in 2006 in the whole Palestinian Territory, we can compare the changes in labor shares of value added in rapidly growing and slowly growing sectors (Figure 5.8). These sectors together produced about 90% of total nominal value added in the sectors surveyed in both 2006 and 2009, and about 40% of nominal GDP in 2009. The horizontal axis measures how rapidly each sector grew relative to the average for the whole group of sectors depicted. More precisely, the horizontal coordinate of each point plotted is sectoral growth in nominal GVA from 2006 to 2009, minus the average growth rate for the whole group of large sectors. On average, these sectors enjoyed 57% nominal growth. So, for example, the Education sector, with 60% growth in nominal Gross Value Added, has a horizontal coordinate of 3%. The vertical coordinate is the change in labor's share of value added from 2006 to 2009. The Education sector had an increase of 7 percentage points in labor's share of value added (from 77% to 84%), so its vertical coordinate is 7%.

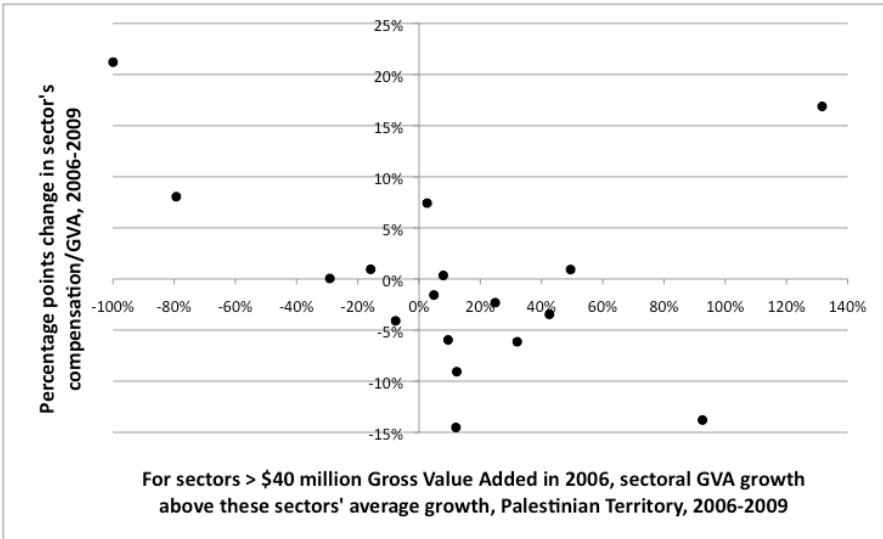
It is striking that 8 of the 17 data points are in the "southeast" quadrant in Figure 5.8, with higher than average growth rates of nominal value added, and yet with falling employee compensation shares of value added. The most striking of these is the *Post and telecommunications* sector – about which more below – with a 93% increase in nominal value added *over and above* the average 57% increase, and a decline in labor's share of value added from 25% to 11%.

In the northeast quadrant there are only four points, and they are near the axes, indicating that for the most part those sectors with rapidly growing GVA did not have rising shares of employee compensation. The most striking case here is *Electricity*, the point at the upper right, where a 189% increase in nominal value added was reportedly accompanied by an increase in the labor share of value added from 6% in 2006 to 23% in

[30] Because the PCBS switched to the ISIC Rev. 4 classification of sectors in 2010, we must use data for 2006-2009. Using data for 2006 means that we cannot separately look at the West Bank and Gaza Strip, since data for these two regions are not separately reported in the revised data issued in 2009.

2009. Two other sectors just above, or on, the horizontal axis had rapid growth, and they shared it proportionately with their employees; these were *Land transport* (49% growth above average; 1 percentage point growth in labor's share of value added) and *Sale and repair of motor vehicles* (8% growth above average; no change in labor's share). Two of three sectors with growth rates somewhat below average also had falling labor shares; the third, *Wholesale trade and commission trade*, had a marginally higher labor share with a rate of nominal growth in GVA that implied virtually no real growth. Finally, two sectors with shrinking nominal value added had growing labor shares of value added: *Construction*, whose nominal GVA shrank by 43% over the period (but recovered partly in the following year, 2010) and *Manufacture of non-metallic products*, whose nominal GVA shrank by 22%. If we leave out the electricity sector, the data show fairly strong evidence that rapid sectoral growth was associated with a declining labor share of value added, and slow sectoral growth with an increasing labor share.

Figure 5.8: For large sectors (over $40 million Gross Value Added in 2006), growth in labor share of value added plotted against above these sectors' average growth in nominal GVA, 2006-2009



Source: Author's calculations from Economic Survey data (PCBS 2009d, 2010c).

Note: For all seventeen large sectors, mean growth in nominal GVA was 57%, so 0% on the horizontal axis represents 57% growth in nominal GVA. Vertical axis is the number of percentage points by which the sector's employee compensation as a percent of GVA changed from 2006 to 2009.

In Chapter 3 we saw the contrast between the two sectors that were largest in value added in 2009, *Retail trade, repair of personal goods* and *Post and telecommunications*, illustrating the continuing prevalence of tiny microenterprises as a predominant form of commercial activity, in contrast with rising new, larger enterprises based on technology and in some cases on economic rents from monopoly, or from resources priced too low. Here we focus on the division between labor and non-labor incomes in these two sectors.

These two sectors had both fast growing GVA and among the largest declines in labor share of GVA. *Post and telecommunications*, with $241.7 million in GVA in 2006, grew to $604 million in 2009, while employee compensation only grew from $59 million to $65.0 million; as a result, labor's share of value added fell from 25% to 11% in this sector. The enormous *Retail trade, repair of personal goods* sector, with $442 million in GVA in 2006, grew to $737 million in GVA (in current dollars), but employee compensation only grew from $82 million to $93 million, and the labor share of value added fell from 19% to 13%.

