Population Changes and Labour Market Accounts in Syria: 1994-2004

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A thesis submitted for the degree of Doctor of Philosophy at Newcastle University, UK School of Geography, Politics and Sociology

March 2017

Abstract

Population growth in Syria 1994-2004 varied regionally, as did economic growth, and it was at the regional scale of Syrian labour market where the effects of these changes were seen. The contribution of this thesis is to empirically examine how the processes in the regional labour markets were influenced by demographic changes and varying economic opportunities. It examines these variations and determines how the regions responded to imbalances of growth in labour supply and demand.

The methodology of labour market accounts distinguishes the role of demographic and economic components in each regional labour market, and identifies how far natural growth of the economically active population was absorbed by adequate employment growth in the period 1994-2004. Most regions saw substantial job shortfalls, largely due to increasing numbers of young people seeking work at a time of slow economic growth. This thesis shows the regional variations in this problem, which in some regions was highlighted by the extent to which female economic participation increased from traditionally very low levels. The combination of job shortfalls and changing economic activity rates led to an increasing labour supply imbalance, and consequently increasing unemployment or net out-migration.

This research shows that the labour market accounts method can be applied to the regions of Syria. The insights gained from the analysis suggest that similar analyses may be worth pursuing in countries with similar socio-economic challenges arising from stalling economic growth when labour supply was still growing due to previously rapid demographic growth and a 'catching up' in female economic participation. These circumstances have led this thesis to introduce the supply imbalance measure to labour market accounts: presenting the data in this way highlights economic and social challenges emerging in each region. The research also highlights limitations to applying this method in a situation where the datasets present some difficulties and the populations captured by each are variable. The implications gained from this research have to be seen rather hypothetical now that Syira's population is radically changing due to ongoing conflict which began in 2011.

Acknowledgement

As my research comes to an end, I would like to take the opportunity to express my profound gratitude to all the people who made it possible and who have made it such an unforgettable experience.

First of all, my sincere thanks go to my supervisor, Prof. Mike Coombes, for his continuous support and systematic guidance throughout my research, including the development of the original idea, and the critical revision of the drafts of this thesis. I would also like to express my gratitude to my supervisor Prof. Tony Champion, for his vital input, revision and insightful comments. My sincere thanks also extend to my supervisor Prof. Jane Pollard, who offered advice, support and encouragement whenever I was in need.

I must also recognise and thank Damascus University and the British Council for funding my PhD research project at Newcastle University.

I am forever indebted to my friend Dr. Najeh Wanous, who was lost far too soon. I never had the chance to express the depth of my gratitude for his work, which was invaluable in providing me with necessary data for my research. A special mention must also go to my friend, Dr. Samar Al-Sairafi, for her work in obtaining the regional data needed for the research. My thanks also go to the Syrian Central Bureau of Statistics in Syria for their invaluable help and assistance.

I would also like to thank all the members of staff at the Geography Department in Newcastle University for their help and support throughout my PhD studies. I am especially grateful for Prof. Andy Russell and Dr. Andy large for always being there for me during the good and the bad times.

To my beloved Safaa, who has supported me spiritually throughout the journey. To my sweet Yara: your smile has enabled me to battle through the difficulties and your laugh has helped me to complete the last stage of this journey. Last but not the least, to my family, you should know that your emotional support and encouragement was worth more than I can express here - you are missed.

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Abbreviation	Meaning
AGR	Annual growth rate
CARIM	Consortium for Applied Research on International Migration
CBR	Crude birth rate
CBS	Central Bureau of Statistics
CDR	Crude death rate
DTM	Demographic transition model
EAP	Economically active population
Fafo	Fafo research foundation
GAPAR	General Authority for Palestinian Arab Refugees
GCC	Gulf Cooperation Council
GDP	General domestic product
ILO	International Labour Organization
IOM	International Organization for Migration
LFS	Labour force survey
LMA/cs	Labour market accounts
MENA	Middle East and North Africa
OECD	Organisation for Economic Co-operation and Development
PASSIA	Palestinian Academic Society for the Study of International
	Affairs.
PCBS	Palestinian Central Bureau of Statistics
PRB	Population Reference Bureau
SIMS	Syrian internal migration survey
TFR	Total fertility rate
UN	United Nations
UNDESA	United Nations Department of Economic and Social Affairs
UNDESPA	United Nations Department for Economic and Social
	Information and Policy Analysis
UNESCWA	United Nations Economic and Social Commission for Western
	Asia
UNHCR	United Nations High Commissioner for Refugees
UNPD	United Nations Population Division
UNRWA	United Nations Relief and Works Agency for Palestine
	Refugees In the Near East
UK	United Kingdom
US	United States of America
WAP	Working age population
WB	World Bank
WFP	World Food Programme

