Chapter 7

AGRICULTURAL TRANSFORMATION AND THE RURAL LABOR MARKET IN TURKEY

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ABSTRACT

After five decades of transformation, the share taken by agriculture in total employment in Turkey had decreased from 85 percent in 1950 to 36 percent in 2000. Despite significant technological progress, total agricultural employment remained in the 8–9 million range during much of this period. The pace of transformation hastened upon implementation of the Agricultural Reform Implementation Project (ARIP) in 2001. This process placed some two million additional inhabitants in the "surplus labor" category as the share of agricultural employment fell to under 25 percent by the end of 2008. We rely on various data sources to trace the contours of this transformation and examine its manifestations in the rural labor market. Since the transformation burdens the urban labor market with the task of absorbing the surplus labor, we also review the changes that have taken place in urban areas to gauge the prospects. We tease out the demographic manifestations of the transformation by breaking the aggregates down by gender, age, and education. We find that the agricultural labor force is ageing at unprecedented rates as the young and women opt for nonparticipation. Women, who typically contribute to the small family farm as unpaid family labor, face the biggest challenges as the distinctions between the rural economy and the urban economy become blurred. Although there are signs that the rural economy took a more diverse form in the post-ARIP period, rural labor markets do not appear to hold much promise for the working-age population.

INTRODUCTION

One of the stylized facts of growth is that agriculture's share in output and employment declines with economic development (Kuznets, 1966; Chenery and Syrquin, 1975; Chenery, Robinson and Syrquin, 1986). Turkey's case is no exception. In 1950 agriculture accounted for more than 40 percent of Turkey's national income while its share in total employment was 85 percent. By 1970 the respective shares were 26.3 and 63 percent, and by 1990 they were 15.9 and 47 percent.* In other words, between 1950 and 1990 it took 20 years for agriculture to shed 25 percent of its former share in employment. If this pace of decline had continued, agriculture's employment share in 2010 would be 0.75×0.47 or 35 percent. Yet Turkey reached this threshold in 2002, and as of December 2008 agriculture's share in total employment had fallen below 25 percent.

A related stylized fact of growth is the increase in the relative size of the urban population. Surplus labor (a term coined by Lewis, 1954) that leaves agriculture serves the growing labor needs of the urban economy. Since economic growth and technological change proceed together, it is not unusual for agricultural output to register gains during this time (Sen, 1966; Timmer, 1988; Johnson, 1997). Thus it is possible to feed a growing population with fewer hands on the farm. Again, Turkey's case fits this model. Between 1950 and 1979, while population grew at an average rate of 2.6 percent per annum, agricultural and non-agricultural output respectively grew by 2.95 and 6.39 percent per annum. The figures for the 1980–2005 period were respectively 1.7, 1.13 and 4.74 percent (Altug, Filiztekin and Pamuk, 2008).

As we document in the next section, Turkey reached the limits of arable land in the early 1970s and the total area under cultivation at the beginning of the 21st century was about the same as that during the 1960–69 period. Census data indicate that the absolute numbers engaged in agriculture were fairly stable (around 9.7 million during 1960–65, 10 million during 1975–80, and 11–11.5 million over the period 1985–90)+. Thus the sustained output increase in agriculture is attributable to increased use of inputs other than land and labor. Tractors followed by other types of machinery, fertilizers, irrigation and crop rotation each contributed their share to the process. While some inputs reduced the need for labor, others called for more labor days, and the joint outcome was stability in the size of the rural population and agricultural workforce.

Undoubtedly Turkey's generous agricultural support policies had a hand in keeping the numbers engaged in agriculture high. As of the 1980s and 1990s, small-scale commodity farming was the dominant form of agricultural production, rather than large-scale capitalist farming (Aksit, 2006). The apparent motives for sustained supports included food self-sufficiency, poverty alleviation, and containment of rural–urban migration that would result in chaotic city growth (See Chapter 2 by Keyder and Yenal). An equally important motive

* GDP data are from Bulutay (1998:xviii:Table 2). Bulutay reports that the percentages of agricultural production as a share of national income are based on the earlier national income series; and that on the basis of the new national income series the respective shares for 1970 and 1990 would be 35 percent and 17.3 percent. The labor share data are from World Bank (2006).

+ Census data provide an upper bound on the size of the agricultural workforce because all able-bodied adults (aged 15 and above) who live in a land-owning agricultural household are counted as employed. As we document in the next section, levels measured by the Household Labor Force Survey (which has been conducted since 1988) are considerably lower. Agricultural employment includes fishery and forestry workers, but they account for a negligible fraction of the total.

was a hard-learned lesson in politics: rural voters with strong ties to land have had a say in election outcomes ever since multi-party elections began (Akder, 2007; Chapter 3 by Keyman).

Recent accounts of the agricultural transformation underscore the role of markets in bringing about the favorable changes in output and productivity. As Timmer (2002:1489) puts it, "… [T]here is now general agreement that agricultural development is best served by a market-oriented strategy capable of stimulating rapid technological change in the agricultural sector." The Turkish case may be viewed as providing corroborating evidence, albeit from the negative side. After decades of protection, the macroeconomic policy reorientation unleashed in 1980 under the mantle of a military regime dismantled price supports and introduced the agricultural sector to the whims of the global market.* As imported agricultural commodities flooded the market, local agricultural prices fell and aggregate output increased, giving Prime Minister Turgut Ozal an early opportunity to boast of the virtues of the liberal stance he championed. Following the restoration of freely contested multiparty elections, however, Ozal discovered that his liberal policies did not provide the best election platform. As his second term as Prime Minister came to an end, the third looked more and more elusive. He desperately revived the policies he had vehemently opposed, in an effort to win back the rural vote. This ushered in a new era of agricultural supports as his victorious competitors followed suit.+ According to estimates by the OECD, supports to the agricultural sector, which claimed 3.5 percent of the GDP in 1988, crept up and reached their peak of 6.7 percent during 1997–99.§ Notably, real agricultural value added per worker during this three-year period was about the same as that during 1979–81, before Ozal's market-oriented reforms redefined the landscape (Dogruel, Dogruel and Yeldan, 2003: Table 1).

Agricultural supports contributed to the large budget deficits and high inflation that marked the 1990s. Among other things the structural reform program adopted in 1999 called for a massive overhaul of the agricultural sector, and the Agricultural Reform Implementation Project (ARIP) was born (see Chapter 5 by Cakmak and Dudu). ARIP stipulated immediate removal of all subsidies and replaced them with direct income support to alleviate the welfare impact. After five years of implementation (from 2001 onwards), agricultural employment in 2006 had declined to 6.1 million, after peaking at 9.3 million in 1996 and averaging 8.7 million in the 1990s.€ Recent data indicate that the drastic employment decline coincided with increases in real agricultural value added per worker (DPT, 2008: Table 1.8; Chapter 5 by Cakmak and Dudu). Inflation, which averaged 33.4 percent during 2000–5, was down to 9.6 percent during 2006–7.

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* Turkey had pursued an import-substitution-based industrialization policy until this time. By the end of the 1970s commodity prices in Turkey were completely out of line with world prices. The reforms adopted in the 1980s ushered in corrections in relative prices as well as higher inflation. Boratav (2000) documents the relative price changes using various measures, including the terms of trade between agriculture and manufacturing. In 1986 the terms of trade stood at around 40–50 percent of the 1976–79 level.

+ This is not the first example of reversion to populism. Gurkan and Kasnakoglu (1991) use data from 1962–83 to identify the political cycles and find that election years are marked by increased subsidies, while military interventions and liberal shifts in the policy environment decrease them.

§ International comparisons based on data from the 1990s reveal that Turkey was not an outlier in its support of agriculture during this time (Dogruel, Dogruel and Yeldan, 2003).

€ As underscored by Tunali, Umit Akcigit, Baslevent, Ercan and Ozturk (2003), care has to be exercised in comparing pre- and post-2000 employment series obtained from the Household Labor Force Surveys (HLFS). Nonetheless, a sustained decline in employment is observed in the post-2000 data.

It is tempting to credit ARIP with the productivity gains and the reduction in the inflation rate (see Chapter 5 by Cakmak and Dudu). Yet, as the contributions to this volume repeatedly point out, it is not clear that the objectives stipulated in ARIP have been attained. According to Akder (2007:530), "… policy instruments may have changed but the basic policy paradigm persisted." One outcome that cannot be debated is that the hastened pace of transformation contributed to Turkey's growing labor-absorption problems. The technological progress that made the reforms possible placed some two million additional inhabitants in the "surplus labor" category.

The main aim of this chapter is to document the correlates of the agricultural transformation on the rural labor market. Since the dualistic development model burdens the urban labor market with the task of absorbing the surplus labor, we also review the changes that have taken place in urban areas. Towards that end we examine time series and cross-section patterns in employment, participation and unemployment. We study employment patterns broken down by four main sectors of production (agriculture, manufacturing, services, and construction) to delineate the changes in the labor absorption patterns. Finally, we tease out the demographic manifestations of the transformation by breaking the aggregates down by gender, age, and education.

We begin our investigation in the next section with a brief overview of the evolution of the structure of agricultural production. We then turn to the labor market. While the urban labor market is closer to what is understood by a "market," historically only a small segment of its rural counterpart has had market-like features. This is attributable to the specialized nature of production, whereby the rural economy becomes concomitant with agriculture, while the urban becomes one and the same with non-agriculture. In the subsequent section we first examine employment trends and show that the reduction in the share of agricultural employment was accompanied by a decline in labor force participation, and more recently by the ageing of the agricultural workforce. We also examine the composition of non-participants and look at trends in unemployment. After that we scrutinize the rural labor market further, and pursue the signs that suggest that its economic base is becoming diversified. Nonetheless, using synthetic cohort analysis we establish that career prospects in rural areas have been declining over time, especially for women. We then evaluate in turn the prospects for absorption of the surplus in the urban labor market and in non-agricultural employment in the rural labor market. We end that section with an account of the special obstacles that face women in rural areas. This is followed by our concluding remarks.

EVOLUTION OF THE STRUCTURE OF AGRICULTURE

Until the 1950s the rural share of Turkey's population remained stable at around 75 percent. Population pressure on land was yet to be felt. Farming inputs consisted of labor and a pair of oxen, and land was tilled with a wooden plow (Herschlag, 1960). Although the agricultural transformation began with the development of the highway network and the introduction of tractors in the 1950s (Aksit, 1988; Keyder, 1983a; Tekeli and Erder, 1981; Pamuk, 2009), because of data constraints our sweeping account covers the post-1960 period. In this section we mostly rely on data from the World Development Indicators (WDI) database maintained on the World Bank site, and supplement it using survey data from the

Turkish Statistical Institute (TURKSTAT) as needed.* In the interests of readability, we typically report decade averages of the various indicators.+

Population Dynamics

We begin by highlighting the changes as captured by the population indicators reported in Table I. Turkey's population growth rate peaked at 2.5 percent per annum in the 1960s, remained high through the 1980s, and fell below 1.5 percent after 2000. According to the generally accepted account, Turkey entered the third stage of the demographic transition in the mid 1980s and reached near replacement fertility by 2003 (Shorter, 1995; HUPSI, 2004). The population residing in rural areas (localities with a population less than 20,000) reached 25 million in 1980 and started a slow decline thereafter. The rural share of the population started declining earlier. It fell below 50 percent in the 1980s and 30 percent in 2007.§

Table I. Population indicators.

Period	Total population	Population growth	Rural population	Rural population growth	Rural share	Rural density[a]
	(average)	(annual %)	(average)	(annual %)	(%)	(population per 100 km^2 arable land)
1960–69	30,858,180	2.53	20,266,590	1.54	65.8	86
1970–79	39,481,849	2.34	23,242,858	1.34	59.0	92
1980–89	49,688,058	2.30	24,040,347	–0.50	48.8	97
1990–99	61,190,833	1.89	23,375,673	0.15	38.3	95
2000–05/07[a]	70,795,560	1.36	23,694,451	–0.14	33.5	100

[a]All series end in 2007 except for rural density, which ends in 2005.
Source: World Development Indicators database, World Bank (2008).

Rural fertility and birth rates have been considerably higher than urban fertility throughout the period under examination. However, migration flows have kept rural population growth rates below the national average. Using "arable" land area rather than surface area to account for available resources, rural population density per 100 km^2 of arable

* Links to the WDI database may be found under Data & Research on the World Bank website: http://www.worldbank.org/. In what follows we cite the source as "WDI database, World Bank (2008)."

+ Decade averages are the arithmetic averages of the annual values of the indicators. Tables with the annual data are available from the authors.

§ TURKSTAT published a revised population figure of 70.6 million in 2007, based on residential registration (the Address Based Population Registration System, or ADNKS; see TURKSTAT, 2008b). This revision is not reflected in the WDI database. If and when it is, the share of the rural population for recent years will be adjusted downward. According to the administrative breakdown given in ADNKS, less than 30 percent of Turkey's 2007 population resided in villages.

land was 86 between 1960 and 1969 and increased at a rate of 5–6 persons per decade during the 1970s and 1980s. It decreased to 95 during 1990–99, but averaged 100 persons between 2000 and 2005. Our rural density measure suggests that the population burden on available agricultural land increased over time, except for a lull during the 1990s.