Retail trade, however, is a sector of microenterprises. The 97,000 persons employed in this sector in 2009 made up over 75% of all employment in *Internal trade activities*, one of the five broad aggregated sectors in the Economic Survey, and more than one-eighth of the total 718,000 persons reported employed in the entire Palestinian economy in the Labor Force Survey. While the Palestinian private sector largely consists of micro- and small enterprises, this sector is even more so: in 2010 the average number working in an establishment was 1.9, including the proprietor. This is the third smallest average firm size among all 2-digit ISIC sectors, and well below the average of 2.9 for all the sectors in the Economic Survey. In fact, in the 2007 Establishment Census used as a basis for the annual Economic Surveys, 97.0% of the establishments in *Retail trade* had 4 or fewer people working in them, and 99.6% had 9 or fewer.

Throughout the period 2006-2010, 75% or more of those working in retail trade were classified as unpaid, either because they were proprietors and did not receive an explicit wage, or because they were unpaid family members working in the business. It is hardly surprising, then, that in the West Bank the share of employee compensation in value added in retail trade was only 18% in 2007, and considerably lower, 12%, in 2009, lower than the 25% average among all ISIC 2-digit sectors. A similar trend occurred in retail trade in the Gaza Strip, with employee compensation 18% in 2007 and only 14% in 2009.

The second largest sector in 2009, *Post and telecommunications*, is the polar opposite. It employed only 3,769 persons in 2006, and this rose to just 4,893 in 2009. Meanwhile, in nominal terms its Gross Value Added much more than doubled, from $242 million to $604 million, while employee compensation grew more slowly than employment, from just $59 million in 2006 to $65 million in 2009 in nominal terms. This meant that the share of employee compensation in GVA fell from 25% in 2006 to 11% in 2009, so that the bulk of growth in value added went to non-labor incomes. Paltel, the major firm in this sector during this period, had net operating revenues of over $400 million in both 2010 and 2009, and pre-tax accounting profits of over $100 million annually in 2008-2010. The net income of Palcel (Jawwal), part of the Paltel group, was exempted from taxation from at least 2004 through 2010 by the Palestinian Council of Ministers, and partly as a result the income tax rate paid by the whole Paltel group averaged less than 2% per year during 2006-2010. However, Paltel did also pay license fees to the Palestinian Authority, amounting in 2008-2010 to over $30 million per year. In 2009 and 2010 Paltel earned about $100 million in profit, paid out $60-$70 million of this in dividends, and kept over $20 million in 2009, and over $50 million in 2010, as retained earnings (Paltel Group 2007, 2009, 2011). Paltel stockholders are therefore clearly among the beneficiaries of growth in the Palestinian economy.

The banking sector also recorded spectacular growth in nominal profits, from $51.5 million in 2006 to $139.9 million in 2010, an increase of 172% (PMA 2011). There is no need to trace in great detail the distribution of value added nationwide to various income recipients, but clearly there were various beneficiaries of growth who received non-labor incomes.

5.6 The gender pay gap

Changes in the gender pay gap, overall and by sector, were somewhat mixed during the period of this study. From 2006 to 2010 during the West Bank's economic boom, the majority of women wage employees worked in the *Services and Other Branches* sector, where by one measure the gender pay differential is relatively small, and by another there is rough parity in pay, unlike in other sectors. The pay gap in other broad sectors is rather large, and although in some of them the gap shrank over 2006-2010, in the sector with the largest pay gap (manufacturing), there was virtually no change. Even in the service sector, women's pay deteriorated relative to men's. Because that is the sector in which the bulk of women worked for wages, women's overall wages fell both in real terms, and relative to men's.

As Table 5.2 shows, for the whole Palestinian territory women's nominal average daily wage of 72.1 NIS was 85% of men's in 2006, but this rose only modestly, to 77.1 NIS in 2010, and so declined to 82% of men's daily wage. This was also a loss in real daily wages, because the nominal increase was just 7% while the Consumer Price Index rose 19%. In fact, the real average daily wage fell for both men and women, but for women it fell further. For wage employees overall, this increasing gender pay differential is not explained by any change in weekly hours worked. In 2010, just as in 2006, women worked on average 87% of the weekly hours that men worked.

Table 5.2 Wages and hours/days worked, by economic activity and sex, 2006-2010, for wage employees in the Palestinian territory

	2010			**2006**		
Economic Activity and Sex	[A]	[B]	[C]	[D]	[E]	[F]
All quantities are averages	**Daily**	**Monthly**	**Weekly**	**Daily**	**Monthly**	**Weekly**
Male	**Wage**	**Days**	**Hours**	**Wage**	**Days**	**Hours**
Agriculture, Hunting, and Fishing	57.1	19.6	38.5	52.3	17.5	39.0
Mining, Quarrying and Mfg.	83.5	22.3	43.9	82.6	21.6	45.1
Construction	117.6	18.1	39.0	98.6	17.1	39.2
Commerce, Hotels & Restaurants	77.7	24.0	47.6	83.6	24.2	49.4
Transportation, Storage, Communication	104.5	23.7	45.2	77.6	23.0	46.6
Services & Other Branches	96.6	23.4	41.9	86.0	25.2	41.0
TOTAL	**94.5**	**22.0**	**42.4**	**85.3**	**22.9**	**42.5**
Female						
Agriculture, Hunting, and Fishing	60.3	18.1	43.8	46.8	18.1	44.8
Mining, Quarrying and Mfg.	47.1	22.2	44.4	45.2	22	43.5
Commerce, Hotels & Restaurants	57.5	24.8	44.2	46.6	24.7	45.5
Services & Other Branches	80.7	22.9	35.6	77.5	24.6	35.5
TOTAL	**77.1**	**22.9**	**36.9**	**72.2**	**24.2**	**37.0**