Glossary of Abbreviations

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Chapter 1 Introduction to the thesis

1.1 Background

Syria has experienced remarkable demographic changes with high growth rates produced by high fertility and low death rates. These changes have altered population structure by creating a wide-base of the age pyramid, which is reflected within a very high proportion of children and low proportion of older age groups. In the decade from 1994, the population growth rate slowed because of a rapid decline in fertility rates. However, the echo effect of past natural growth increased the size of new entrant cohort to the labour market. In addition, migration is an important part of demographic change in Syria, with international migration an essential component of change to the national labour market. Combined with the effect of net international out-migration by Syrians in search of work, Syria was the main receiver of the refugee influx from Iraq, creating more demographic pressure on the Syrian labour market. Internal mobility has also played a role in increasing the rates of urban population growth as the proportion of the population living in the largest cities has persistently increased over time.

The impact of these demographic processes was further accentuated by low economic growth and declining levels of job creation. The resulting severe imbalance between strong labour supply increases and the modest growth in labour demand has led to increasing unemployment rates and restricted economic activity rates. Within this national picture, population growth rates and, to a less extent, employment trends varied among Syrian regions, producing different patterns within regional labour markets. It is this regional variation in labour market dynamics during the period 1994-2004 which provides the empirical focus for this thesis. Although this research covers the demographic profile of Syria for the period up to 2004, it must be recognised that Syria's population is currently fundamentally changing due to ongoing conflict which will have long-lasting demographic and economic impact.

1.2 Thesis scope

This thesis attempts to address the question of how varying regional demographic characteristics and trends have shaped the labour market situation, in combination with the different patterns of economic development in Syria's regions in the period 1994-2004. It seeks to separately measure each process of population change, and to identify their impact on the spatial variations in labour market outcomes for different age and gender cohorts in each region.

Little is known about how the Syrian labour market adjusted to various economic and demographic changes in this period. This thesis intends to practically apply the labour market accounts method, with a view to better understanding how various population factors impacted upon regional labour markets in Syria in the period of 1994-2004. The technique of labour market accounts is particularly useful because it can illuminate the dynamics between changes in the economy and demography by measuring the effect of the separate labour market component changes (i.e. identifying the effects of natural increase, employment change, participation change, unemployment change, and net migration). The thesis endeavours to apply the method to the rather volatile context of Syria at the turn of the millennium, and in so doing tests the applicability of the method outside the more stable 'first world' contexts where its value has been proven.

1.3 Thesis structure

This thesis examines the dynamics of national and regional labour markets in Syria over the 1994-2004 period. It develops over further seven chapters.

Chapter 2 reviews theoretical perspectives and engages with relevant empirical

research on the relationship between population and economic development. Although its primary emphasis is upon Syria, it also engages with other Middle Eastern countries which have a similar demographic profile. It initially outlines the basic population change components, natural change and migration, and their socioeconomic characteristics. It then examines the socio-economic impacts of population change on labour market development, with a particular emphasis upon more short-term effects. Finally, it discusses with general demographic trends and labour market development in Syria. It starts with global trends, and then considers Middle Eastern countries with similar socio-economic trends to Syria, it also highlights the profound impact of the Syrian crisis and its demographic and economic implications on the population.

Chapter 3 sets out the methodological approach that this thesis will use to empirically assess the ways in which Syria regional labour markets have responded to demographic change It initially sets out the methodology of labour market accounts (LMA/cs), and thereby establishes the means through which data will be engaged and evaluated. It then discusses the process of data collection, with specific reference to the various data sources (such as censuses, labour force surveys, and other secondary data) that will be utilised in the course of this research. Finally, the discussion engages with data limitations and the estimation strategies necessary to permit the application of the LMA/cs method to the data compiled on demographic and economic change within the Syrian regions.