Agricultural Employment, 1940–2000

A long, internally consistent data series on agricultural employment is notoriously difficult to construct. Earlier data come from censuses conducted every five years. These have the advantage of covering the entire country, but use non-standard criteria for measuring employment. Furthermore, census data for 1950 and earlier rely on an occupational rather than a sectoral classification, resulting in a break in the series. Annual Household Labor Force Surveys (HLFS) that employ modern conventions have been conducted from 1988 onwards. The methodology has improved over time via increases in the sample size and the sampling frequency during the year. Data from these two TURKSTAT sources and the series reported by Bulutay (1995) are compiled in Table II.*

In 1990 agricultural employment recorded in census data is 32 percent higher than that shown in the HLFS. It is natural for employment levels reported in the HLFS to be lower because the standards used in determining employment status are clear cut. Nonetheless, the discrepancy is extremely large. In the 2000 census data the amplification factor is an astounding 57 percent. Note that census data also amplify total employment in 1990 and 2000, but only by a factor of 18–19 percent.

Taking any of the available series as our guide, we can say that the share of agriculture in total employment went down over time, emulating a key stylized fact of growth. We will exploit the richer information content of the HLFS employment series in some detail below. At present we would like to underscore that, although the reduction in the agricultural share of employment can be established with confidence, it is harder to measure the changes in labor productivity over time.+

The impact of the agricultural transformation on labor use is likely to have been manifested in both the intensive and the extensive margins of work. Thus the reported numbers may not be sufficient for capturing the changes in labor input over time. We therefore turn to indicators of the performance of the agricultural sector, reported in Table III, and piece together the evidence in an indirect manner. The last period covered in the table is identified as "2000–05/07". This is because in some cases data are available until 2005, and in other cases until 2007. We refer to this last period as the "ARIP period," even though implementation did not begin until 2001. As in Table I, period averages are arithmetic averages of the annual values.

* Bulutay's series appears to be the one used in World Bank (2006). The methodology used for constructing the annual series is not made explicit in Bulutay (1995) but the reader is referred to Bulutay (1992). Bulutay's series has been reported for the period 1923–2006 with minor revisions in recent TURKSTAT publications, such as TURKSTAT (2008e).

+ The standard approach for productivity analysis is based on data on Agricultural Value Added per Agricultural Employee. The available series all indicate increases over subperiods (see Cakmak and Zaim (1998) for 1970–95 data, the WDI database for 1990–2005 data, Cakmak, Akder, Levent and Karaosmanoglu (2008) for various subperiods, and Chapter 5 by Cakmak and Dudu for 1998–2008). To the best of our knowledge none of the avialable series correct for changes in the intensity of labor use over time.

Table II. Agricultural employment and share in total, ages 15 and above.

Year	General Population Census			Bulutay			HLFS		
	Total	Agriculture	Ag share	Total	Agriculture	Ag share	Total	Agriculture	Ag share
1940	–	–	–	7,255,924	6,242,653	0.86	–	–	–
1945	–	–	–	7,685,780	6,559,112	0.85	–	–	–
1950	–	–	–	8,789,265	7,407,616	0.84	–	–	–
1955	12,205,272	9,446,102	0.77	10,481,281	8,092,505	0.77	–	–	–
1960	12,993,245	9,737,489	0.75	11,257,614	8,341,556	0.74	–	–	–
1965	13,557,860	9,750,269	0.72	12,051,057	8,352,206	0.69	–	–	–
1970	14,051,209	9,281,024	0.66	13,033,977	8,243,246	0.63	–	–	–
1975	16,049,565	10,458,286	0.65	14,386,813	8,398,084	0.58	–	–	–
1980	17,219,571	9,972,361	0.58	15,702,127	8,360,398	0.53	–	–	–
1985	19,208,608	10,950,844	0.57	16,699,204	8,245,704	0.49	–	–	–
1990	22,085,711	11,506,708	0.52	–	–	–	18,536,000	8,691,000	0.47
2000	25,527,737	12,202,401	0.48	–	–	–	21,575,000	7,769,000	0.36

Sources:
General Population Census: TURKSTAT (2008e: Table 1.15).
Bulutay: Bulutay (1995: Table 7.A).
HLFS: HLFS database, TURKSTAT (2008d).

Performance of the Agricultural Sector over Time

Table III: Performance of the agricultural sector over time.

	Period					
Indicator	1960–69	1970–79	1980–89	1990–99	2000–05	2006–7
Agricultural land (% of land area)	48.5	49.8	50.1	51.8	53.2	n.a.
Arable land (hectares)	23,873,667	25,178,200	24,786,833	24,491,833	23,782,333	n.a.
Arable land (70–79=100)	95	100	98	97	94	n.a.
Arable land (% of land area)	31.0	32.7	32.2	31.8	30.9	n.a.
Arable land (hectares per rural resident)	1.18	1.08	1.03	1.05	1.00	n.a.
Agricultural machinery, tractors	62,016	232,822	557,795	793,733	964,489	n.a.
Agricultural machinery, tractors per 100 sq. km of arable land	25.8	92.4	225.4	324.5	406.2	n.a.
Index of agricultural machinery, tractors per 100 sq. km of arable land (60–69=100)	100	358	872	1,256	1,572	n.a.
Fertilizer consumption (100 grams per hectare of arable land)	83	356	631	779	799	n.a.
Index of fertilizer/land ratio (60–69=100)	100	431	763	943	966	n.a.
Food production index (1999–2001 = 100)	44	57	77	93	104	112
Crop production index (1999–2001 = 100)	41	57	75	92	103	n.a.
Livestock production index (1999–2001 = 100)	55	66	84	96	100	n.a.
Cereal yield (kg per hectare)	1,201	1,569	1,984	2,126	2,338	2,486
Cereal yield index (1999–2001=100)	55	72	91	98	108	115

Source: World Development Indicators database, World Bank (2008).

We begin by noting that although the share of land identified as "agricultural land" has increased over time, the share of land deemed "arable" has been fairly stable, at around 31 percent. There is evidence that marginal lands were brought under cultivation with the help of increased mechanization, but the limits of expansion were reached in the 1970s. Starting with the 1980s, the amount of arable land decreased as alternative uses became more attractive. The average amount of arable land recorded for the ARIP implementation period, 2000–05, was 94 percent of that for 1970–79. Arable land per rural resident, which averaged 1.18 ha during 1960–69, slowly drifted down and stood at 1 ha during 2000–05. Although our labor measure is very rough, we take this as an indicator of a remarkably constant land/labor ratio over time. In fact Hayami and Ruttan (1985) report a land/labor ratio of 10 ha per male worker for Turkey for 1960 and 1980, and Cakmak and Zaim (1998) conclude that the land/labor ratio was fixed over the 1970–95 period.

Four output indicators, included in Table III in the form of indices (with the 1999–2001 average set equal to 100), provide us with a perspective over 40+ years regarding food, crop, and livestock production, and cereal yield. We see that average outputs during 1960–69 were around 41–55 percent of the 1999–2001 averages and increased steadily over time. Furthermore, three of the four indicate additional increases of 3–9 percent after 2000. This suggests a sustained productivity increase over time. Since the land/labor ratio remained constant, it is clear that other inputs are responsible for the recorded gains in output.

We are able to provide direct evidence on two inputs: tractors and fertilizers. In Table III we show both absolute and relative measures based on indicators reported in the WDI data base. These are: (i) the number of tractors and the average number per 100 km^2 of arable land; and (ii) metric tons of fertilizer consumption and consumption (in units of 100 grams per hectare of arable land). For ease of interpretation, we have converted the relative measures to index form by setting the 1960–69 averages equal to 100. We see that the tractor/land ratio increased over time, very quickly at first and rather slowly after 2000. The fast spread in mechanization corresponds to the period of expansion to wider and wider parts of the country. The fertilizer/land ratio followed a similar path, but the jumps were more muted.

To recapitulate, we have strong evidence that the amount of land devoted to agriculture has been more or less fixed throughout the period of 40+ years under study. We also have evidence from several sources that the land/labor ratio has been constant during this time. Putting these two together, we may conclude that the labor input has been more or less fixed as well. Secondly, we have clear evidence of output increases. This establishes that labor productivity increased over time. Thirdly, we have offered evidence of increased tractor and fertilizer use, which are two of the sources of the historical productivity gains.* As the data in Table III show, while the tractor/land ratio increased by 25 percent during the ARIP period, the fertilizer/land ratio increased by only 2.5 percent. This suggests that some substitution of

* The account by Cakmak (2004) corroborates our findings and supplies additional evidence. According to him, technological change started in the 1950s. He points out that use of land resources improved over time, first via expansion into new land (meadows and pastures), and later by reduction of fallow facilitated by crop rotation, increased fertilizer use and irrigation. Fertilizer use and irrigation also paved the way for sowing multiple crops during the growing season. Remarkably, only 14 percent of the land was irrigated in 1991. This share rose to 20 percent in 2001. The fallow share decreased from 21 to 18 percent during this time. Pamuk (2009) examines agricultural development from a longer-run perspective and offers a succinct account of the major changes since 1950. Aksit (2006) offers a sweeping summary of the vast literature (mostly in Turkish, written from a sociological–anthropological perspective) directed to the examination of the agricultural transformation, and documents the regional differences.

machinery for labor may have taken place during the ARIP period. In fact, recent data from the HLFS that we examine in some detail in the next section indicate a sharp reduction in agricultural employment.

Changes in Farm Size Distribution

The consensus is that subsidies directed at agriculture provide the right incentives for continued investment in it and may dictate the pace of technological progress (Timmer, 1988:280). This is likely to have been the case in Turkey, where small farm holdings have dominated production.* Historically there have been three major forms of state involvement in agriculture: product price supports, subsidized credit, and input price subsidies. Both the support mixture and its coverage varied over time and were manipulated by populist governments (Gurkan and Kasnakoglu, 1991). According to Organisation for Economic Co-operation and Development (OECD) data, total agricultural support as a fraction of GDP rose in the 1990s and reached a peak of 6.7 percent during the 1997–99 period before declining to 5.3 percent in 2000 and further to 2.9 percent in 2001. The sharp reduction in 2001 reflects the combined effect of ARIP and the economic crisis. Although ARIP stipulated removal of all subsidies and use of direct income support (DIS) instead, the record indicates that subsidies crept back in within a couple of years. DIS payments and other supports accounted for 4.4 percent of the GDP during 2003–4 as Turkey's first single-party government in three decades solidified its grip on power (Cakmak *et al.*, 2008).+

Akder (2007, and Chapter 4 in this volume) underscores that the large government bureaucracy charged with the tasks of overseeing the subsidies resisted and effectively suffocated the reforms. Although self-serving bureaucrats are likely to have influenced the course of events, a more likely explanation is the ownership structure in agriculture, which kept the populist instincts alive. By most accounts, the reorientation from self-sufficiency to market production was complete by 1970, with the exception of some feudal remnants in southeastern Turkey (Boratav, 1980; Keyder, 1983a, 1983b; Aydın, 1987). Small family farms dominated agriculture at this time. Data from the agricultural censuses, and a recent survey compiled in Table IV, indicate that operational size crept up over time. However, as of 2006 small farms continue to account for a majority of the producers.

According to the 1970 General Census of Agriculture, 73 percent of all farms (about 3.1 million in total) owned less than 5 ha of land each, and these farms worked 27 percent of the total land under cultivation. Middle-sized farms in the 5–20 ha range accounted for 23.5 percent of all farms, and worked 42 percent of the land. Only 3.7 percent of the farms were greater than 20 ha in size, and these large farms operated 30.8 percent of the land under cultivation. Censuses of 1980 and 1991 provide two snapshots from the closing episodes of the period of expansion of agricultural employment. We see that the number of farms increased by about 500,000 every ten years. Interestingly, the dramatic changes in the size distribution of farms and farmed area captured by the 1980 census appear to have been partially reversed in the 1991 census.

* Pamuk (2009) points out that small farms are a legacy of the Ottoman era.
+ Chapter 5 by Cakmak and Dudu provides updated information on the revival of agricultural subsidies.

Table IV. Distribution of farm holdings and farm area by farm size, and indicators of land use.

	1970	1980	1991	2001	2006
Number of farms	3,058,905	3,558,815	3,966,822	3,022,127	n.a.
Share of farms by farm size:					
(0–2) ha	44.2	28.4	34.9	33.4	24.4
[2–5) ha	28.7	32.7	32.1	31.4	33.2
[5–20) ha	23.5	32.6	27.6	29.4	34.5
[20+ ha	3.7	6.3	5.3	5.8	7.9
Total farm area, ha	17,064,994	22,764,029	23,451,099	18,434,822	n.a.
Share of total area by farm size:					
(0–2) ha	10.4	4.1	5.6	5.1	3.4
[2–5) ha	16.8	15.9	16.5	15.5	13.0
[5–20) ha	42.0	45.1	40.9	44.5	39.0
[20+ ha	30.8	34.9	37.0	35.0	44.6
Average farm size, ha	5.6	6.4	5.9	6.1	n.a.
Flower–vegetable share in total	0.0064	0.014	0.022	0.020	0.017
Vineyard–orchard share in total	0.065	0.065	0.083	0.095	0.094
Crop share in total	0.57	0.58	0.67	0.66	0.70
Fallow share in total	0.27	0.25	0.20	0.15	0.13
Fallow share in crop area	0.32	0.30	0.17	0.18	0.16

Sources: General Censuses of Agriculture, State Institute of Statistics (1979, 1983, 1994, 2003); 2006 Structure of Agricultural Businesses Survey, TURKSTAT (2008c).