	Female/Male ratio in 2010			Female/Male ratio in 2006		
	Wage	**Days**	**Hours**	**Wage**	**Days**	**Hours**
Agriculture, Hunting, and Fishing	106%	92%	114%	89%	103%	115%
Mining, Quarrying and Mfg.	56%	100%	101%	55%	102%	96%
Commerce, Hotels & Restaurants	74%	103%	93%	56%	102%	92%
Services & Other Branches	84%	98%	85%	90%	98%	87%
TOTAL	82%	104%	87%	85%	106%	87%
Estimated hourly wage in current NIS*				**Constant 2004 NIS**		
Male	**2010**	**2006**	**% change**	**2010**	**2006**	**% change**
Agriculture, Hunting, and Fishing	6.71	5.42	23.9%	5.20	5.01	3.8%
Mining, Quarrying and Mfg.	9.79	9.13	7.2%	7.59	8.44	-10.1%
Construction	12.60	9.93	26.9%	9.76	9.18	6.3%
Commerce, Hotels & Restaurants	9.04	9.45	-4.3%	7.01	8.74	-19.8%
Transportation, Storage, Communication	12.64	8.84	43.1%	9.80	8.18	19.9%
Services & Other Branches	12.45	12.20	2.1%	9.65	11.28	-14.5%
TOTAL	**11.32**	**10.61**	6.7%	**8.77**	**9.81**	**-10.6%**
Female						
Agriculture, Hunting, and Fishing	5.75	4.36	31.8%	4.46	4.04	10.4%
Mining, Quarrying and Mfg.	5.43	5.28	3.0%	4.21	4.88	-13.7%
Commerce, Hotels & Restaurants	7.45	5.84	27.5%	5.77	5.40	6.9%
Services & Other Branches	11.98	12.39	-3.3%	9.29	11.46	-19.0%
TOTAL	**11.04**	**10.90**	1.3%	**8.56**	**10.08**	**-15.1%**
Female/Male ratio						
Agriculture, Hunting, and Fishing	85.7%	80.6%				
Mining, Quarrying and Mfg.	55.5%	57.8%				
Commerce, Hotels & Restaurants	82.4%	61.8%				
Services & Other Branches	96.2%	101.6%				
TOTAL	**97.6%**	**102.7%**				

Source: Author's calculations from PCBS (2007; 2011b, Table 42). Women's wages, hours, and days are not reported for *Construction* or *Transport, Storage & Communication.* Wage workers in Israel and the settlements are included.

*Estimated hourly wage for 2010 = 12[A][B]/(52[C]), and similarly for 2006.

The sectoral data, however, offer a much more mixed picture. If we look sector by sector at the degree to which differences in average daily wages are matched by differences in average weekly hours, we do find that in some sectors, pay differences are at least partly explained by differences in hours worked per week, if we assume that hours worked per week are

distributed in such a way that differences in hours worked per week also imply differences in hours worked per day. The most striking example is in the service sector, where women in 2006 earned 84% of the average daily wage of men, and worked 85% of the weekly hours men worked. In 2010, women actually earned 90% of men's wage while working on average 87% of the weekly hours of men.

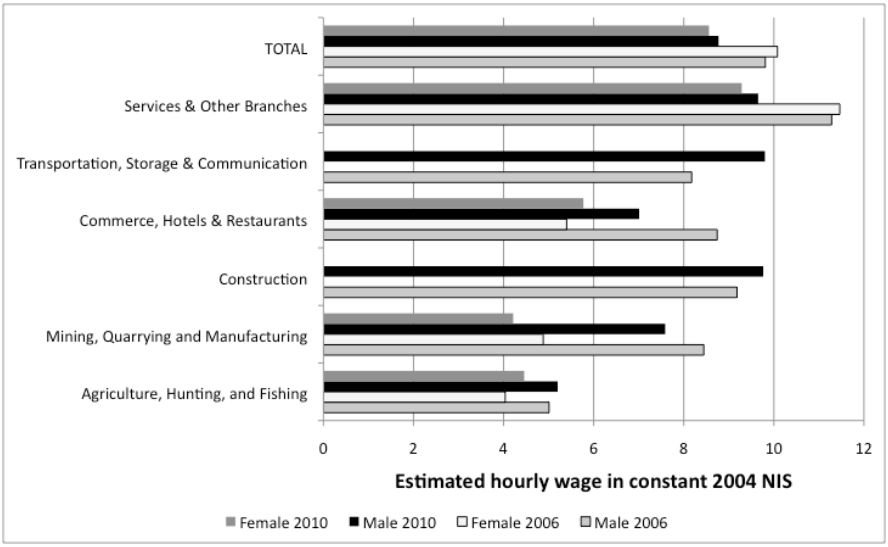
It might appear from these data alone that, with women's daily wage increasing more than women's weekly hours, women might have gained. However, we should really also take account of monthly days worked as well. Men's average monthly days worked in the service sector fell more than did women's over the period, and more than offset the relative increase in men's weekly hours worked.

In order to systematically take account of all the available information, we have estimated the hourly wage in current NIS for both men and women, by sector and overall, by

(average daily wage)[(12)(average monthly days)]/[(52)(average weekly hours)]

and the results are shown in the bottom section of Table 5.2, as well as in Figure 5.9.

Figure 5.9: Gender pay gap in estimated real hourly wages, by economic activity, 2006 and 2010



Source: Author's calculations from PCBS (2007, 2011b, Table 42).

Female average hourly wages estimated by this method were much higher in the service sector than in the other three. In fact, in 2006 women's service sector hourly wage was more than double the hourly wage in the other three sectors in which women worked, and in 2010 the hourly wage in the service sector continued to be more than twice women's agricultural and manufacturing wages, and substantially higher than the average wage in commerce.

Women's estimated hourly wages in all sectors were substantially lower than men's in both years, with the one exception of services in 2006, when women's estimated hourly wage, at 12.39 NIS, was slightly higher than men's estimated hourly wage of 12.20. Nevertheless, because the large majority of women wage employees worked in the service sector, the estimated average hourly wage for all women working for wages in the Palestinian territory in 2006 was 10.90 NIS, higher than the estimated average hourly wage of 10.61 for men.