Chapter 4 provides an empirical analysis which engages at the national scale and which focuses upon the demographic components of the labour market accounts. It specifically analyses national demographic changes related to the labour market in the 10 year period between 1994 and 2004. It is divided into four sections. The first of these sections discusses pre-1994 demographic trends within Syria. Although the emphasis is upon a specific period (1994-2004), it is important to recognise that demographic change is a very long-term process and that the referent socioeconomic trends will have been profoundly influenced by the preceding historical context. The

chapter then turns its attention to national demographic change in the period up to 2004. It develops the theme of change with specific reference to age and the size and composition of the labour force. It also sets out how the natural growth of the working age population will be estimated for the 10 year period. In its concluding stage, the chapter then provides an estimate of net international migration which completes the components of national labour market accounts, sheds light on patterns of geographical mobility, and also highlights the impact of both factors upon Syria's national labour market. In addition, it engages with various sources with specific attention to strengths and limitations, and reviews procedures for synthesising data on immigration and net out-migration and net migration.

Chapter 5 examines regional demographic changes, with a particular emphasis upon the process of urbanization. This is a particularly important feature of regional population change because rural-urban migration often drives interregional migration patterns in less fully developed countries. It then turns its attention to major demographic trends within individual regions, with a specific emphasis upon the ways in which population growth and associated changes within the age structure contribute to a natural increase in the working age population. The considerable impact of international migration upon regions is then discussed with reference to different nationalities (both Syrian and non-Syrian). Finally, the chapter then shifts its focus to consider how internal migration has contributed to changes in both the size and composition of regional populations.

Chapter 6 reports regional variations in economic change that impact upon the Syrian labour market. It initially examines the main economic developments that occurred within Syria and comparable countries (Lebanon and Jordan) during the period from 1980 to 2004. It then discusses the national and regional demand side of the labour market, with reference to the main industrial sector. After developing this topic in more depth, it then examines changes to economic activity rates and levels of unemployment that have occurred over the 10 year period. This will enable an assessment of the labour market effects of lower rates of employment creation.

Regional variations within age and gender specific activity rates will also be taken into account and discussed.

Chapter 7 brings together data that has already been analysed to calculate components of regional labour market accounts. This will enable it to answer the question of how regions have adapted to the challenges associated with population change. The chapter is divided into five sections. The first of these sections examines the labour market accounts procedure in more detail, and sets out the methodologies that will be used to estimate its components. The next section reveals how national labour market change for the period 1994-2004 are revealed through the labour market accounts. The discussion then examines variations within labour supply and demand trends within Syria's 13 regions: it initially considers this theme with reference to the urban size of regional centres, and then maps individual LMA/cs components by individual regions. The relative importance of the different labour market responses is then assessed to provide an insight into the key dynamics of change in different regions of Syria.

Chapter 8 summarises the research findings and then discusses the key limitations to adopting the labour market accounts method in the case of Syria. It then considers the broad contribution which this thesis has made to the broader field of knowledge, along with its more specific contribution to an applied methodology. In concluding, it considers potential policy implications and then demonstrates how future research engagements could build on this study.

Chapter 2

Linking population dynamics to labour market trends

2.1 Introduction

This chapter reviews existing research and also engages theories that investigate the relationship between population and economic development. In the first main section, the basic concepts of population growth, natural change and migration, and their socio-economic characteristics, are presented to demonstrate the causes of population change. Fertility, mortality and migration are seen as significant factors, and are linked to socio-economic development, since these variables have great importance in terms of affecting population growth rates and development processes within any given country. The next section is dedicated to investigating the socioeconomic consequences of population change on labour market development, with particular focus on relatively short-term effects. A full picture of the changes in the labour market includes the age structure profile of labour supply (the labour force available to work), and labour demands (available jobs in the market), as well as the regional labour migration process. The final section is devoted to providing a review of general demographic trends and labour market development relevant to Syria. Starting from global trends as a general framework, it then explains the trends on a smaller scale in some major Muslim countries, particularly Middle Eastern countries, which generally share the same socio-economic trends as Syria.