Data collected some 30 years later (for the 2001 General Census of Agriculture) indicate that the total number of farms was about the same as in 1970. The ranks of small farms thinned from 73 to 64.8 percent (of around 3 million farms), while their land share decreased from 27 to 20.6 percent. Middle-sized farms increased in number (from 23.5 to 29.4 percent of all farms) while their share of land area grew by a small amount (from 42 to 44.5 percent). The number of large farms also increased (their share went up from 3.7 to 5.8 percent) and they commanded a larger share of the land area (35 percent). The finer breakdown of the small farm category given in Table IV indicates that operations under 2 ha have been the ones losing their shares. Thus, although there is some evidence that the smallest family farms were being replaced by larger ones, three decades of technological change brought little change in ownership structure. Notably, the average farm in Turkey owned under 5 ha in 1970 and 1980, 5.2 ha in 1991, and 6 ha in 2001 (Cakmak, 2004).*

The ability of small, family-owned farms to endure and adjust to the changes that come with technological progress is a well-established historical fact (see De Janvry, 1981; Hayami and Ruttan, 1985; Otsuka, Chuma and Hayami, 1992). In Turkey the adjustment was aided by migration to urban areas and emigration, which reduced the population pressure on land (Keyder, 1983a, 1983b; Chapter 2 by Keyder and Yenal). Links between members of the

* Another persistent feature of Turkish agriculure is the fragmentation of land holdings. In 2001 the average family farm had to supervise 4.1 parcels of land (SIS, 2003).

extended family were sustained via remittances and in-kind transfers, an arrangement that provided insurance for both the land-based and the mobile branches of the family (Aksit, 2006). Land-based members had to contend with droughts and other natural disasters, but the government was always ready to pardon unpaid farm debts and supply additional credit. Under these circumstances it is not surprising to see that land did not change hands very often. The DIS provision of ARIP proved yet again that farmers were keen to collect any and all benefits associated with landownership. During the first year, when DIS payments were confined to holdings of 20 ha or less, 2.2 million farmers registered. The next year the number of claimants increased to 2.6 million, as larger holdings were broken down to qualify for support. To avoid further breakups, the ceiling had to be raised to 50 ha in 2003, covering 99 percent of all holdings (Cakmak, 2004).*

A key point that emerges from the foregoing analysis is that technological change did not bring about a significant change in ownership structure. However, the TURKSTAT survey data reported in the last column of Table IV suggest that the process of elimination of the smallest operations may have speeded up as a result of ARIP. Remarkably, in 2006 farms with holdings of 20 ha or larger accounted for 7.9 percent of all operations, but 44.6 percent of the land under cultivation.+ Further, comparison of recent data from two other surveys conducted as part of the ARIP evaluation with data from the 1970s (reviewed below) indicate that rental markets were being used with much higher frequency. Thus while ownership structure has been slow to adjust, there is concrete evidence that the operational size of the family farm has edged upwards via rental arrangements.

The bottom rows in Table IV provide a glimpse of the changing cultivation practices over time. We see large reductions in the use of fallow practices between 1970–80 and 1980–91, which coincide with the period of dramatic expansion of fertilizer use identified in Table III. As a result a larger and larger fraction of arable land is devoted to crop production, the main agricultural activity in Turkey. At the same time significant increases are registered in the share of land devoted to labor-intensive agricultural products that come under the flower–vegetable and vineyard–orchard categories.§

Short-Term Transactions Involving Land and Labor

We are primarily concerned with the employment implications of the transformation reflected in Table IV. In Table V we examine the adjustments that took place on the land and labor margins jointly, using data from two nationwide surveys conducted 30 years apart. Table Va is based on a survey conducted by Hacettepe University Population Studies Institute (HUPSI) in 1973. The data we report are for agricultural households who cultivate their own

* According to Cakmak (2004), a total of 2.8 million farmers qualified for DIS payments in 2003. This number is below the "99 percent of 3+ million farmers" enumerated in the 2001 General Census of Agriculture. The discrepancy is attributable to the fact that farmers who could claim usufruct rights to land based on local administrative records (kept by the Village Headmen) were not recognized as landowners in the central administrative records used in establishing the legitimacy of DIS claims.

+ Using the midpoints of the detailed distributional breakdown provided in the 2006 Structure of Agricultural Businesses Survey (reported in TURKSTAT, 2008c), Gursel and Karakoc (2009) arrive at an average operational size of 9.3 ha.

§ Excluded categories of land use are pastures/meadows and forested areas.

land.* The sample is extremely good at capturing the full range of agricultural practices of the time, with primitive farms using a wooden plow and a pair of oxen at one extreme, and fully mechanized farms relying on tractors and combine-harvesters at the other. Given this heterogeneity, it may not be surprising to find rather limited action on the labor and land margins. Bedi and Tunali (2005) rely on a transaction-costs-based theory to explain the overwhelming preference of land-owning cultivators for relying on their own resource base. They provide evidence that markets are more active in the more commercialized areas of the country.

Table V. Participation in transactions involving land and labor, 1973 versus 2002. Number and share (percent) of owner-cultivators in sample.

Table Va: 1973 survey	Lease land out	Do not participate	Lease land in	Lease land in and out	Row totals
Hire labor out	2 (0.20)	100 (9.85)	38 (3.74)	0 (0)	140 (13.79)
Do not participate	18 (1.77)	433 (42.66)	126 (12.41)	2 (0.20)	579 (57.04)
Hire labor in	20 (1.97)	183 (18.03)	60 (5.91)	0 (0)	263 (25.91)
Hire labor in and out	0 (0)	26 (2.56)	7 (0.69)	0 (0)	33 (3.25)
Column totals	40 (3.94)	742 (73.10)	231 (22.76)	2 (0.20)	1015 (100.00)

Source: Bedi and Tunalı (2005).

Table Vb: 2002 survey	Lease land out	Do not participate	Lease land in	Lease land in and out	Row totals
Hire labor out	11 (0.28)	626 (15.85)	179 (4.53)	1 (0.03)	817 (20.68)
Do not participate	22 (0.56)	1347 (34.10)	447 (11.32)	4 (0.10)	1820 (46.08)
Hire labor in	19 (0.48)	631 (15.97)	337 (8.53)	8 (0.20)	995 (25.19)
Hire labor in and out	4 (0.10)	213 (5.39)	99 (2.51)	2 (0.05)	318 (8.05)
Column totals	56 (1.42)	2817 (71.32)	1062 (26.89)	15 (0.38)	3950 (100.00)

Source: Dudu, H. Personal e-mail communication, January 16, 2009.

* The average landowner in the sample owned 5.8 ha of land while the average owner-cultivator in the sample owned 5.7 ha of land. The distribution of farms by operational size is similar to that reported in Table IV for 1970: (0–2) ha—41 percent, [2, 5) ha—27.9 percent, [5, 20) ha—25 percent, 20+ ha—6 percent.

Panel Vb is based on survey data collected as part of the ARIP evaluation efforts in 2002.* By this time technological innovations were widespread, and commercialization was complete. Consequently we would expect to see more activity on both land and labor margins. What we find is that while activity on the labor margin had increased significantly in 30 years, the land margin had remained stable. More than 70 percent of the owner-cultivators did not lease land in, or out. However, those who made adjustments were 19 times more likely to lease land in rather than out. Back in 1973 those who leased in were almost six times as numerous as those who leased out.

Despite the incremental changes, the average Turkish farm is still considerably smaller than the average for the EU-25 (16 ha in 2007).+ One reason why owner-cultivators may be averse to adjusting the scale of the family farm is their limited managerial potential. As we show later in this chapter, average human capital engaged in agriculture is extremely low. This might discourage farmers from expanding beyond a scale that can be cultivated under the supervision of household members.§ As Timmer (1988:293) puts it, "… there are too many opportunities to let high yields slip beneath the hoe or in a late fertilizer application, even under the watchful eyes of a guardian."

The next question is the nature of the increased activity on the labor margin. Returning to Table V, note that the fraction of owner-cultivators who hired labor in remained about the same, and increased activity took the form of hiring labor out. The HLFS data we examine in the following sections indicate that non-farm activities have claimed an increased share of rural employment in the ARIP period. This development suggests that the agricultural transformation has reached the point where the rural economy has other legs to stand on. Before rural areas become fully integrated with the urban labor markets, agricultural households would have a tendency to use the labor of their members on the farm. As new time-use options emerge, household labor will be put to the best possible use, often outside agriculture.

As incomes go up, income-elastic products (vegetables, fruits, and flowers) replace traditional ones (cereals). Both technology- and demand-driven changes in cropping have implications for the labor needs of owner-cultivators. Mechanization means that certain labor-intensive stages of agriculture (such as the harvesting of field crops) cease to be so. On the other hand, more intervention may be needed during the growing season for effective application of irrigation and fertilizers, and other yield-enhancing measures. Maintenance of perennials (vineyards–orchards) and multiple crop cultivation (flowers–vegetables) require timely interventions by experts. Not all members of the household may be qualified to engage in the full range of specialized activities. And not all members may be in the best position to exploit the opportunities that emerge off the farm. We turn to our detailed examination of the HLFS data next, and explore the adjustments that took place.

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* We are indebted to Hasan Dudu for furnishing the data in panel Vb. We excluded the table from the 2004 survey because the patterns are nearly identical. The average owner-cultivator in 2002 operated 6.2 ha of land, slightly more than that reported for 2001 in Table IV.

+ With the addition of Bulgaria and Rumania, the average for the EU-27 went down to 11.5 ha (European Commission, 2009).

§ The monitoring challenges are underscored in Hayami and Ruttan's (1985) classic account. As they point out, only a few crops (such as sugar cane and cotton) can be grown in large farms by gangs of unskilled labor supervised by hired overseers.

Agricultural Transformation and Surplus Labor

The technological change that triggers agricultural transformation facilitates the release of surplus labor for absorption into industry and service-sector employment. The dualistic model of growth popularized by Lewis (1954) and Fei and Ranis (1964), and extended by Harris and Todaro (1970) to allow for urban unemployment, suggests that industrialization effort creates manufacturing jobs in urban areas, and migration flows channel surplus labor in agriculture to maintain a reserve army of workers near the industrial centers. The process creates unemployment, but at a minimum urban wages will remain low and agricultural productivity will rise, creating conditions amenable for growth. A viable construction sector, combined with an informal sector that supports the modern manufacturing sector, serves as a buffer for initiating young unskilled males to the rigors of wage labor (Fields, 1975). The model has a limited role for unskilled females in sectors linked with agriculture such as food processing and textiles, and as domestic workers.

This dualistic model of growth serves us well for describing Turkey's experience between 1950 and 1990. Census data from 1955 to 1990 show that of the total increase of 8 million jobs for men in this period (from 6.9 million employed men in 1955 to 14.9 million in 1990), 3 million were in industry, 4 million in services, and only 1 million in agriculture. During this time 3.2 million jobs were created for women (a change from 5.3 to 8.4 million), less than half as many as for men. The bulk of these (2 million) were in agriculture, and only a total of 1.3 million in non-agricultural employment (Bulutay, 1998: Table 3; ages 12 and over). Thus expansion of non-agricultural employment appears to have been adequate for absorption of male surplus labor to a large extent, but not for the female agricultural labor surplus.

The macroeconomic picture that emerged at the end of the 1970s made it clear that import-substitution industrialization could not deliver the growth rates needed for sustaining real incomes. In fact, the reforms undertaken between 1980 and 1990 may be viewed as an attempt to render the traditional labor-absorption model workable again, by following an export-oriented industrialization strategy. However, employment creation in the post-reform period lagged behind earlier levels and the absorption problem extended to male surplus labor as well. Between 1988 and 1998, while the population in the 20–54 age group grew at an average rate of 3 percent per annum, employment increased at only half this rate. During this time the unemployment rate in urban areas of Turkey remained fairly stable for males and was on a declining trend for females. Migration directed towards huge metropolises also remained stable, below the pre-1980 levels.* As we show below, the absorption problem was initially manifested mainly in the form of declining participation rates. After the crisis of 2000–01 exposed the bankruptcy of the economic policies pursued in the 1990s, however, the national unemployment rate shot up to double-digit levels and the number of the unemployed doubled in three years.

* According to Ercan (2007), rural migrants accounted for half of the urban population increase of 9 million during 1990–2000. The flows were dominated by young people: 70 percent of the migrants were between 10 and 29 years of age. These numbers have to be read with caution, because 2000 census data have been subjected to downward revision. Since migration costs have been decreasing over time, circular movements are likely to have replaced permanent ones.

In this section we review the recent record with the help of the HLFS data to establish the subtle and not-so-subtle manifestations of the growing absorption problem. We examine the gender and generational differences and interpret them with the help of the material in the previous section. Although the time series we have is fairly short, it allows us to offer a preliminary assessment of the changes that took place as a result of ARIP. Towards that end we treat the period until 1999 as the "pre-ARIP" period and the period after 2000 as the "ARIP period," and look for evidence of structural breaks.