In 2010, the relative positions were reversed, as women's overall estimated average hourly wage only rose by 1.3% in nominal terms, to 11.04 NIS, while men's overall estimated average hourly wage rose 6.7%, to 11.32 NIS. It is clear from Table 5.2 that one reason for this was that the two sectors in which women are hardly represented at all both had large increases in their estimated average hourly wage: *Construction*, where the hourly wage increased from 9.93 to 12.90 NIS, and *Transport, Storage, and Communication*, where it increased from 8.84 to 12.45 NIS. The latter appears largely due to growth in average compensation per paid employee in the telecommunications sector.

In the four sectors in which women are represented, and for which the data are therefore reported, women's estimated nominal hourly wage overall rose less than men's. For women, the increase was just 1.3%, from 10.90 NIS per hour to 11.04 NIS per hour. For men, the increase was 6.7%, from 10.61 NIS per hour to 11.32 NIS. However, after adjustment for 19.3% inflation in the whole Palestinian territory from 2006 to 2010, both of these constitute quite substantial losses in real estimated hourly wages: -15% for women and -11% for men. Just as for real wages overall, these results are the consequence of a small loss in real wages in the West Bank and an enormous decline in real wages in the Gaza Strip.

Nevertheless, in the agriculture and commerce sectors, among wage employees, women's estimated hourly wages rose in real terms, and rose more than men's. In agriculture the increase was 32% for women in

nominal terms, implying a substantial real hourly wage increase, and one that was greater than men's 24% estimated nominal hourly wage increase. Despite this increase, the gender pay gap remained large in agriculture, with women's nominal estimated hourly wage in 2010 only 5.75 NIS, compared to men's 6.71 NIS. It is worth noting that most men and women working in agriculture are not working for wages, but as own proprietors and unpaid family members, and earnings in such non-wage work are not included in this analysis. Moreover, because the number of women employed for wages in agriculture is quite small,[31] not much importance should be attached to the reported wage increase.

In *Commerce, Hotels, and Restaurants*, women's estimated hourly wage increased by 28% in nominal terms, from 5.84 NIS in 2006 to 7.45 NIS in 2010, while men's were considerably higher in both years (9.45 NIS in 2006; 9.04 NIS in 2010), but fell in nominal terms by 4%. In consequence, women's real estimated hourly wages rose substantially in commerce, but a large gender pay gap remained. In the other two sectors that report women's wages, women lost more, or gained less, than men from 2006 to 2010. In services, women's estimated hourly wage fell by 3%, while men's rose by 2%. In manufacturing, women's hourly wage rose by just 3%, while men's rose by 7%.

As we have seen, overall real estimated hourly wages for both men and women fell, while women's fell further. The lower right portion of Table 5.2 shows that from 2006 to 2010 the overall ratio of female to male estimated average hourly wages fell from 103% to 97%. It is only in a few sectors that there were increases in real average hourly wages from 2006 to 2010: agriculture (men and women); commerce (women only); and – as mentioned above – among sectors in which only men's wages, hours, and days were reported, construction (men); and transport, storage, communication (men). The reason why the large gains in women's estimated hourly wages in agriculture and in commerce had little impact on overall women's hourly wages is simply that the large majority of employed women worked in the service sector, as we saw in Chapter 4. For the Gaza Strip, in fact, the only sector for which women's wages are reported in 2006 is the service sector, because nearly all women wage employees worked in that sector. For 2010, female wages and hours are not reported separately at all for the Gaza Strip. In the West Bank, 56% of all employed women worked in services in 2010, and only 9% in

[31] The number of women wage employees in agriculture is so small that in the 2010 Labor Force Survey data, agricultural sector wages for females are not reported separately either for the Gaza Strip or for the West Bank; they only appear in the table for the Palestinian territory as a whole.

commerce and 9% in manufacturing. And while 25% worked in agriculture, most of these were probably not wage employees.

One area in which women gained was a decline in the number who worked unpaid. There was a change in the way data were reported in 2008, so we only trace trends during 2008-2010. But in 2008, fully 26% of all employed females worked unpaid in a family enterprise. By 2010, that share had fallen to 19% economy-wide, a change that took place both in the West Bank and the Gaza Strip. In Gaza, the change was both absolutely and relatively larger than in the West Bank: the decline in women's unpaid employment from 2008 to 2010 was from 21% to 3% of all employed women in Gaza, a decline that likely resulted from the general decline in small business activity. In the West Bank the change was much smaller in percentage terms, and somewhat smaller in absolute terms. In 2008 in the West Bank, 28% of all employed women worked unpaid in a family business; by 2010 only 23% did. With an employment ratio of 14.2% in 2008 and 13.8% in 2010, this meant that about 0.7% of women of working age ceased to work unpaid in a family business during these two years. Meanwhile, women's wage employment grew in both regions as a share of all women's employment – dramatically in Gaza, from 66% to 90%, but only by a couple of percentage points in the West Bank, from 60% to 62%.

For the most part, then, women were not the beneficiaries of economic growth from 2006 to 2010. Although there were relative, and even absolute, gains in some sectors, these were sectors in which women worked for wages in small numbers. There was an overall decline in women's wages relative to men's, as well as a decline in women's real wages, whether by the day or by the hour. In the service sector, in which the large majority of women work, the estimated hourly pay for women fell relative to the estimated hourly pay for men. Men's pay also fell overall in real terms, whether by the hour or by the day, but it did not fall as far as did women's.

5.7 Wage changes and possible composition effects

5.7.1 Declining average wages can mask increases for existing employees

This section strikes a note of caution about interpreting data on average wages.[32] If the data show a substantial increase in employment over 2006,

[32] This caution also applies to data on hours worked and on labor productivity; any time the composition of the group for which an average statistic is being reported changes, the change in

but little change in the average daily wage, we might be tempted to conclude that those who were already employed before the employment increase did not benefit from growth. However, this conclusion is very likely wrong, because it ignores *composition effects*. The overall change in the average daily wage over a time period is the result of two changes. Only one is the change in the wages of those already employed. The other is the addition of new workers, who very likely are hired at lower wages than those already employed. The lower wages of new workers can drag down the average wage, masking any increase in the wages of existing workers.