2.2 Theoretical overview of demographic change

This section reviews existing literature on the dynamics of population change and provides a brief discussion of the relationship between population growth and economic development. It also presents the basic concepts of the demographic transition model and highlights its main components. Thus it is essential to discuss transition theory briefly here (Figure 2.1), as it "helps to set the scene for following dialogue, and also because it emphasizes the strong interrelationships between population structure, fertility, mortality and migration, which lie at the heart of formal demography" (Newell, 1988, p. 15).

In the study of population "it is unlikely to describe national trends in births and deaths and growth rates, or changes in national age structure, without reference to the demographic transition" (Rowland, 2003, p. 17). The first definition of the theory was formulated by Thompson (1929), followed by Landry (1934), Davies (1945) and Notestein (1945). Demographic transition involves the interaction between two main factors: fertility and mortality. All other factors, whether biological or sociological, must take effect through these, and the differentials between these are considered to be responsible for changing the size of a population based on different trends in mortality and fertility rates (Davis, 1945; Simon, 1993; Kirk, 1996). According to Simon (1993), transition theory provides an initial understanding of the population growth that took place during the industrialization era, because fertility continued at high levels while mortality dropped as a result of improved health and economic conditions linked to the industrial revolution. Thus the transition model can link the demographic situation of a country and the achieved level of economic development at a specific time.

According to this model, the process of population change is controlled by a sequence of changes in rates of fertility and mortality which are connected to other social and economic changes that determine overall population change (Holdsworth *et al.*, 2013). In this transition process, societies move between two main stages. In the initial stage, they are characterised by high birth and death rates (the pre-transition stage) they then move to a second stage, which is instead characterised by low birth and death rates (the post-transition stage) (Rowland, 2003). Before the transition, population growth was very slow, life expectancy was low, and the population was young, while during the transition population growth is rapid due to a noticeable decline in mortality and then fertility. Finally, the low fertility rates and longer life expectancy create an old population structure (Lee, 2003). The essence of

a 'classic' transition model is that decline in mortality rates are preceded by a decline in fertility rates (Woods, 1982).



Figure 2.1: Demographic transition stages Source: based on Weller and Bouvier (1981); Rabah (2011).

Understanding the elements of the demographic transition is helped by demonstrating them as a set of stages (Hinde, 1998) which occur at different times and different speeds in different countries, (see Figure 2.1). Stage one is the pre-transition stage in which population growth is stable due to high fertility and mortality rates. Stage two shows a rapid decline in mortality, but at the same time fertility rates persist at high levels, resulting in rapid population growth. In stage three, fertility rates start to decline, and consequently population growth begins to decline. Reduced mortality and fertility rates are the main aspect of stage four, with continuing decline in population growth as it perhaps falls below the "replacement level" needed for the population to remain the same size (Witherick, 1990; Craig, 1994; Lee, 2003; Holdsworth *et al.*, 2013).

In the developed countries of Europe (in particular France, Germany and the UK), the transition has been completed for many years. Since 1950, birth rates remained below replacement level in most of these countries, as Figure 2.2 clearly

demonstrates. However, international net in-migration has been playing a significant role in ensuring that these countries would continue to experience slight increases in population size. In developed countries, the transition often took over 150 years. At present, death rates for those under 5 years old are low in the developed world, but remain high in poor countries (Willekens, 2014). Government intervention programmes were important in reducing death rates and raising life expectancy rates. In more developed countries such as France, the United Kingdom (UK) and Germany, relatively high crude death rates are then the result of their large proportions of older age people, as seen in Figure 2.2.



Figure 2.2: Crude birth and death rates in selected regions

Source: the researcher based on data source: United Nations, Department of Economic and Social Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, custom data acquired via website.