Decline in Agricultural Employment

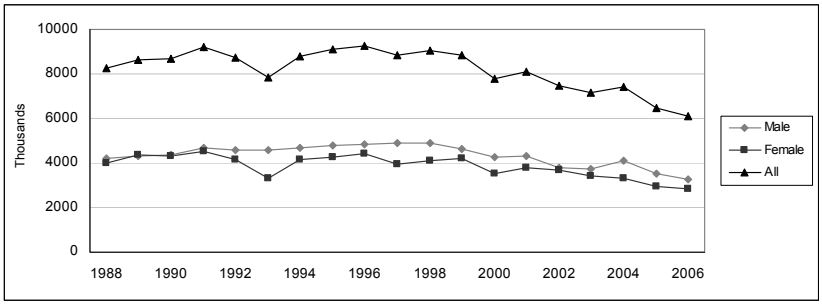
Data from the HLFS enable us to examine the trends over a 20-year period, 1988–2007. However, several methodological changes took place over time, the most important being sampling frequency. The first HLFS was conducted in October 1988. Between 1989 and 1999, the HLFS was conducted biannually, during the second full weeks of April and October. Starting with 2000, data were collected every month, using a new and larger sample frame. Although TURKSTAT revised the old series using annual population projections obtained from the 1990 and 2000 censuses, the change induced a break in the HLFS series. Finally, in 2007 TURKSTAT produced a revised population count, based on residential registration records.* The total population was revised downward but the HLFS database maintained on the TURKSTAT website is yet to be adjusted retrospectively.+ The levels data reported in this paper have to be read with this caveat in mind. In light of past revisions, our sense is that the shares at the level of aggregation that we study will remain relatively stable when the absolute numbers are adjusted. TURKSTAT also stopped updating the HLFS database beyond 2006, pending the population projection revisions. In places we have used data from TURKSTAT Press Releases to display the entire available HLFS series in the relevant figures. In our discussion we focus on the period 1989–2006, with the proviso that the data for 1989–99 are from the "old" (biannual) HLFS, while the data for 2000–6 are from the "new" (continuously implemented) HLFS.

In Figure I we plot total agricultural employment along with the gender-specific totals. All three series reveal that employment in agriculture remained stagnant throughout the 1990s (with the exception of a dip in 1993) and took a dive starting in 2000. Arguably the dramatic reduction of 1 million workers between 1999 and 2000 (a drop of more than 20 percent) is attributable to the break induced by the switch from the old to the new HLFS. However, the sustained and precipitous decrease recorded during the ARIP period is indicative of a structural break. Notably, the high plateau (of more than 9 million workers) that is reached in the second half of the 1990s coincides with the peak in agricultural state subsidies. DIS payments, which started in 2001, were entitlements based on ownership of land, and were not initially linked with agricultural activity. Starting in 2003, owner-cultivators became entitled for higher payments linked to input use. It appears that this temporarily arrested the decline (at least in the series for males), but the trend resumed in 2005. There is a net loss of over two

* Detailed information on the registration system ADNKS (Adrese Dayalı Nufus Kayıt Sistemi) can be found on the TURKSTAT website. For a summary, see TURKSTAT (2008b).

+ The HLFS data base can be accessed from the Database link on the TURKSTAT web page: http://www.turkstat.gov.tr/jsp/duyuru/upload/vt_en/vt.htm. In what follows we cite the source as "HLFS database, TURKSTAT (2008d)."

million jobs between 2001 and 2006, pulling down total agricultural employment to 6 million people.



Source: HLFS database, TURKSTAT (2008d).

Figure I. Agricultural employment by gender, 1988–2006.

Further inspection reveals that the higher volatility observed in the "old" series is almost entirely attributable to the volatility in female employment. With the exception of 1989–1991 and 2002, female employment is less than male employment. This development is attributable to the changing labor needs of owner-cultivators brought about by technological change. As agricultural tasks become specialized, men are more likely to be the ones to acquire the skills for doing them. Mechanization, in particular, is likely to drive out more women out than men. The patterns in data support these expectations except for a reversal in the trends during 2001–03. When ARIP was launched, there was a cap of 20 ha for eligibility for DIS payments. This led to fictional breakups of some large farms, in which each of the smaller holdings was registered under a different family member. Some of these new farmers were women, who have traditionally been excluded from ownership rights.* As we show below, the number of female own-account workers increased during this time, and this narrowed the gender gap.

In Figure II we reexamine the trends after breaking down agricultural employment according to employment status and gender. We observe that the bulk of agricultural employment consists of female unpaid family workers, male own-account workers and male unpaid family workers, in decreasing order of importance. This is reflective of the fact that the small family farm is the dominant operational unit. Adult men assume the role of the head of the household, and own the land and the farm, while women and young men provide the

* Although Turkish inheritance law gives male and female offspring equal rights, in practice males exercise control over, and become eventual owners of, their ancestral land. According to the findings of a field research study conducted in eastern and southeastern Turkey in 1997, 61 percent of the women surveyed stated that the inheritance of girl children will be determined according to traditional customs. When asked about what these customs were, 79 percent responded that girl children are obliged by custom to resign the inheritance in favor of their brothers. Besides girls resigning their right to inheritance, another common strategy used to bypass the gender egalitarian inheritance clause of the Civil Code entails fathers registering all property under the names of their sons (Ilkkaracan and Ilkkaracan, 1998). See also Sterling (1957) for a vivid account.

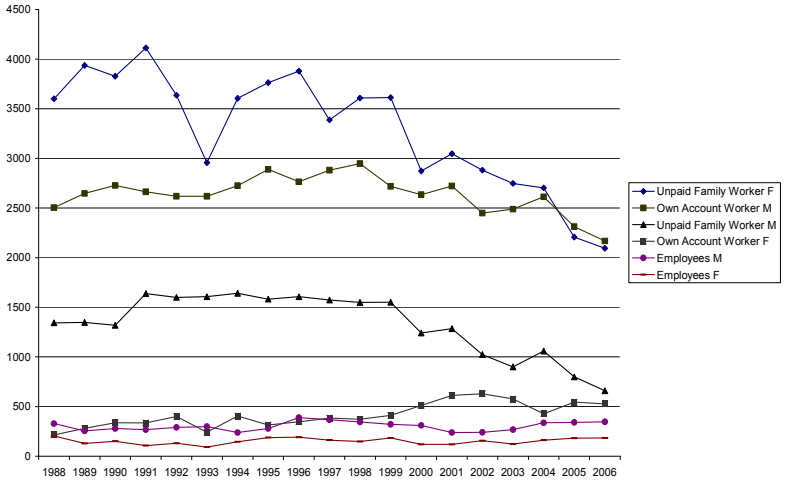
household labor. Regular and casual employees make up as little as five percent of total agricultural employment.

The structural break after 2000 where agricultural employment takes a downturn is clear. The employment losses during the ARIP period are almost entirely confined to the male and female unpaid family workers and male own-account workers. Unpaid family workers, regardless of gender, have the fastest declines. The decrease in female unpaid family workers of close to one million corresponds to half of the total decline, while unpaid male family workers and male own-account workers together make up the remainder. The increase in the number of own-account female workers during 2001–03 is the only development that bucks the trend. This development is the source of the shrinking gender employment gap in this period observed in Figure I.*

By 2006 the categories of unpaid female family workers and male own-account workers (more than 2 million people each) comprised as much as 71 percent of total agricultural employment, about the same as in 2000, and marginally below the 1988 level of 74 percent. Thus, ARIP appears to have had a small effect on modes of agricultural employment. This is attributable to the dominance of small family farms. The traditional source of labor continues to be household labor, while hired help during the harvest season remains a distant secondary source. Male and female employees (including regular as well as casual workers) average around 350 and 180 thousand respectively, with hardly any change in their absolute numbers throughout the period. Given the decline in the other categories, however, their share in total employment increased from around five percent in the 1990s to around nine percent in the 2000s. This development is consistent with the recent increases in operational sizes observed in the previous section.

With eight million people engaged in agriculture in 2001, Turkey had more hands engaged in agriculture than all of the EU-15 combined (6.8 million) at the time when EU membership became a prospect (EUDG-AgRuDev, 2008). We have clear evidence that ARIP boosted the rate at which agriculture sheds labor, and some indication that farm sizes are increasing as well. It may well be the case that both changes will have to accelerate for accession to become a reality. We turn to the examination of the labor absorption record next, in an attempt to gauge the feasibility of a faster transformation.

* As we mentioned in the previous section, the ceiling for DIS payments was raised to 50 ha in 2003. This appears to have curbed the short-lived surge in land ownership by women.



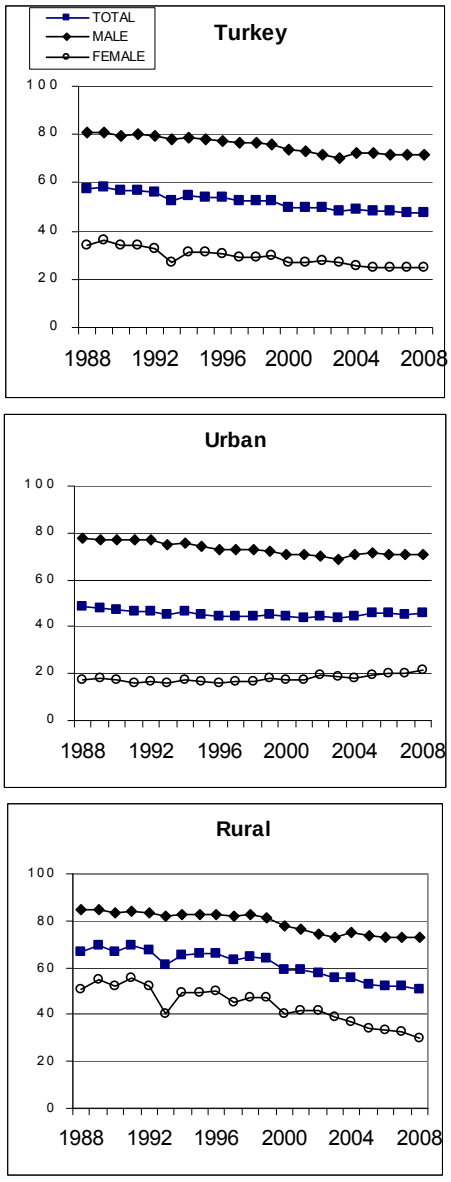
Source: HLFS database, TURKSTAT (2008d).

Figure II. Agricultural employment by gender and employment status, 1988–2006.

Decline in Labor Force Participation

A major manifestation of the agricultural transformation process has been to push former agricultural workers out of the labor force altogether, particularly in the case of women. This is reflected in the declining labor force participation rates. Examination of HLFS data for the 1988–2008 period (Figure III) shows that while the urban male participation rate is on a slow declining trend until the end of the 1990s, it appears to have stabilized at around 70 percent from 2000 onwards. The urban female participation rate is stable throughout the entire period at just around 20 percent.

The sustained decline in rural female labor force participation is the main contributor to the decline in the nationwide average during 1988–2008. In the pre-ARIP period, leaving the fluctuations aside, there is a reduction of eight percentage points in the rural female labor-force participation rate (LFPR). During this time the rural male participation rate remained relatively stable. By the end of the 1990s it was above 80 percent, almost double the figure for females. The effect of ARIP is particularly evident in the case of males. The rural male LFPRs take a downward turn from 2000 onwards, registering a drop of more than five percentage points (from 77.9 percent in 2000 to 72.6 percent in 2008). During this period rural female LFPRs continue to decline at the pre-ARIP rate. These sharp declines contrast with the stability in the urban picture. Increases in educational attainment, early retirement, and ageing of the rural population through selective migration, possibly account for some of the decline.



Note: The 2008 LFPR is for the month of December.
Source: HLFS database, TURKSTAT (2008d; 2009b; 2009c)

Figure III. Labor-force participation rate by location and gender, 1988–2008 (percent).

Note that the gender gap in participation is striking in both rural and urban locations. The urban gap is higher and remains so, even though it declines from about 60 percentage points in the early 1990s to about 50 percentage points in the late 2000s. The narrowing of the gap, however, is for the most part due to the decline in urban male participation rates. The lower rural gender gap is attributable to the dominance of agricultural employment, and the significance of the unpaid family labor category among the agricultural workforce. The widening of the rural gender gap (from 30–35 percentage points in the 1990s to about 40 percentage points by the late 2000s) is attributable to the decline in the relative share of unpaid family workers.

The low urban female participation rate, coupled with the decline in the rural female participation rate, places Turkey near the bottom of the female LFPR rankings not only among the OECD countries, but also in the world.* The effect of the decline in the rural male participation rate is to pull down the national average even further, to 47.7 percent in the December 2008 HFLS. As a result, Turkey has the lowest LFPR among not only the EU but also the OECD countries, as of the end of the ARIP period (OECD 2008). The decline in participation signals that the labor absorption problem has been worsening, and paints a grim picture of the employment consequences of the hastened pace of agricultural transformation.

Parallel to the declining share of agriculture in domestic production and the industrialization-driven pull of urban areas since the 1950s, we observe a masculinization of the workforce. As the next section shows, women retreat from the status of unpaid family workers in agriculture to become urban (and to some extent rural) homemakers. Thus the agricultural transformation process does not bring about a change in the gender relations for rural and migrant women. The preservation of the gender hierarchy is facilitated through a combination of bottlenecks on both the demand and the supply sides. On the demand side, the extent of non-agricultural job creation has not provided a sufficient absorption mechanism for the entire agricultural labor surplus. Women's withdrawal from the labor market altogether and their retreat into the traditional role of the homemaker has alleviated the scope of the problem.