This is easiest to explain with a hypothetical example. Suppose that in 2010, 80 workers are employed at an average daily wage of 100 NIS, for a total daily wage bill of 8,000 NIS. Then an economic boom in 2011 results in both an increase in the wages of the existing workers to 110 NIS, and the hiring of 20 additional workers at an average daily wage of 60 NIS. (The lower daily wage of the new hires may be either because they are paid less per hour, or because they work fewer hours per day, or both.) The total wage bill has grown from 8,000 NIS to 10,000 NIS (80(110) + 20(60) = 8800 + 1200 = 10,000). Thus in the end the average daily wage is still 100 NIS, because 10,000/(80 + 20) = 100 NIS. The average daily wage for the whole workforce is unchanged, although *all those now employed have experienced an increase*: existing workers have enjoyed a 10% wage increase, and new workers now are paid 60% of the average wage, where before they were unemployed and had no earnings. The *composition effect* is that the average daily wage after the change is a weighted average of the wages of the old and the new employees, and the addition of the new workers is a benefit to the economy as a whole and to these workers, but it very likely tends to lower the average wage.

To take account of both these opposing influences on the average daily wage, of course it would be ideal to have data on the change in the wages of existing workers, or data on the wages of newly hired workers, or both. Often this information is not available. However, even without such data we can calculate a simple relationship that must hold between the growth rate of the wages of existing workers (call it *a*) and the average daily wage of new workers as a percent of the initial average daily wage of existing

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the average statistic may (obviously) be affected by the changing composition of the group. So, for example, if the average weekly hours worked of a certain demographic group declines while that group is growing in size, the decline may mask an increase in hours worked for those already employed, while those newly employed are being hired for fewer hours than existing employees. Similarly, average labor productivity may fall, while the labor productivity of existing employees rises, but new and less productive employees are being hired.

workers (call it b). As explained in the Appendix, for the West Bank this relationship is:

$$b = 1 + (g - ar)/(1 - r) \qquad (5.1)$$

where r is the share of all employees at the end of the period who were already employed at the beginning of the period, and g is the growth rate of the average (daily) wage.

5.7.2 Possible wage increases for the West Bank, 2006-2010

In the West Bank economy from 2006 to 2010, the overall growth in nominal wages (g) was 12.2%, while the number of wage employees grew by 31.1% (excluding those employed in Israel and the settlements). Therefore, $r = 1/(1 + .311) = 76.3\%$ and $1 - r = 23.7\%$. Then equation (5.1) becomes

$$b = 1.51 - 3.22a \qquad (5.2)$$

Figure A.2 shows this relationship. What it means is that because nominal wages grew 12% and wage employment grew 31%, then if a is the average wage increase that existing workers enjoyed, b given by equation (5.2) tells us the average wage of new hires as a percent of the initial wage of existing workers.

For example, reading from Figure A.2, if existing workers received a 12.2% wage increase (horizontal coordinate), this means that newly hired wage employees must have received 112.2% (vertical coordinate) of the wage initially paid to existing workers, so that both groups had the same average wage in 2010. And if existing workers received a 16% nominal wage increase (so that the real average daily wage in the West Bank was the same in 2010 as in 2006), then new hires must have been paid on average about 100% of the initial (2006) wage of existing employees. Similarly, if existing workers got a 20% nominal wage increase (so a 4% real cumulative wage increase over 4 years), then new hires must have been paid on average 87% of the initial wage of existing employees; and so on. Note that these are daily wages, and that the wages of new hires could be a low fraction of initial wages of existing workers either because they get lower hourly pay or because they are hired for fewer hours per day. These calculations show that it is plausible that existing employees on average received a small real wage increase from 2006 to 2010 in the West Bank. However, it is highly unlikely that real wages even for this group grew at the same 16% rate as labor productivity, because that would

require that new hires on average earned less than 50% of the nominal wage received in 2006 by existing employees. A similar analysis could in principle be done for the Gaza Strip.

5.8 Conclusion

This chapter finds that the relatively good news about employment growth was tempered by the overall sharp decline in real wages. Although wage employment rose by 30% overall, real wages fell 3.3% in the West Bank and a catastrophic 31.4% in the Gaza Strip. As a result, total real wages paid to wage employees rose only by 12% in the Palestinian economy, the result of 22% growth in the real wage bill in the West Bank and a 13% decline in the Gaza Strip. With 33% growth in real GDP in the whole Palestinian economy, the bulk of the benefits of growth in output therefore flowed to non-labor incomes. In the Gaza Strip there was relatively little additional income to be distributed – only a 12% increase from 2006 to 2010, with all of the increase occurring in 2010 – and yet non-labor incomes took all of it, and more. In the West Bank, distribution of this added income was more balanced between labor and non-labor incomes, but non-labor incomes gained a somewhat disproportionate share. Employee compensation as a share of Gross Value Added fell in many sectors, especially those large sectors with faster than average growth, and was about halved in the Gaza Strip. Substantial increases in non-labor incomes were observed in the banking and telecommunications sectors, not due to any shift in the share of unpaid employees among all those employed. Women were not the main beneficiaries of growth. Understanding possible composition effects might mean that existing employees got a small real wage increase, but not one that reflected the substantial growth in value added per worker.

Chapter 6: Conclusions and policy recommendations

In a standard model used frequently in economic theory (the Cobb-Douglas production function), a strong set of assumptions guarantees that labor income is a constant share of value added, even when wages vary. These strong assumptions include that markets are perfectly competitive, and production is characterized by constant returns to scale.

In the real world, this is far from true. Economies of scale exist, including in the Palestinian economy (see Kanafani 2011), and there is persistent unemployment in labor markets, and the consequence can sometimes be that labor's share of value added falls even when rapid growth occurs. Indeed, Chapter 5, especially Figure 5.8, suggests that labor's share has fallen *especially* rapidly in sectors where rapid growth has recently occurred.