The transition of fertility rates in Europe first started in France in late 18th century, after the French Revolution in 1789 (Binion, 2001). In developing countries, including Syria and Jordan, the transition did not start until the early 1950s (Reher, 2004), when birth and death rates declined (Figure 2.2). The Middle East has some of the world's highest fertility rates. Most countries in this region are in the middle stages of demographic transition. Some countries in this region, like Lebanon and Kuwait, will age remarkably quickly due to substantially declining fertility rates. Lebanon has experienced a remarkable decline in population growth, as Figure 2.3 clearly illustrates. In contrast, Syria has one of the highest population growths rates in the world due to high birth rates (shown in Figure 2.2), leading to a rapid increase in the proportion of young people. These variations within regional demographics have deep "implications for economic development" (Hayutin, 2009).

It is worth noting that, in most developing countries, the decline in birth rate is linked to government intervention in demographic policy that reduces family size through expanding family planning methods, such as contraceptive use (Myrskylä *et al.*, 2011).



Figure 2.3: Population growth rates in selected regions

Source: Based on United nations, Department of Economic and Social Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, custom data acquired via website.

Changes in age structure of the population are the most significant consequences of demographic change, with the effects potentially linked to patterns of migration (Schultz, 2009). The change in fertility rates will firstly affect the younger age group, and then affect older ages several years later. This will be shown in a shrinking of the base of the pyramid, as a result of a rapid decrease in births. Reductions in infant mortality have a similar influence to that produced an increase in fertility rates (Newell, 1988, p. 32). In developing countries, high fertility rates and falling infant and child mortality have increased the number of live births and also raised the survivor rate (Burch, 1987). "Twenty to thirty years later, there will be another peak another generation later, and so on, akin to echoes, and this explains why population will thus continue to grow rapidly in size for many years to come, particularly in developing countries" (Newell, 1988, p. 33).

To summarise, demographic transition takes place in several stages from: "high birth rates and moderate or high death rates; through low birth rates and even lower death rates" (Bloom and Freeman, 1988, p. 58). This transition is only complete when regions, which are initially characterised by high fertility and mortality rates, evidence low fertility and mortality rates (Bloom *et al.*, 2001). These changes do not occur in isolation; rather, they instead interact with net migration. This interaction has an immediate impact upon the processes and dynamics of population change. In contrast to this proximate impact, socio- economic, and political aspects more often appear as the underlying causes of population change (Rowland, 2003).

2.3 Components of population change

Population change is the net consequence of the three main constitutive elements of demographic change: fertility, mortality and migration (Compton, 1969; Chamberlain and Gill, 2005). Population change can ultimately alter the socioeconomic structure within any country (McNicoll, 1984). Positive growth due to natural increase in the overall population size occurs due to the number of births surpassing the number of deaths (see Figure 2.4). Conversely, natural decline in the size of the population occurs when deaths outnumber births. Net migration can have

either a positive or a negative impact on population within a particular area or region (Witherick, 1990).

Zelinsky (1971) has made a remarkable contribution to the analysis of population change by linking demographic transition theory to changing patterns of population mobility. He theorises that mobility transition is a necessary part of population change (Caselli *et al.*, 2006). Zelinsky demonstrates that demographic transition is linked to the process of modernization, which is associated with increasing mobility between regions over time; this in turn is connected to different levels of economic growth (Haas, 2007b). Holdsworth *et al* (2013, pp. 28-29) observe that Zelinsky "suggests a peak of migration for early transitional societies and declining for superadvanced societies due to increases in communication and controls on migration, [and] his idea is being widely used to describe the differences in population redistribution between more and less developed countries". "[T]his model [is particularly important because] it simulates the course of demographic transition under different conditions" (Rowland, 2003, p. 22).

Population growth is the difference between initial population P_o and the end population P_n ; the component of population growth can be expressed as:



 $P_n - P_o = (Births-Deaths) - (Net migration)$

Figure 2.4: Population change Source: Based on Witherick (1990).

The cause of population change varies spatially because in some regions or countries migration plays the more dynamic role in the equation, while in other instances natural increase has the greater impact (Holdsworth *et al.*, 2013). This demonstrates why it is so important to better understand the components of population decline or growth (Rowland, 2003) and therefore provide a better evaluation of population change in any region and time period.