On the supply side, to the extent that there were absorption opportunities, rural and migrant women were not competing with men. Their relatively lower levels of education presented one obstacle. As of 2003, almost 20 percent of the prime working age female population (age 20–45) had less than primary level education, while for men the rate was substantially lower at 5 percent (HUPSI, 2004). The gender-based division of labor acted as a reinforcing supply-side bottleneck. By assigning the primary responsibility for household and care work to women in the form of unpaid labor, this model suppresses women's educational aspirations and leads to intermittent and short-lived participation patterns. The lack of legal and institutional mechanisms to enable the reconciliation of work and family requirements in Turkey further reinforces these supply-side constraints (Ilkkaracan 1998; Ilkkaracan and Acar, 2007).

* As of 2007 Turkey has the 8th lowest female economic activity rate and the 17th lowest female share of adult employment among 191 countries (United Nations, 2009). According to the ILO Global Employment Trends Brief (ILO, 2007), women's average LFPR in 2006 for the Middle East and North Africa was 29.5 percent; for Latin America and the Caribbean it was 52.4 percent, and for South Asia 36 percent. Turkey's labor-market-wide female LFPR of 24.8 percent in 2007 is below all of these developing region averages. Also contrast it with the EU-27 average of 55.7 percent and the target rate set by the Lisbon criteria for female employment of 60 percent in 2010. The male participation rate of Turkey at 71.3 percent is closer to the EU-27 average of 77.5 percent (2004).

Regularly collected labor force statistics do not capture the status of working children under the age of 15. However, TURKSTAT has relied on occasional surveys (1994, 1999 and 2006) that piggyback on the regular HLFS to track the incidence of child labor (ages 6–17). Based on these surveys, the number (and share in their age group) of 6–14-year-old working children declined from 974,000 (8.5 percent) in 1994 to 320,000 (2.6 percent) in 2006 (Darbaz and Uysal-Kolasin, 2009). Agriculture still accounts for the lion's share of child labor (72 percent of girls and 50 percent of boys in 2006). Although the share of working children has declined dramatically since the 1990s, a significant number still serve the needs of small family farms as unpaid family labor.

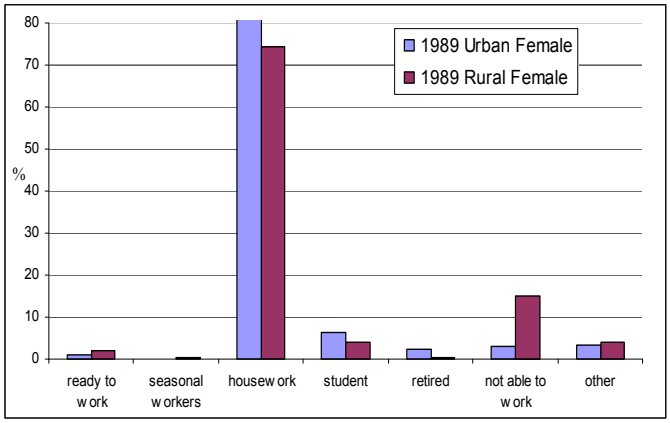
Changes in the Composition of Non-Participants

Having established that a significant segment of the agricultural labor surplus has dropped out of the labor force, we turn to an investigation of the reasons for non-participation as captured by the HLFS. Although the questionnaire has undergone changes, it is possible to compare the responses over time by aggregating to a smaller number of categories. Table VI gives the profiles of non-participating rural men and women in the 1989–99 and 2000–06 sub-periods, using seven categories: "not looking for a job but able to work," "seasonal worker," "busy with housework," "student," "retired," "not able to work," and the residual category "other." The upper part of the table shows the stocks and changes in absolute numbers of men and women, while the lower part of it, illustrated by Figure IV, shows the shares of each of the seven categories among the row totals given earlier. Figure IV also contrasts rural versus urban in the distribution of non-participant males and females among the seven categories for the years 1989 and 2006.

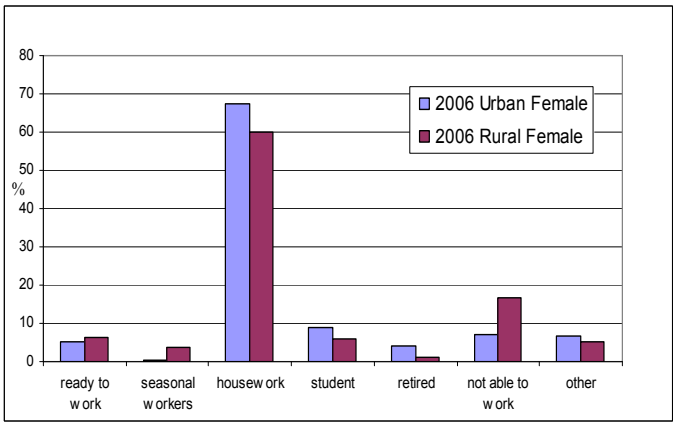
The numbers of non-participant rural females increased from 3.8 million women in 1989 to 4.9 million in 1999, and reached 6.5 million by 2006. In the case of rural men the numbers were lower (respectively 1.2, 1.7 and 2.5 million) but the rate of increase was higher. Earlier we implicated increased years of schooling, early retirement, and the ageing of the rural population through migration as potential channels through which a decline in the participation rate could come about. While the three categories of "students," "retired," and "not able to work" did register increases in terms of absolute numbers of men and women from 1989 to 2006, there was hardly a change in their shares. In fact, the share of male students among the total male non-participants declined by almost 12 percentage points, from one-third of all non-participants (32.1 percent) in 1989 to one-fifth (20.3 percent) in 2006. Female students as a share of total female non-participants registered a small increase of two percentage points from only 3.9 percent in 1989 to 5.9 percent in 2006.

Individuals in the retired category collect a non-negligible pension. The share of retired men among non-participants went up in this period by almost ten percentage points. This amounts to more than one-third of the rise in the total number of male non-participants (1.2 million). By 2006 one in every four male non-participants is retired. This surge can be attributed to the window of opportunity for early retirement that existed between 1992 and 1999. Interestingly, retirement hardly ever seems to be the reason for non-participation for rural women (less than one percent). This is attributable in part to the lower participation rates of women. A more significant reason is the fact that women who work as unpaid family workers do not qualify for pensions. Although life expectancy was increasing, the weight of

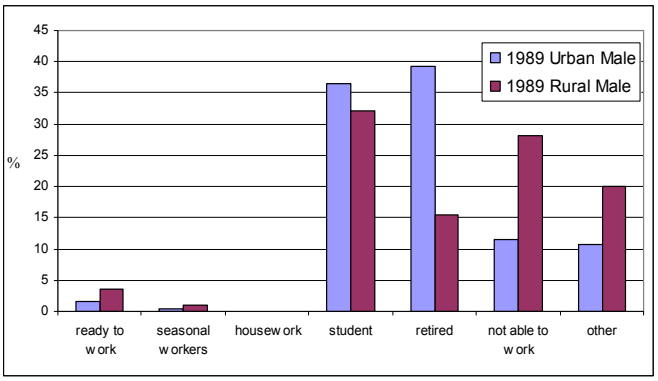
the "not able to work" category was fairly stable throughout the period, averaging approximately 27 percent of non-participant men and 15 percent of non-participant women.



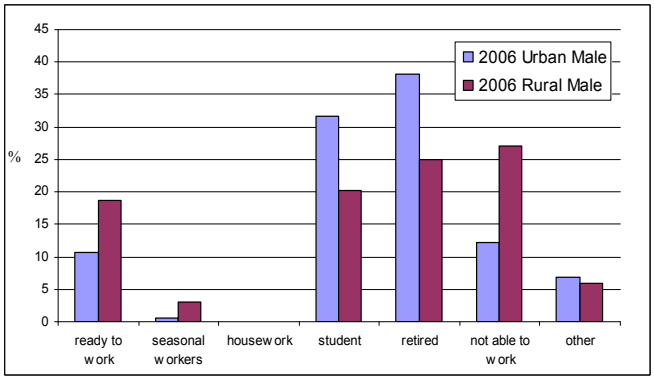
Panel Iva. Females, 1989.



Panel IVb. Females, 2006.



Panel IVc. Males, 1989.



Source: HLFS database, TURKSTAT (2008d).

Panel IVd. Males, 2006.

Figure IV. Reasons for non-participation: rural versus urban, 1989–2006.

"Busy with housework" is the dominant reason for non-participation provided by rural women. In 2006 almost 4 million rural adult women who define themselves as full-time homemakers make up the bulk of rural female non-participants (60 percent). While almost half of the non-participant men are out of the labor market either because they are preparing for it (students: 20 percent) or enjoying their pension post-participation (retired: 25 percent), more than half of the female non-participants are out of the labor market because they are performing unremunerated labor in the household. Figure IV shows that the urban composition of non-participants is very much the same, with 70 percent of male non-participants in the student and retired categories, and an equal share of female non-participants who are full-time homemakers.

Table VI. Reasons for non-participation by gender in rural areas.

Numbers of non-participants (thousands)

	Not in labor force		Not looking for a job but ready to work		Seasonal workers		Busy with housework		Student		Retired		Not able to work		Other	
	M	W	M	W	M	W	M	W	M	W	M	W	M	W	M	W
1989	1,217	3.831	43	83	11	15	–	2.845	391	150	188	15	343	571	243	155
1999	1.708	4.962	249	148	56	70	–	3.478	471	266	412	53	461	771	161	194
1989–99	+491	+1.131	+206	+66	+45	+55	–	+633	+81	+116	+224	+38	+118	+201	–83	+39
2000	2.011	5.669	280	129	211	304	–	3.926	435	203	407	32	458	711	218	363
2006	2.497	6.560	467	420	78	243	–	3.997	507	386	624	64	674	1.105	146	343
2000–06	+486	+891	+187	+291	–133	–61	–	+71	+72	+183	+217	+32	+216	+394	–72	–20
1989–2006	+1280	+2729	+424	+338	+67	+229	–	+1.153	+117	+236	+437	+50	+332	+535	–97	+188

Shares of non-participant categories (percent)

	Not in labor force		Not looking for a job but ready to work		Seasonal workers		Busy with housework		Student		Retired		Not able to work		Other	
	M	W	M	W	M	W	M	W	M	W	M	W	M	W	M	W
1989	100	100	3,53	2,15	0,9	0,38	–	74,3	32,1	3,9	15,4	0,38	28,1	14,9	20,0	4,05
1999	100	100	14,6	2,98	3,3	1,40	–	70,1	27,6	5,4	24,1	1,06	27,0	15,5	9,4	3,90
1989–99	100	100	+11,1	+0,83	+2,4	+1,02	–	–4,2	–4,5	+1,4	+8,7	+0,68	–1,2	+0,65	–10,6	–0,15
	100	100														
2000	100	100	13,9	2,28	10,5	5,36	–	69,3	21,6	3,6	20,2	0,56	22,8	12,5	10,8	6,40
2006	100	100	18,7	6,40	3,1	3,70	–	60,1	20,3	5,9	25,0	0,98	27,0	16,8	5,9	5,23
2000–06	100	100	+4,8	+4,13	–7,4	–1,66	–	–8,3	–1.3	+2,3	+4,8	+0,41	+4,2	+4,3	–5,0	–1,17
	100	100														
1989–2006	100	100	+15,2	+4,25	+2,2	+3,33	–	–13,3	– 11,8	+2,0	+9,6	+0,60	–1,2	+1,95	–14,1	+1,18

Source: HLFS database, TURKSTAT (2008d).

A striking shift in the rural non-participant profile is the expansion of the category "not looking for a job but able to work." This category is relevant, because it includes discouraged workers. While the share of this category appears negligible in 1989 (3.5 percent for men and 2 percent for women), it can no longer be ignored in 2006 (18.7 percent for men and 6.4 percent for women). This corresponds to almost half a million each of men and women, with the bulk of the registered increase occurring during the ARIP period. The swelling ranks of able-bodied men and women who stop searching for work may be indicative of the dwindling work opportunities in agriculture combined with low rates of non-agricultural employment generation. In the following two sections we follow this lead and show in turn that the decline in agricultural employment disproportionately affected the younger age groups, and that the growth of entry-level non-agricultural jobs has not been high enough to compensate for the losses.

In some respects the rural non-participant distribution becomes increasingly similar to the urban one. "Retired" (which is the largest category for urban non-participant males) becomes more important in rural areas, moving from fourth place in 1989 to second in 2006. As the share of "students" and "other" among male non-participants decline for both urban and rural areas, the reverse holds true for female non-participants. The weights of the "not looking for a job but ready to work" as well as the "seasonal worker" categories increase for both male and female non-participants in both locations. "Not able to work" continues to stand as a higher category in the rural setting than in the urban.

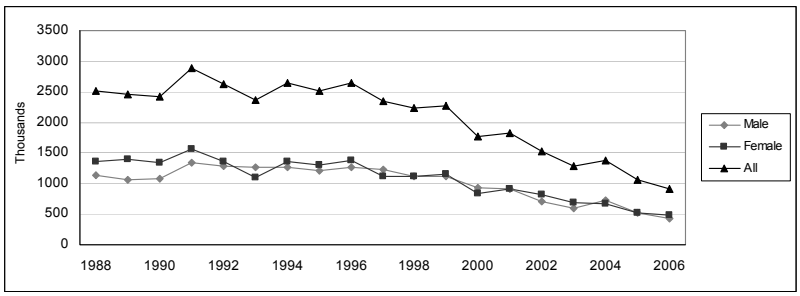
Ageing of the Agricultural Workforce

Examination of the agricultural employment patterns at different phases of the life cycle reveals useful clues about the evolution of labor markets. We break the life cycle into four phases: entry to employment (ages 15–24), early career (25–34), mid-career (35–44) and late career (45 and above). The four panels of Figure V track the total and gender-specific levels of agricultural employment during the four phases. Note that males and females claim nearly equal shares of agricultural employment except late in their careers.