A substantial strand of research suggests that economies can be characterized either as wage-led or as profit-led growth regimes. In a wage-led growth regime, an increase in labor's share of income accelerates growth in real GDP, and a decline in labor's share of income retards GDP growth. In contrast, in a profit-led regime an increase in labor's share of income retards GDP growth, and a decline in labor's share of income accelerates GDP growth. It is not always a simple matter to determine which regime best characterizes a particular economy at a particular moment in time; good economists can disagree. However, all else equal, countries whose growth heavily depends upon exports tend to be profit-led because low wages promote exports. Economies in which exports play a minimal role (such as the Palestinian economy) are more likely to be wage-led. Nevertheless, it is beyond the scope of this study to determine which regime characterized the Palestinian economy during the period 2006-2010.

The point, however, is that it matters. If labor's share of income was falling during 2006-2010 – as this study has shown – then the danger is that an economy that channels income away from lower-income and middle-income households likely to spend it most quickly, and likely also to spend it to a greater extent on domestically produced goods, will be an economy that is eroding its own future growth.

One may ask whether the 2006-2010 growth in the Palestinian economy was somehow "good growth" of which more should be welcomed, or if it

was “bad growth” that was somehow harmful. The answer is clear: On the one hand, this growth, where it occurred, brought welcome employment gains, and particularly strong gains in wage employment. More such growth would presumably have brought more such employment gains, particularly as the disguised unemployment among those working had by 2010 been partly wrung out of the economy by rapid GDP growth. On the other hand, the very high rate of unemployment played a role in preventing real wage growth, particularly in the Gaza Strip, but even in the West Bank. This in turn channeled the bulk of growth in value added into non-labor incomes, which may have retarded the growth in demand for domestically produced goods, making growth less self-sustaining than might have been true if incomes at all levels had advanced apace.

In principle, a well-chosen minimum wage can help to ensure that labor’s share of income does not fall. There has recently been substantial debate about the desirability and feasibility of establishing a minimum wage in the Palestinian economy. Such a minimum wage is well worth considering, and in a recent MAS study, Missaglia, Capelli, and Amer (2010) modeled its consequences. An important question is the level at which a minimum wage should be set.

Similarly, it might be asked why the Palestinian Authority continues to grant large tax breaks to Paltel (or its subsidiary Palcel/Jawwal), when it is already a quite profitable company selling a service in high demand. Funds that end up being paid out as dividends might more usefully be channeled into government coffers and thence into salaries, which could be spent in ways (and at speeds) which might provide a greater stimulus to the economy.

An important conclusion that can be drawn from the data analysis presented in this study is that where the Palestinian economy is permitted by the Israeli occupation to function, it functions in much the usual way, that is, with an output elasticity of employment that is similar to that in the world at large. However, the Israeli occupation curtails many economic activities, particularly in Area C, and in trade.

This study also suggests that it would be useful for the PCBS to collect several additional kinds of data, and to process them to provide at least three kinds of indicators that are not now available:

1. The Labor Force Survey should ask respondents not only what kind of work they do, but *where* they work, so that employment and wage data

would be available not just by *the governorate of residence* of respondents, but also by *the governorate in which the respondent is employed*.

2. Data needed to compute Consumer Price Indices at the governorate level should be collected, so as to be able to calculate real wages, and changes in real wages, at the governorate level.
3. It would also be useful to have Value Added at the governorate level, although this might well be more difficult, in view of the many firms whose activities cross the boundaries of governorates.

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Appendix 1: Composition effects

Chapter 5 explains that it is possible for the wages of existing workers to rise, and for new workers also to be hired, but for the average wage to stay the same or even fall, due to composition effects. To save the reader the trouble of paging back and forth between this Appendix and Chapter 5, we repeat some paragraphs of that discussion here.

If the data show a substantial increase in employment over 2006, but little change in the average daily wage, we might be tempted to conclude that those who were already employed before the employment increase did not benefit from growth. However, this conclusion is very likely wrong, because it ignores *composition effects*. The overall change in the average daily wage over a time period is the result of two changes. Only one is the change in the wages of those already employed. The other is the addition of new workers, who very likely are hired at lower wages than those already employed. The lower wages of new workers can drag down the average wage, masking any increase in the wages of existing workers.

This is easiest to explain with a hypothetical example. Suppose that in 2010, 80 workers are employed at an average daily wage of 100 NIS, for a total daily wage bill of 8,000 NIS. Then an economic boom in 2011 results in both an increase in the wages of the existing workers to 110 NIS, and the hiring of 20 additional workers at an average daily wage of 60 NIS. (The lower daily wage of the new hires may be either because they are paid less per hour, or because they work fewer hours per day, or both.) The total wage bill has grown from 8,000 NIS to 10,000 NIS (80(110) + 20(60) = 8800 + 1200 = 10,000). Thus in the end the average daily wage is still 100 NIS, because 10,000/(80 + 20) = 100 NIS. The average daily wage for the whole workforce is unchanged, although *all those now employed have experienced an increase*: existing workers have enjoyed a 10% wage increase, and new workers now are paid 60% of the average wage, where before they were unemployed and had no earnings. The *composition effect* is that the average daily wage after the change is a weighted average of the wages of the old and the new employees, and the addition of the new workers is a benefit to the economy as a whole and to these workers, but it very likely tends to lower the average wage.

To take account of both these opposing influences on the average daily wage, of course it would be ideal to have data on the change in the wages of existing workers, or data on the wages of newly hired workers, or both. Often this information is not available. However, even without such data we can calculate a simple relationship that must hold between the growth rate of the wages of existing workers (call it *a*) and the average daily wage

of new workers as a percent of the initial average daily wage of existing workers (call it *b*). This Appendix explains how we can find an equation that describes how the change in the overall average wage (which we call *g*) is related to *a* and *b*.