2.3.1 Fertility and population change

Fertility is one of the most significant elements affecting population growth rates, and it also reflects the economic functioning of a region in different ways (Kalemli, 2003; Doepke, 2004). Age structure effects have been the focus of demography, and can be identified in age distribution analyses and in their influence on dependency ratios (McNicoll, 1984; Bloom et al., 2003). A decrease in fertility triggered by the implementation of family planning programmes by governments can directly impact upon the age distribution of the population, as has been noted in many countries (Knodel et al., 1990). This effect can then drive growth in the labour force participation rate (Lee and Mason, 2006). Fertility decline is a shared feature of developed countries that are experiencing radical demographic changes from high to low fertility and an associated "rise in life expectancy" (Doepke, 2004, p. 347). A reduction in fertility typically affects the size of the dependent population due to vital shifts in the age structure distribution, and so causes a growth in the labour force and potentially the economic participation rates for both sexes (Coale and Hoover, 1958; Bloom *et al.*, 1988; Bloom *et al.*, 2003). The interaction between fertility and a set of socio-economic variables has been investigated in detail by Jones (1990), Baily (2006) and McQuillan (2004)). These contributors have argued that fertility can be affected by several social variables such as education wages, and religion, and that each variable can in turn contribute to different trends for both population structure and economic development.

Doepke (2004) assessed the inverse relationship between fertility and education, and concluded that high fertility rates tend to be associated with low education. Bradford

(1993) stated that educational provision is highly influential on fertility rates and can indeed be considered the most substantial factor influencing population growth. The higher the education level of parents, particularly women, the lower the fertility rates and the higher the percentage of females who are economically active within the labour market (Barout, 2008). In addition, a drop in the dependency rate of young people contributes, in a positive way, to the total growth in school enrolment rates and can further reduce fertility rates for the next generation (Knodel *et al.*, 1990).

Bloom et al (2009), Bailey (2006), and Higgins and Williamson (1997) observed the effect of legislation on abortion and contraceptive methods on fertility rates. They found that the elimination of some restrictions on abortion in some countries substantially decreased fertility rates, decreasing the time needed for domestic work and childcare and thus increasing women's participation rates in the labour market and adding to household income.

It is also argued that rising income levels generally lower rates of fertility, particularly for urban women; this in turn allows parents to provide a higher level of education for their children (Knodel *et al.*, 1990; Mincer, 1996; Galor and Weil, 2000). Galor and Weil (1996) and Bloom *et al.*, (2001) found that higher incomes for women led to a reduction in the number of children per couple. Mammen and Paxson (2000) studied the association between fertility and female participation rates in the labour force, and concluded that female participation is higher in rural areas and lowest in urbanised middle income countries. Bloom et al. (2009) also emphasize that rural women are usually involved in different types of productive (paid) and nonproductive (unpaid) agricultural work. A population that has experienced a rapid increase in the rate of per capita income generally has lower mortality and fertility rates (Coale, 1986).

2.3.2 Mortality and population change

Mortality refers to the deaths occurring in a population within any specific age group. It plays a dynamic role in changing population growth rates in a country, and can subsequently adjust total population size (Mincer, 1996). In some measures, decreasing fertility depends on previous falls in the mortality of the young population (Eastwood and Lipton, 2011). The decline in mortality, most clearly evidenced in the case of infant and child deaths, is one of the most significant characteristics of the process of population and economic growth throughout the last centuries (Eckstein *et al.*, 1999; Kalemli and Weil, 2010). Improvements within economic and health conditions are the fundamental cause behind the drop in death rates in both developed and developing countries (Birchenall, 2007). Reduced death rates contribute in different ways to social wellbeing and may support economic growth by increasing life expectancy rates (Davidson, 1980).