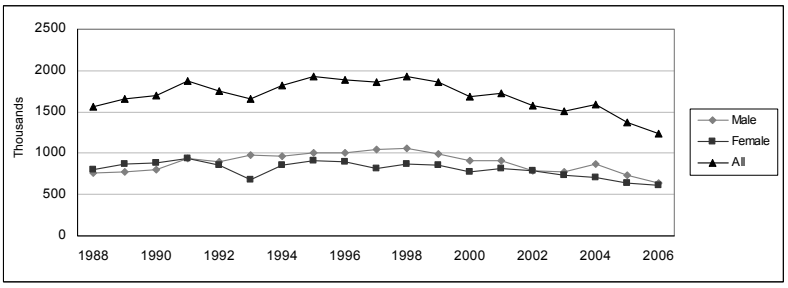
Comparison of the four panels indicates that the employment losses observed in agriculture, beginning in the latter half of the 1990s, are predominantly in entry-level jobs followed by early-career jobs. Notably the employment levels of 15–24-year-old workers have been declining steadily and markedly since the early 1990s, indicating that careers in agriculture had become less attractive even before ARIP entered the picture. The paces of decline are almost identical for men and women. In contrast, employment levels for 25–34-year-old males rose during the 1990s. The decline set in with ARIP and affected both males and females. During this time there are declines in the totals for the mid- and late-career groups as well. However, the rate of employment loss is lower.

The ageing of the agricultural labor force over the period 1988–2006 is easier to document with the help of Figure VI, which shows the shares of the four age groups we identified above. Back in 1988, entrants and late-career workers jointly had the lion's share in agricultural employment. Workers entering agricultural careers accounted for 34 percent of the female total and 27 percent of the male total, while late-career workers accounted for 28 percent of the female total and 40 percent of the male total. By 2006 the share of entrants had halved: they accounted for 17 percent of the female and 13 percent of the male agricultural

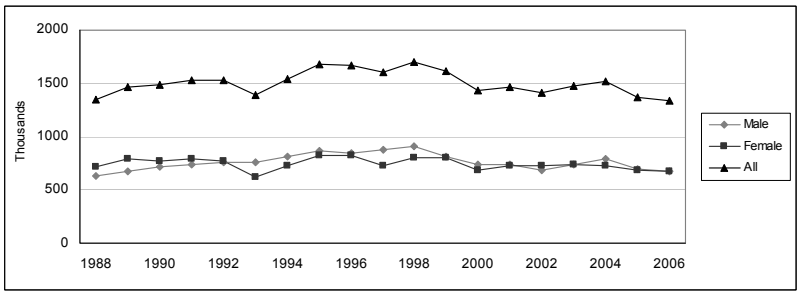
work force. In contrast, late-career workers increased their share (to 38 percent in the case of females, and 47 percent in the case of males). Given the relative stability of the other age groups, we conclude that as young people under 25 left agriculture, those who were 45 and older emerged as the dominant group in the workforce.



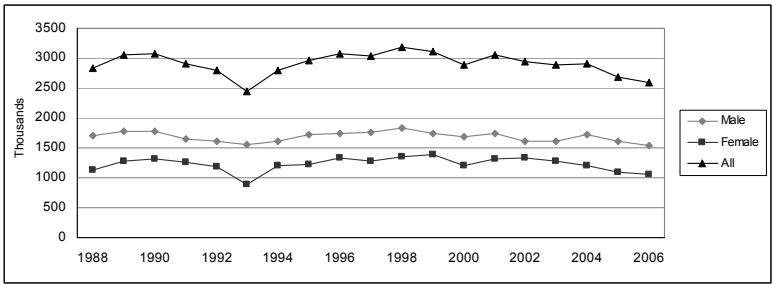
Panel Va. Entry (ages 15–24).



Panel Vb. Early career (ages 25–34).



Panel Vc. Mid-career (ages 35–44).



Source: HLFS database, TURKSTAT (2008d).

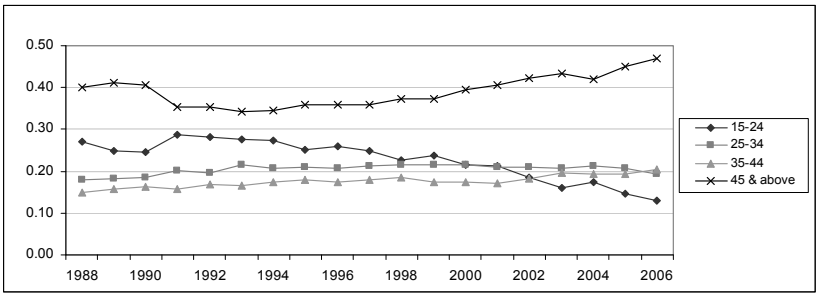
Panel Vd. Late career (ages 45 and above).

Figure V. Agricultural employment by age group and gender, 1988–2006 (thousands).

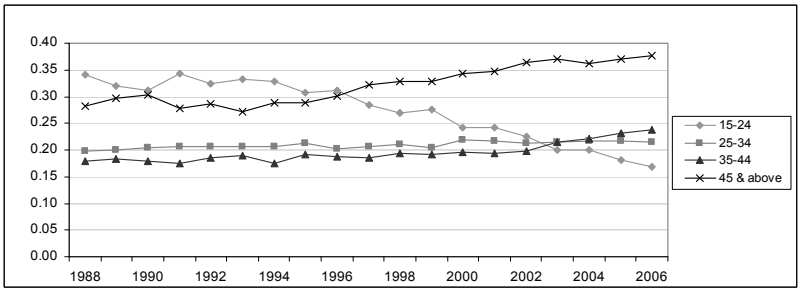
The phenomenon of an ageing agricultural work force in conjunction with the decline in the share of agricultural employment is not unique to Turkey. In fact, as long as the agricultural transformation is accompanied by economic growth, young generations are best placed to exploit the new career opportunities that emerge. The question we turn to next is whether the steady decline in agricultural employment from the mid 1990s onwards in the case of the 15–34 age group was offset by developments in the urban labor market.

Changes in the Prospects of Entry to Non-Agricultural Employment

The dualistic model of growth states that the industrialization drive in urban areas creates jobs in manufacturing and services, which act as the channels of absorption of agricultural surplus labor. In 1989 there were 18.2 million workers in the Turkish labor market. Agriculture accounted for 47 percent of the total while services were second at 32 percent, followed by manufacturing at 16 percent, and construction at 5 percent. As of 2006, total employment stood at 22.3 million. The shares of services and manufacturing went up, respectively to 47 and 20 percent, and construction remained stable at 6 percent, while the share of agriculture had gone down to 27 percent. Despite the shift in the sectoral distribution of employment away from agriculture, however, the growth of non-agricultural employment seems to have failed to absorb the agricultural labor surplus for female labor from the beginning; and for male labor from the late 1990s onwards, exacerbated by the 2001 economic crisis.



Panel Via. Males.



Source: HLFS database, TURKSTAT (2008d).

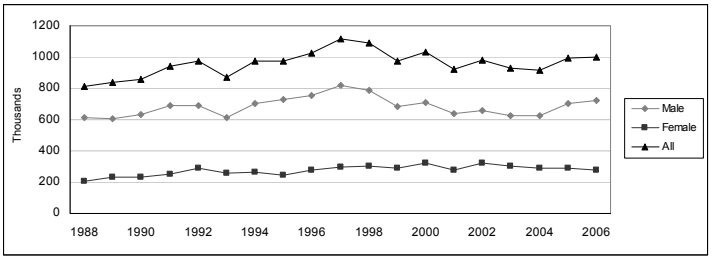
Panel VIb. Females.

Figure VI. Share of agricultural employment by age and gender, 1988–2006 (percent).

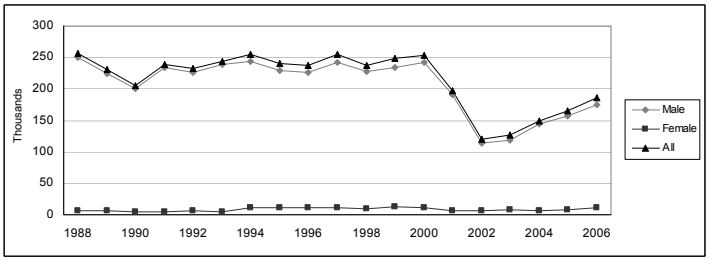
The data on non-agricultural employment compiled in Figure VII suggest that entry-level jobs for males have been disappearing steadily after 1997 in manufacturing as well as in construction and services. Entry-level jobs for females, which were substantially below those held by their male counterparts in manufacturing and services (and virtually non-existent in the construction sector), exhibit modest gains throughout the 1990s. However, these appear to have stabilized after 2000. Thus there is absolutely no evidence of increased absorption capacity during the ARIP period.

The decline in male entry-level jobs is particularly striking in the case of the construction sector. It is evident that males in the 15–24 age bracket did not benefit from the construction boom of the 1990–99 period, and that the jobs shed in the construction sector over the 2000–02 period were also concentrated among younger males. Although construction employment recovered, starting with 2003, the level in 2006 is below that in 2000. Overall services did a better job of generating entry-level jobs, particularly for females, but 226,000 such jobs were lost between 2000 and 2004. These observations suggest that the lure of the urban labor market has been weakening in the late 1990s, and may have disappeared altogether during the

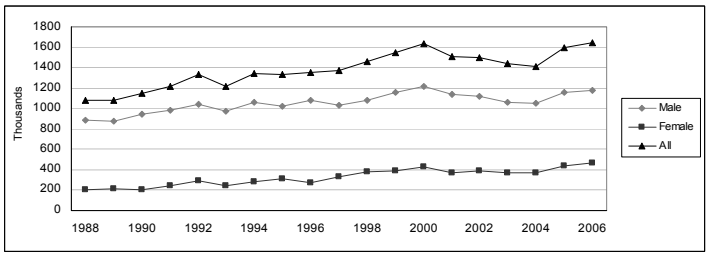
post-crash period. Indeed, the decline in rural labor force participation rates (discussed earlier in this chapter) suggests that a significant portion of the rural population failed to exercise the migration option. The global economic crisis, which started having an impact in Turkey in the second half of 2008, has exacerbated the poor absorption capacity of non-agricultural employment even further.



Panel VIIa. Manufacturing.



Panel VIIb. Construction.



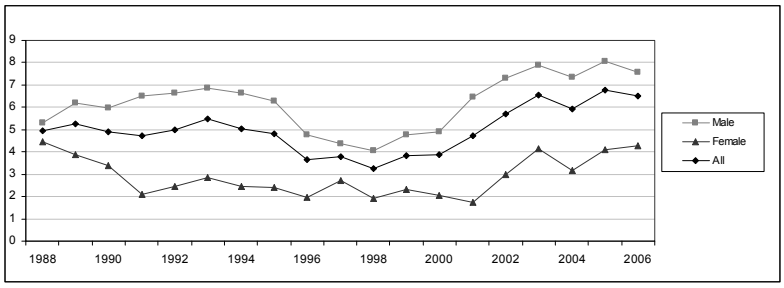
Source: HLFS database, TURKSTAT (2008d).

Panel VIIc. Services.

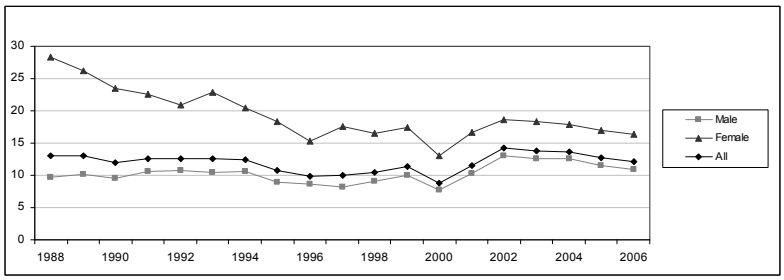
Figure VII. Entry to non-agricultural employment, ages 15–24, 1988–2006 (thousands).

Unemployment

Figure VIII displays the available series on unemployment broken down by location and gender. The slow employment-generation rates in urban areas have been accompanied by two-digit urban unemployment rates throughout the period under study. Thanks to the dominance of small family farms, rural unemployment rates have been significantly below the urban rates. This has been the case particularly for rural women, whose unemployment rate fluctuated between two and three percent throughout the 1990s, while the figures for urban women were above 15 percent (yet on a declining trend). While the gap is not as pronounced in the case of men, rural male unemployment rates remained at around half those of urban males (4 percent versus 9–10 percent).



Panel VIIIa. Rural areas (population 20,000 or less).



Source: HLFS database, TURKSTAT (2008d).

Panel VIIIb. Urban areas.

Figure VIII. Unemployment rate by location and gender, 1988–2006 (percent).