To derive this equation, we define the following variables:

$L_E \equiv$ the number of existing employees at the beginning of the period (80 in the example above)

$L_N \equiv$ the number of employees newly hired by the end of the period (20 in our example)

$L \equiv L_E + L_N =$ total number employed by the end of the period

$W_E \equiv$ the initial average daily wage of existing employees (100 in our example)

$W_N \equiv$ the daily wage paid to new employees at the end of the period (60 in our example)

$g \equiv$ percent growth in the average daily wage calculated based on all workers (both existing and new) $\equiv [(W_E + \Delta W_E)L_E + W_N L_N]/L - W_E$. In our example, $g = 0\%$.

he total wage bill at the end of the period $W_E(1 + g)L$, also written as $[W_E(1 + g)](L_E + L_N)$, can be calculated by adding the wages paid to existing employees $(W_E + \Delta W_E)L_E$, to the wages paid to new employees $W_N L_N$:

$$(W_E + \Delta W_E)L_E + W_N L_N = [W_E(1 + g)](L_E + L_N) \qquad \text{(A1.1)}$$

In the hypothetical example given above and in Chapter 5, this equation is

$$(110 \text{ NIS})(80) + (60 \text{ NIS})(20) = [100(1 + 0\%)](80 + 20) = 10{,}000 \text{ NIS}$$

We now divide both sides of equation (1) by $W_E(L_E + L_N)$ and then make the following definitions and substitutions:

$a \equiv (\Delta W_E)/W_E$ and so $1 + a = (W_E + \Delta W_E)/W_E$

$b \equiv W_N/W_E$

$r \equiv L_E/(L_E + L_N)$ and so $1 - r = L_N/(L_E + L_N)$

The result is equation (A.2), the left hand side of which is a weighted average, in which the weights are *r*, the share of all employees at the end of the period who were already employed, and 1 - *r*, the share of all end-of-period employees who were newly hired during the period:

$$r(1 + a) + (1 - r)b = 1 + g \qquad \text{(A1.2)}$$

Solving for *b*,

$$b = 1 + (g - ar)/(1 - r) = [1 + g/(1 - r)] - [r/(1 - r)]a \qquad \text{(A1.3)}$$

In the numerical example, if we did not know a or b, but did know that

$$r = L_E/(L_E + L_N) = 80/100 = .8 \quad 1 - r = .2 \quad \text{and} \quad g = 0$$

then equation (A.2) would be

$$.8(1 + a) + .2b = 1$$

or

$$b = 1 - 4a$$

Figure A.1 graphs this relationship, and every point on the downward-sloping straight line represents a possible combination of a and b, given that we only know that the change in the overall average wage was 0. One such combination is b = 60%, a =10% (new hires get 60% of the existing wage; existing employees get a 10% increase), which are the values actually used in the example. Another possibility, for instance, is that new hires got 80% of the previous wage, and existing employees got a 5% wage increase.

For the Palestinian economy in the West Bank, possible combinations of values for a and b lie on the line

$$b = 1.51 - 3.22a$$

The implications are discussed near the end of Chapter 5.

Figure A.1: Given the growth of the average wage over a time period, and the growth of employment over that same period, the downward-sloping straight line defined in equation A.3 (also equation **4.1) shows the relationship that must exist between the average wage increase of existing employees and the ratio of the wage for new hires to the initial wage of existing employees**

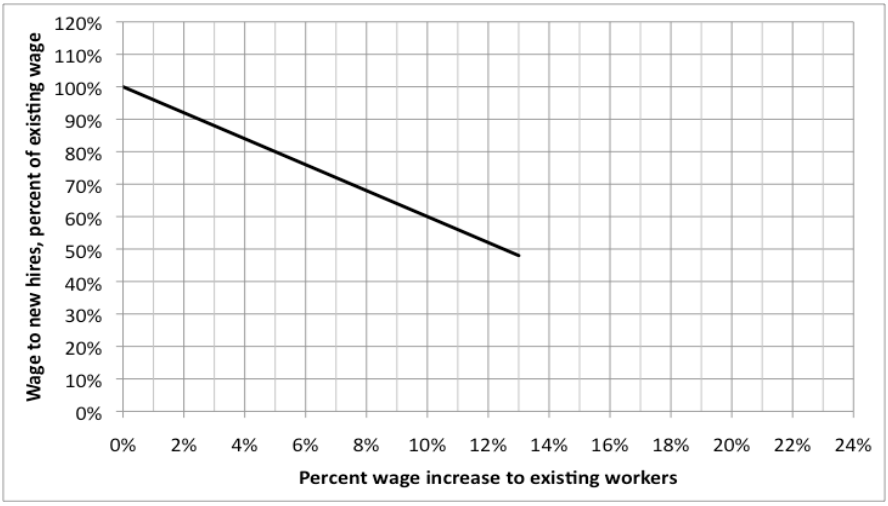
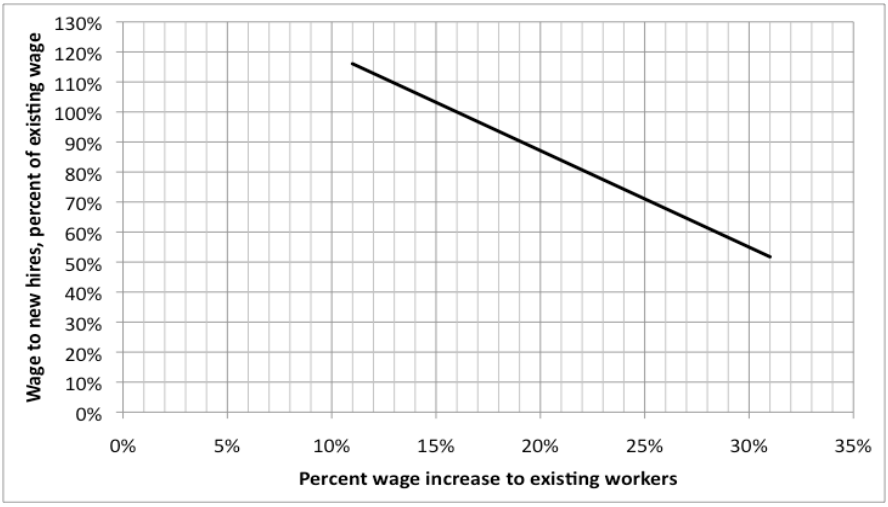


Figure A.2: Given the actual growth in the average daily wage in the West Bank from 2006 to 2010, and the actual growth in employment there, the downward-sloping straight line shows the possible combinations of a, the growth in the wages of those already employed in 2006 and b, the wage paid to new hires as a percent of the initial wage of existing employees.