Studying mortality trends is necessary for predicting the size and age structure of the population (Malmberg, 1994; Lindh and Malmberg, 1999), and these consequences will be discussed later in this chapter. In most developed countries, high mortality rates concentrate in older age groups, resulting in an older age structure of the working age population (Chamberlain and Gill, 2005; Futagami and Nakajima, 2001; Prskawetz *et al.*, 2004). Kalemli and Weil (2010) conclude that income levels are linked to more participation in the labour market but also longer retirement. Income distribution is controlled by the basic work-related, educational, and social structures within a country (Backlund *et al.*, 1996; Daly *et al.*, 1998), and this in turn affects its mortality trends (Preston, 1975)

The work of Kalemli *et al.* (2000) and Kalemli (2002) considered how capital investment in education heightens consumption behaviour, and also lowers mortality rates (Echevarria, 2003). Improvements in education are essential to achieve reduced fertility and mortality rates (Preston, 1980; Mincer, 1993; Mincer, 1996; Kalemli *et al.*, 2000; Kalemli, 2002; Kalemli, 2003)). Caldwell (1979) and Elo and Preston (1996) further suggest that maternal education and the father's occupation play an important role in controlling the level of infant and child deaths. Rising income levels can lead to investments in health care which reduce mortality rates (Pritchett and Summers, 1996; Canning, 2011), while an additional return on

investment education is seen by Gravelle (1998) and Kalemli (2002) to be lower infant and youth death rates.

2.3.3 Migration and population change

Migration is one of the key components of regional and local population change, and its importance in determining rates of population growth or decline has long been increasing (Champion and Fielding, 1992). Due to long-term trends of increasing mobility linked to globalization, the variation in migration patterns has made significant contributions to population dynamics, and it often reflects the relative progress of economic and social development in different countries (Stillwell *et al.*, 1992). Migration flow is a term that demographers often use to refer to people who migrate between different places at a given time (Yaukey, 1990). In many cases, "it represents the reaction of populations to social changes and therefore can bring about further social change" (Holdsworth *et al.*, 2013, p. 97).

Whereas counting births and deaths is, in most cases, a fairly straightforward process, what counts as migration is always debatable. Place and time are the main criteria used for distinguishing migration patterns (Shryock *et al.*, 1976; Woods, 1982; Owen and Green, 1991). When it is defined with reference to geography or distance, migration can be broken down into two main categories: international and internal migration. The duration of migration classifies it as short or long-term, while the intended length of stay classifies it as temporary or permanent. The purpose of migration is often related to duration, as with the medium-term movements by students or the uncertain duration movements of refugees. Although these categories can be defined with a reasonable degree of precision, it is often apparent that in practice: "the event of migration is not clear-cut or precisely locatable in either time or space" (Newell, 1988, p. 83). It is also important to acknowledge that most countries experience various forms of migration simultaneously (Castles *et al.*, 2005).

There are two commonly used measures of migration: these are gross rate (which indicates the total strength of migrant flow between places) and net migration rate

(which represents the difference or the balance between inflow and outflow rates between places) (Jones, 1990). Gross migration rate is a useful measure of the overall size of migration, whereas net migration rate provides important information about the direction of migration pressure between places (Hinde, 1998).

International migration occurs when individuals cross national boundaries. It is measured through two streams: immigration refers to the country's inflows, while emigration refers to the country's outflows. It is still extremely difficult for most countries, especially developing ones, to obtain accurate statistics or estimates of international migration. This pattern of migration might take a temporary or permanent form, with the latter having a greater influence on a country's population because it leads to either gain or loss in its total size (Clarke, 1972). Although several factors impact upon international migration, economic and political factors are often the most influential (Holdsworth *et al.*, 2013).

Internal migration is defined as the crossing of administrative boundaries within a country, and there are both in-migration and out-migration flows for each of the sub-national areas used in the census or civil registration records of a country (Clarke, 1972). Demographers usually measure different forms of internal migration, and often distinguish between seasonal and periodic migration. Other categories include rural-urban, urban-rural, inter-rural and inter-urban migration.

Holdsworth *et al.* (2013) observe that "a move may be intended to be temporary or permanent" (p, 101). The timing definition used by the United State of America (US) and many other countries, including the UK, classifies international migration as movements which involve a change of residence for at least a one-year period. However, short-term migration of less than one year may also have a minimum period. In some countries, like the UK, short-term migrants are required to stay one to 12 months; otherwise, they are classified as visitors (Holdsworth *et al.*, 2013).