After 2000 both the rural and the urban unemployment rates shot up. While the 2000–01 economic crisis is likely to be the main culprit, we should not forget that ARIP was launched during this time. Urban rates peaked at 13 percent for men and 18.7 percent for women, and started coming down after 2002. In contrast, rural unemployment rates rose steadily and almost doubled in the ARIP period (from 4.9 percent for rural men and 2 percent for women in 2000, to 8.2 percent and 4.1 percent respectively in 2007). As we documented earlier, absorption problems of surplus labor were exacerbated during this time. All indications are that all the unemployment statistics are headed for new records as a result of the global slowdown that started in 2008.*

The evolution of "non-agricultural" rural unemployment rates followed the rural trend, albeit at levels that equaled or exceeded those in urban areas.+ In 2000 rural non-agricultural unemployment rates were almost the same for men and women (respectively 10 and 11 percent). By 2006 the male rate reached 12.1 while the female rate shot to 19.2 percent, indicating that rural areas were hosting a significant share of the reserve army of non-agricultural employment seekers. The dramatic increases in the numbers of active job seekers would not have been possible without the improvements in communication (knowledge dissemination), transportation, and other amenities that reduced the handicaps of residing in rural areas.

The Rural Labor Market

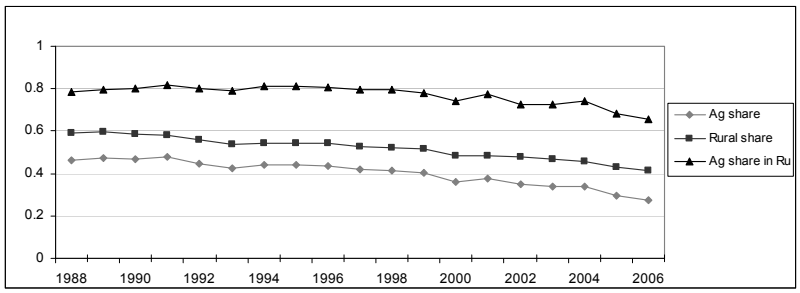
In the previous section we found evidence that the faster decline in agricultural employment associated with the hastened pace of transformation during the ARIP period exacerbated the labor absorption problem. In this section we bring the rural labor market into focus and look for additional evidence that can help delineate the contours of change. In particular we look for evidence that the distinction between rural and urban labor markets might be withering away, as rural areas became better articulated with the rest of the country. We continue to work with the HLFS data and bring in evidence from other sources.

In Figure IX we track over time the shares of agricultural and rural employment in *total* employment, and the share of agricultural employment in *rural* employment. We already documented the declining share of agricultural employment in total employment earlier; we show it here for comparison. The figure suggests that the share of rural employment in the total is declining in lock-step with that of agricultural employment. But there is a subtle change: before 2000, the share of agriculture in rural employment was stable at around 80 percent. After 2000 it started to decline. During 2002–4 it was in the low 70s, and during 2005–6 in the high 60s. In fact, the share of agriculture in rural employment underwent a

* According to the February 2009 TURKSTAT news bulletin, the ranks of the unemployed swelled by 1.1 million in one year as the unemployment rate shot up from 11.9 to 16.1 percent. During this time the rural unemployment rate increased from 8.5 to 11.9 percent (TURKSTAT, 2009a). Although Turkey has had an Unemployment Insurance (UI) system since March 2002, only a small segment of the unemployed population stands to benefit from it (Tunali *et al.*, 2003). Based on the most recent data available (February 2009), those collecting UI benefits accounted for 7.4 percent of the unemployed total (3.8 million). Since the UI system covers non-governmental regular wage workers who have social security coverage, it has an urban bias.

+ The non-agricultural unemployment rate is the ratio of the unemployed workers who are looking for a job in the non-agricultural sector to the total non-agricultural labor force. The rural version is calculated for individuals residing in rural areas.

steeper decline than the other two numbers over the period 2004–6. This suggests that the rural economy might be becoming more diverse over time. We examine different aspects of this diversity next.



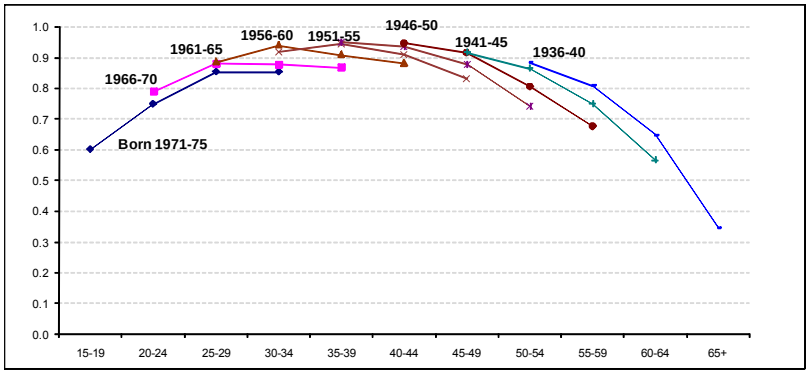
Source: HLFS database, TURKSTAT (2008d).

Figure IX. Shares of agricultural and rural employment in total employment, and share of agricultural employment in rural employment.

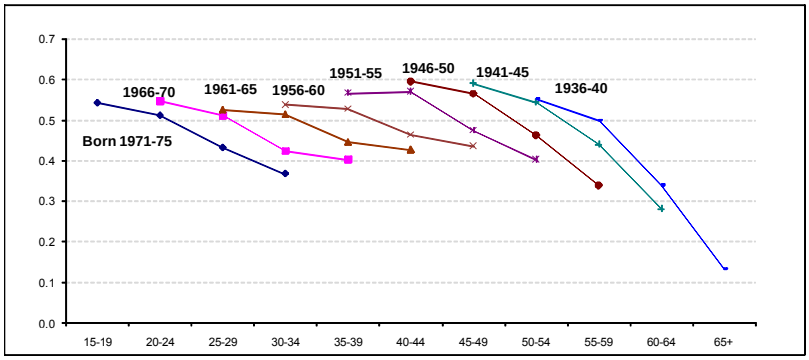
Withering Career Prospects in Rural Areas

Earlier in this chapter we examined the age composition of the agricultural workforce and concluded that it was ageing. Since younger generations are better educated, one possibility is that younger workers have other more attractive job prospects, and refrain from careers in agriculture. The question we examine in this section is how careers in rural areas have panned out for different generations over time. We achieve this by using synthetic cohort analysis with several rounds of cross-section data from the HLFS (for 1990, 1995, 2000, and 2005) to track birth-cohorts over time.

The youngest cohort observed in a given cross section consists of people in the 15–19 age group. In the 1990 HLFS data, this youngest age group contains people born between 1971 and 1975. We follow the 1971–75 birth cohort and observe them as 20–24 year olds in the 1995 HLFS, as 25–29 year olds in the 2000 HLFS, and finally as 30–34 year olds in the 2005 HLFS. Using this methodology we are able to follow eight five-year cohorts (namely those born in 1971–75, 1966–70, 1961–65, 1956–60, 1951–55, 1946–50, 1941–45, and 1936–40) for four periods that span 20 years each. The age profiles of employment for these birth cohorts are given in Figure X. In addition we are able to follow the 1976–80 cohort for three periods (using the HLFS for 1995, 2000, and 2005) and the 1981–85 cohort for two periods (using the HLFS for 2000 and 2005), and get to observe the 1986–90 cohort once (in the HLFS for 2005). In order to keep the pictures manageable, we do not show the profiles for these cohorts. All available data are compiled in Tables IX and X.



Panel Xa. Males.



Source: HLFS database 1990, 1995, 2000, 2005, TURKSTAT (2008d).

Panel Xb. Females.

Figure X. Age profiles of employment rates by birth cohorts in rural areas, by gender (percent).

Table IX. Age profiles of employment rates by cohort, rural males (data for Figure X).

Age:	**15–19**	**20–24**	**25–29**	**30–34**	**35–39**	**40–44**	**45–49**	**50–54**
Cohort:								
1986–90	0,346							
1981–85	0,524	0,622						
1976–80	0,540	0,703	0,800					
1971–75	0,600	0,748	0,852	0,851				
1966–70		0,789	0,880	0,878	0,867			
1961–65			0,885	0,939	0,908	0,881		
1956–60				0,918	0,944	0,909	0,830	
1951–55					0,948	0,934	0,877	0,740
1946–50						0,946	0,915	0,804
1941–45							0,915	0,863
1936–40								0,551

Source: HLFS database, 1990, 1995, 2000, 2005, TURKSTAT (2008d).

Table X. Age profiles of employment rates by cohort, rural females (data for Figure X).

Age:	**15–19**	**20–24**	**25–29**	**30–34**	**35–39**	**40–44**	**45–49**	**50–54**
Cohort:								
1986–90	0,228							
1981–85	0,361	0,338						
1976–80	0,485	0,392	0,332					
1971–75	0,542	0,511	0,432	0,367				
1966–70		0,547	0,511	0,422	0,401			
1961–65			0,525	0,513	0,445	0,426		
1956–60				0,537	0,527	0,463	0,435	
1951–55					0,566	0,569	0,473	0,402
1946–50						0,595	0,564	0,461
1941–45							0,590	0,544
1936–40								0,551

Source: HLFS database, 1990, 1995, 2000, 2005, TURKSTAT (2008d)..

To the degree that employment prospects in rural areas mimicked those in the urban labor market, we would expect to see a concave age profile. Employment rates would increase with age, at a rate that captures the speed of the transition from school to work. They would eventually reach a peak (and possibly a plateau) and start to come down. In the case of females, marriage and child bearing emerge as important life-cycle events that may trigger early withdrawal from the labor market. Employment rates of both genders would eventually come at a rate determined by the generosity and selectivity of the retirement prospects.

Viewed altogether, the profiles for males shown in Panel Xa conform to the expected pattern. Upon closer inspection, however, we see that the profiles of the younger cohorts peak and turn down prematurely, before they reach mid career. Furthermore, there is evidence that the profiles of older cohorts are above those of younger cohorts at later points in the life cycle. Thus, there is evidence that employment prospects declined across the board in 2000, followed by a sharper drop in 2005. In the case of women (Panel Xb), the usual life-cycle pattern appears to have disappeared altogether. With one exception (observed for the 1951–55 cohort between 1990 and 1995), the cohort-specific profiles are sloped downward for each and every life-cycle segment. That is, regardless of their starting level (in 1990), women from a given cohort were employed at a lower rate five years later (in 1995), at an even lower rate 10 years later (in 2000), and at the lowest rate yet 20 years later (in 2005). This striking and pervasive pattern of exit is attributable to the declining importance of agriculture and in particular the type of agriculture centered on the small family farm, which constitutes the main source of employment for women in the capacity of unpaid family workers.

Reading Panel Xb vertically across cohorts but at a given segment of the life cycle, we see that access to employment is decreasing from one generation of rural women to another. For instance, when the cohort of 1971–75 reached the age of 30–34 in 2005 they had an employment ratio below 38 percent. The previous cohort (born during 1966–70), which reached this point in 2000, had a higher employment ratio of 42 percent. Notably the cohorts (born during 1956–65) that reached this point in the 1990s achieved considerably higher employment ratios, of above 50 percent. Drops of similar magnitudes are evident among 35–39 and 40–44 year olds. The faster pace of transformation appears to have had an adverse effect on the employment prospects of younger generations of women, who reached working ages during the ARIP period. Both the 1976–80 and 1981–85 cohorts were less likely to enter employment at age 15–19 and lagged considerably behind older cohorts when they reached age 20–24 (see Table A1). Note that for the youngest cohort (born during 1986–90) the average employment rate at age 15–19 was only 34.5 percent for men and 22.8 percent for women. This is the first cohort that was affected by the extension of compulsory education to eight years. There is evidence that enrollment in high school also increased as a consequence (see Tunali and Yuret, 2009). It remains to be seen how this will influence the employment prospects of the young cohorts in later years.

Skill Mismatch and Declining Prospects for Absorption in the Urban Labor Market

As we pointed out earlier in this chapter, Turkey chose to open up its economy and to compete in the global arena through a series of reforms implemented between 1980 and 1990. Given the strong forces of globalization in the period under examination, exports based on

cheap labor have been drying up. Hence, the need to climb up the skill and productivity ladder is more urgent than ever. In this section we examine the skill levels of the workforce and the prospects for absorption of the agricultural workforce in non-agricultural jobs.

Tables VII and VIII show the skill (educational attainment) composition of the different sectors, and give overall averages as well as the numbers disaggregated by gender for the years 1989 and 2006 respectively. The educational composition of employment is very different in urban areas. Low levels of educational attainment of the rural population stand as a major obstacle to the absorption of the agricultural labor surplus into urban non-agricultural employment. This leaves a huge reserve army of uneducated or unskilled workers who have stopped participating altogether.

Table VII. Composition of sectoral employment by education, 1989 (percent).

	Illiterate (%)	Five-year primary or less (%)	Eight-year primary or junior high (%)	High school (%)	University (%)	Total (%)
Agriculture	*All* 29.7	65.2	3.0	2.0	0.1	100
	M 18.3	73.5	4.6	3.4	0.2	100
	F 41.0	56.9	1.3	0.7	0.0	100
Construction	9.4	76.4	5.6	5.4	3.2	100
	9.3	76.8	5.6	5.2	3.1	100
	10.0	40.0	10.0	30.0	10.0	100
Manufacturing	4.7	70.1	9.9	11.6	3.7	100
	3.0	70.9	10.2	11.8	4.1	100
	12.7	66.4	8.7	10.7	1.6	100
Services	4.2	52.2	12.2	17.7	13.7	100
	3.9	57.2	12.5	15.3	11.2	100
	6.5	22.1	10.4	32.0	29.1	100
Total	16.7	62.4	7.1	8.7	5.2	100
	9.0	66.8	8.8	9.8	5.5	100
	33.5	52.7	3.3	6.1	4.4	100

Source: Authors' calculations from HLFS database, TURKSTAT (2008d).