Appendix 2: Calculating the number of wage employees in the Palestinian economy in 2006 and 2010

This appendix explains how the number of wage employees in the Palestinian economy (excluding Israel and the settlements) was derived from PCBS data.

The PCBS reports data for each region, the West Bank and Gaza Strip, on the share of all employed persons who are wage employees, unpaid family members, self-employed, or employers. However, in the West Bank the number of wage employees includes those working in Israel and the settlements; we want to exclude this group, but its number is not separately reported in 2010, so we have to find a way to calculate it. We also want to know the total number in other categories, such as self-employed and so on, in each region.

For each region separately, the West Bank and the Gaza Strip, we constructed the matrix shown below, the sum of whose elements is 1 (or 100%). The first subscript (the row) denotes the sector in which those who are employed work:

p = public sector
r = private sector
i = Israel and the settlements

The second subscript (the column) denotes the employment status of those employed:

u = unpaid family member
s = self employed
e = employer
w = wage employee

So, denoting the West Bank matrix by A = $[a_{ij}]$, and the Gaza Strip matrix by B = $[b_{ij}]$, we have for the Gaza Strip

$$\begin{bmatrix} b_{pu} & b_{ps} & b_{pe} & b_{pw} \\ b_{ru} & b_{rs} & b_{re} & b_{rw} \\ b_{iu} & b_{is} & b_{ie} & b_{iw} \end{bmatrix} \qquad \text{(A2.1)}$$

Element b_{re}, for example (second row, third column), is the share of all persons employed in the West Bank who are private sector employers.

The derivation for the Gaza Strip is very simple, because the bottom row is all zeroes in both 2006 and 2010, because virtually no Gazans worked in Israel or the settlements in this period. In the top row we also have zeroes in the first three elements, assuming that (by definition) all public sector employees are wage employees, so that the only nonzero element is b_{pw}.

$$\begin{array}{lcccc} & & & & \text{Row sums} \\ & \lceil 0 & 0 & 0 & b_{pw} \rceil \quad \text{P} \\ & \lvert\, b_{ru} & b_{rs} & b_{re} & b_{rw} \,\rvert \quad \text{R} \\ & \lfloor 0 & 0 & 0 & 0 \rfloor \quad \text{I} \\ \text{Column sums} & \text{U} & \text{S} & \text{E} & \text{W} \end{array} \qquad \text{(A2.2)}$$

From PCBS data we have the three row sums and the four column sums, with the following meanings:

P = in the region, percent of all employed persons who were public sector employees
R = in the region, percent of all employed persons who worked in the private sector
I = in the region, percent of all employed persons who worked in Israel and the settlements
U = in the region, percent of all employed persons who were unpaid in a family business
S = in the region, percent of all employed persons who were self-employed
E = in the region, percent of all employed persons who were employers
W= in the region, percent of all employed persons who were wage employees

By definition, of course, P + R + I = 100% and U + S + E + W = 100%.

For the Gaza Strip, the zeroes allow us to find all the elements of the matrix as shown:

$$\begin{array}{lcccc} & & & & \text{Row sums} \\ & \lceil 0 & 0 & 0 & \text{P} \rceil \quad \text{P} \\ & \lvert\, \text{U} & \text{S} & \text{E} & \text{W-P} \,\rvert \quad \text{R} \\ & \lfloor 0 & 0 & 0 & 0 \rfloor \quad 0 \\ \text{Column sums} & \text{U} & \text{S} & \text{E} & \text{W} \end{array} \qquad \text{(A2.3)}$$

For the West Bank, since there are workers in Israel and the settlements, the matrix is

$$\begin{bmatrix} 0 & 0 & 0 & a_{pw} \\ a_{ru} & a_{rs} & a_{re} & a_{rw} \\ a_{iu} & a_{is} & a_{ie} & a_{iw} \end{bmatrix} \qquad \text{(A2.4)}$$

In 2006 the PCBS published more detailed data on the matrix elements. Instead of just U, S, E, and W, we are given vector **i** = (i_u i_s i_e i_w) that gives the percent of those working in Israel and the settlements who were unpaid employees, self-employed, employers, and wage employees, with the sum of the elements of **i** being 100%.[33] Hence for 2006 the West Bank matrix becomes

$$\begin{bmatrix} 0 & 0 & 0 & P \\ U - i_u I & S - i_s I & E - i_e I & W\text{-}P\text{-} i_w I \\ i_u I & i_s I & i_e I & i_w I \end{bmatrix} \qquad \text{(A2.5)}$$

For 2010 the PCBS no longer published vector **i**.

However, for 2006, from Table 28 of the Labor Force Survey, i_w = 91.0%; for 2007, i_w = 93.2%. Given an apparent trend, we have made calculations for 2010 based on two assumptions: (1) i_w = 100%, and (2) i_w = 95%. Assumption (1) gives a lower total number of wage employees in the Palestinian economy, because it says that more of the known total number of wage employees worked in Israel and the settlements. In the text we therefore report the results based on assumption (1) and say that "at least" this number (or percent) were wage employees in the Palestinian economy in 2010.

For case (1), the calculation is simpler:

$$\begin{bmatrix} 0 & 0 & 0 & P \\ U & S & E & W\text{-}P\text{-} I \\ 0 & 0 & 0 & I \end{bmatrix} \qquad \text{(A2.6)}$$

For case (2), we use the vector **i** = (1.0% 3.0% 1.0% 95.0%) to calculate matrix (A2.5).

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[33] We are also given a vector **r** = (r_u r_s r_e r_w) that gives the percent of those in the *private and public sector combined* who were unpaid employees, self-employed, and so on; the sum of this vector's elements also equal 100%. We do not actually need it for the calculations, but it can be used as a check on the results.