In 1989 one out of eight jobs in manufacturing was held by an illiterate woman. At this time two women out of five engaging in agriculture were illiterate. In 1989, while 98 percent of the female agricultural workforce (and 92 percent of the male) had five years of primary education or less, 78 percent of the female manufacturing workforce (and 74 percent of the male) had this level of education. In 1989 getting manufacturing jobs in urban areas was not a far-fetched possibility as far as rural migrants were concerned. In 2006, by contrast, only one out of 25 jobs in manufacturing was held by an illiterate woman. At that time one out of four women in agriculture was illiterate. In 2006 half of the jobs (48 percent) in manufacturing required more than five years of primary education. Only six percent of the women in agriculture (and 20 percent of men) have more than five years of primary education. The

prospect of getting a manufacturing job has seriously diminished for rural migrants, particularly for women.

Table VIII. Composition of sectoral employment by education, 2006 (percent).

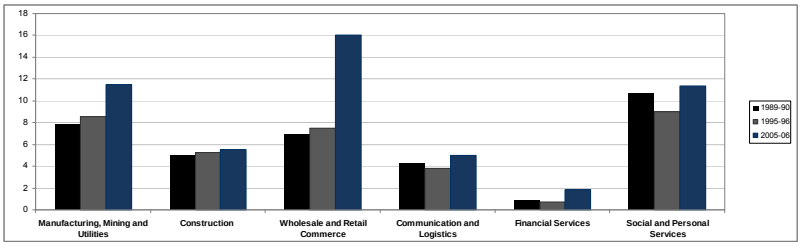
	Illiterate (%)	Five-year primary or less (%)	Eight-year primary or junior high (%)	High school (%)	University (%)	Total (%)
Agriculture	*All* 16.4	69.9	6.3	6.4	0.9	100
	M 7.2	72.5	9.3	9.6	1.5	100
	F 27.0	66.9	2.9	2.8	0.3	100
Construction	2.4	60.4	13.0	17.2	6.9	100
	2.5	61.9	13.1	16.4	6.1	100
	0.0	11.1	11.1	44.4	33.3	100
Manufacturing	1.4	50.3	14.2	26.2	7.8	100
	0.8	49.9	14.9	27.0	7.4	100
	4.2	52.1	11.5	22.6	9.6	100
Services	1.3	34.8	12.8	28.7	22.3	100
	1.0	38.2	14.5	28.3	18.0	100
	2.4	21.4	6.4	30.5	39.3	100
Total	5.5	48.8	11.3	21.5	12.8	100
	2.3	49.2	13.4	23.4	11.6	100
	14.5	47.6	5.4	16.1	16.3	100

Source: Authors' calculations from HLFS database. TURKSTAT (2008d).

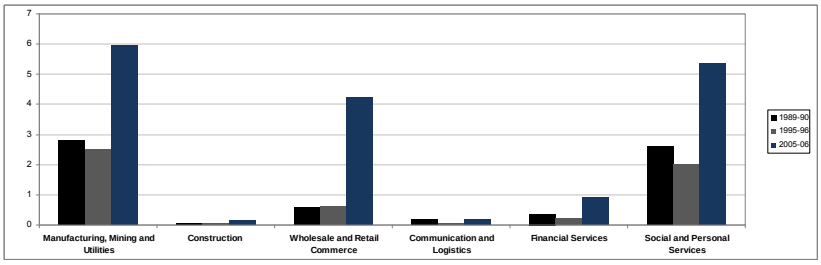
In the case of males, construction still offers jobs that have a similar education profile to those found in agriculture. However, construction accounts for only a small portion of overall non-agricultural employment. As shown above, this already small share was also drastically reduced after the 2000–01 crisis, and despite the pick-up in 2004, employment is yet to reach the levels recorded in the 1990s.

Non-Agricultural Employment Prospects in Rural Areas

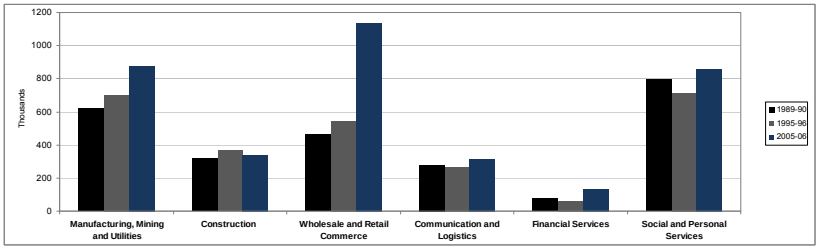
Consistent with the dualistic paradigm, until the turn of the century agricultural employment and rural employment were almost synonymous. Based on annual HLFS data, almost 77 percent of all rural employment in 1989–90 was in agriculture. Between 1989–90 and 1995–6, when agricultural employment reached its peak, there was no change. A decade later, the share of agricultural employment was below 60 percent and on a declining trend. Over the 20-year period spanned by the HLFS, agriculture accounted for a small, stable share of the urban workforce, around five percent.



Panel XIa. Share of rural non-agricultural employment by sector, males (percent).



Panel XIb. Share of rural non-agricultural employment by sector, females (percent).



Source: HLFS database, TURKSTAT (2008d).

Panel XIc. Total rural non-agricultural employment by sector (thousands).

Figure XI. Non-agricultural employment in rural areas over time.

The increase in the share of non-agricultural jobs in rural areas from 23 percent in the 1989–96 period to 41 percent in 2005–6 was accompanied by an almost 40-percent increase in the number of non-agricultural rural jobs (from around 2.5 million to 3.7 million). The sectoral composition of non-agricultural employment in rural areas is displayed in Figure XI, at three points in time (1989–90, 1995–6 and 2005–6). The first two panels show the employment shares of six non-agricultural sectors, respectively for males and females, while the third panel displays the totals in each of the sectors. The increased pace of diversification can be gleaned from all three panels. The last panel underscores the fact that diversification captured by the shares is not simply a statistical consequence of the decline in agricultural employment. We see that expansion of wholesale and retail commerce (which includes hotels and restaurants) accounted for the bulk of the increase in non-agricultural employment opportunities during the post-ARIP period. The expansion of manufacturing employment has been taking place at a constant pace of about 100,000 jobs every five years. Expansion of financial, social and personal services, despite a declining population base, suggests that the rural areas are catching up with urban areas in terms of amenities. Notably, rural men obtained the lion's share of the new employment opportunities, as three quarters of the increase in rural non-agricultural jobs was absorbed in male employment.

The signs for economic diversification and the obstacles to rural development are recognized in a recently published policy document of the State Planning Organization (DPT, 2006). One of the points underscored there is the dispersion of the rural population. According to the report, there were around 35,000 villages and more than 40,000 settlements linked to villages in 2005. According to the General Census of 2000, 41.7 percent of the villages had 250 or fewer inhabitants. It is clear that the size of the typical rural settlement is far below what may be needed for breaking their dependency on agriculture and husbandry. Fragmentation also stands in the way of delivering basic health and education services. The report mentions that while 73 percent of all schools providing eight years of basic education are in villages, the share drops to seven percent in the case of secondary schools.

Obstacles for Women in Rural Areas

In the last two subsections we established first that technological change is driving women out of agriculture in larger numbers than men, and then that the skill requirements of non-agricultural jobs provide even a larger obstacle for rural women's absorption prospects in non-agricultural employment compared with those of men. Furthermore, the low rates of labor-force participation of urban women with primary or secondary school education suggest that, even when women have the skills that a majority of the male workforce has, they face additional challenges in entry into the paid workforce. While the participation rates of urban women do increase with the number of years of schooling, the rise is only minimal from around 13 percent for those with primary school education to around 30 percent for high-school graduates. The real jump occurs at the university level, to 70 percent (HLFS 2000–08). The question that remains to be answered, then, is whether rural women stand much chance in getting non-agricultural jobs in rural areas.

A major challenge to increasing female LFPRs lies in a supply-side bottleneck embedded in the gender-based division of labor, assigning women's primary responsibility to production

in the home, and men to engagement in market work. There is a two-way relationship between the division of labor and gender roles such that gender roles reinforce the division of labor, while the division of labor itself strengthens the gender roles. The nature of this interaction plays a significant role in household decisions with respect to investments in girls' versus boys' education. It also influences older children's own decisions in continuing their education, their choice of occupation and types of jobs, their participation in on-the-job training, and consequently time spent in market versus non-market work. The lack of legal and institutional mechanisms for reconciliation of work and family responsibilities reinforce the gendered division of labor further. Time-use data that have recently become available for Turkey provide further testimony to the gendered nature of market versus non-market production patterns.

TURKSTAT's Time-Use Survey , conducted nationwide for the first time in 2006, reveals useful insights with respect to women's and men's as well as urban versus rural allocation of time between market and non-market work (TURKSTAT, 2008a). The aggregate data show that rural women perform seven hours of labor on the average (combined market and non-market labor) versus five hours and 12 minutes by rural men, six hours by urban women, and five hours 21 minutes of labor daily for urban men.* Rural women who also participate in the labor market report a daily eight hours and 32 minutes of market and non-market work combined. This amounts to almost 60 work hours weekly and represents the heaviest work load among all categories (higher than participant urban women and men).

On the average, women allocate more than 80 percent of their total working hours to household and child care, while men allocate 84 percent of total working hours to market work (TURKSTAT, 2008a). The gender gap in labor hours is particularly pronounced in the case of young women and men (15–24 age category) with less than primary schooling. Young women with low education perform three hours and 21 minutes more work on average than their male counterparts. In the same age–education category, men report spending an average of 52 minutes daily on educational activities versus only 13 minutes for women.+

These findings also shed light on the low underemployment rates observed for women, especially rural women (averaging around one percent in the 2000–06 period versus six percent for rural men). It is highly improbable for rural women to be underemployed given their load of reproductive work, as evidenced by their working hours cited above. Considering the higher birth rates and limited access to health and educational services, combined with lower standards of household technology, rural women are more likely to be overworked rather than underemployed.

∗ These are aggregate average figures as reported by TURKSTAT for a population sample of age 15 and above. Daily average means divided over seven days of the week; hence weekly work hours should be calculated by multiplying the daily averages by seven.

+ The average market versus non-market work and educational activity hours disaggregated by gender, age and education group based upon the Institute's Time Use Survey 2006 was provided upon written official request to the Turkish Statistical Institute.

CONCLUSION

In this chapter we analyzed the recent changes in rural labor markets by situating them within the context of nearly six decades of agricultural transformation. We have clear evidence of significant technological change in agriculture facilitated by capital accumulation (mainly mechanization and irrigation) and biological–chemical innovations (hybrid seeds, fertilizers, pesticides and insecticides, and crop rotation). Both changes affect labor use in different ways: mechanization typically reduces the need for labor, but introduction of high-yielding varieties and new cash crops facilitated by irrigation mitigate the pace of reduction. Biological–chemical innovations that improve yields are typically seen as land augmenting, but they call for increased labor use as well. However, skill requirements also increase. Itinerant members of the household may no longer qualify for farm work or have better options off the farm. In sum, the implications for labor are complex, and require empirical verification.

Of particular interest for us were the labor market manifestations of the Agricultural Reform Implementation Project (ARIP), which was implemented in 2001. In brief, a successful transformation is expected to proceed in two phases. The first is the release of surplus labor from agriculture through elimination of low-productivity small family farming. The second is the absorption of the rural labor surplus, initially in urban and later in rural non-agricultural production. ARIP appears to have accomplished the first phase with some success. The number of people employed in agriculture has undergone a drastic reduction of two million workers in a short span of seven years. Furthermore, the targeted categories of unpaid family workers and own-account workers account for the bulk of the reduction. However, it is also evident that younger and potentially productive members of the household are disproportionately represented among those leaving agriculture.

More significantly, the second phase is imbued with myriad problems. Neither non-agricultural job generation nor high-productivity market-oriented agricultural employment exhibits the potential for absorbing the large numbers of workers displaced from small farming. To be sure, the economic crisis of 2000–01 that coincided with the launch of ARIP had a hand in this outcome. Yet the sheer size of the workforce involved in small farming was arguably far too big, and had serious human capital impediments to facilitate easy absorption even without the added obstacles of the recession in the economy.

It could well be the case that the government saw this early on, and brought back input supports to arrest the employment decline. The unabated decline in labor-force participation rates and the trend for rising unemployment, in particular for the young and the women, suggest that this effort fell short. Early indications are that the global crisis that struck in 2008 will be pushing the urban unemployment rates to unprecedented levels. Since the jobs being shed were concentrated in industry and services, the share of agricultural employment actually went up slightly in 2008. Yet the trends in farm size and the changes in the composition of the agricultural workforce indicate that the agricultural transformation is proceeding at near-to-full speed. It appears that farmers hold on to their land, but increasingly use household labor in other activities as the rural economy diversifies. Since improved communication and transportation channels make it possible to remain in rural areas without losing touch with the urban labor market, the rural labor market in the post-ARIP period

displays some key features of the urban one, such as declining participation and increasing unemployment rates.

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