A very large number of studies (eg. Champion and Congdon, 1992; Massey *et al.*, 1993; Zachariah *et al.*, 2001) have sought to understand the key determining factors

in migration. They invariably focus (either on the local or regional scale) on the differences between origin and destination place issues, such as income, employment conditions and job growth. Whatever the reason, and no matter what the migrant's life stage, much migration can be seen as the outcome of the push forces at work in the migrant's home area and/or and pull forces which attract the migrant to a particular destination (Witherick, 1990a). These factors might involve socioeconomic conditions (including employment, wages, housing, quality of life), personal/age-sex considerations or more basic factors such as population pressure, and the availability of land and infrastructure (Clarke, 1972; Holdsworth et al., 2013). The most significant driving force behind migration is often the relative sufficiency of work opportunities (Coombes et al., 2008), which in less developed countries may be linked to the development level of infrastructure and services (Borjas, 1989). The balance of labour supply and demand is an important determinant of the level of inmigration to an area, and is linked to the level of economic growth (Feld, 2000). Migration is often more likely for males than females, and this in turn affects local gender ratios (Di-Bartolomeo et al., 2012).

The geographical distribution and demographic structure of a country's population shapes the movements of individuals within that country through internal migration. Champion (2005), with reference to the UK, concludes that major changes in population and their geographical distribution between urban and rural areas are largely due to internal migration, which varies by age and sex groups because "differences in the characteristics of those moving in or out can have a significant impact on population in many ways" (p. 105). Owen and Green (1992) measured differentials in migration propensity in the UK, and identified the factors contributing to such differences as age and gender, life stage, occupation, education, labour market position and housing market status.

In general, young adults are more likely to move than older age groups for work, and especially education. More males tend to move than females, but as the proportion of females participating in the workforce increases, this differential becomes smaller. Women may be more likely to move during their reproductive age, depending on local marriage customs (especially in rural places), while male return migration often dominates during the later years of life (Winckler, 2009a). The most likely migrants are young adults before marriage, although this predisposition progressively declines with age until the late fifties, followed by an increase in mobility around the time of retirement (Hwaja, 2002; Ovensen and Sletten, 2007). In developing countries such as Syria a close link between occupation status and mobility rates can be recognised, where people in higher status occupations generally tend to correspond to their higher mobility rates, and to move further than those in lower occupations, due to the higher wages offered to them in the labour market.

2.4 Socio-economic aspects of labour market change

The study of the socio-economic consequences of population change is important because it provides a full picture of the changes in regional labour market conditions. Demographic changes have short- and long-term effects on the labour market, but this study is essentially focused on understanding changes within the labour market over a 10 year period. It only briefly discusses the broad implications of this longterm effect (which include labour supply, demand, and economic activity, along with shifts in population between regions in response to the mechanisms of the labour market).

Population growth over the long-term has been set in the framework of the demographic transition theory (McNicoll, 1984) which involves the gradual decline in birth rates and overall increase in life expectancy. Mid-stage transition implies that birth rates will decline from a high level, with reduced mortality rates resulting in a rapid increase in labour market entrants. Until the high birth rate falls substantially there is a preoccupation with children, leading to reduced participation rates for women. In contrast, a late stage of transition can result in too few young people and a high percentage of old people. A single country can include regions which are simultaneously at different stages of this transition.
Modern theoretical developments in both demography and economic growth theory place a particular emphasis upon the net adverse effect of rapid population growth on economic development (McNicoll, 1984). These changes have a profound economic impact and contribute to significant changes in the structure of the labour market, with a particular impact upon the dependency ratio of the non-working population to that of the working population (Little and Triest, 2001). Very rapid rates of population growth contribute to high dependency ratios in the short term (Hoover, 1971; Kelley, 1988; Afzal, 2009) and adversely impacts overall long-term labour income (Ramin, 1996; Crenshaw et al., 1997; Johnson, 1999; Scorsone et al., 2001; Kallet, 2004). Theories that link two concepts can be traced back to the work of Thomas Malthus (Ramin, 1996; Crenshaw et al., 1997; Scorsone et al., 2001; Kallet, 2004; Marsiglio, 2011). Malthus (1862) argued that population growth decreases per capita output, leading to high dependency ratios (Hoover, 1971; Kelley, 1988; Afzal, 2009). Other theories argue that population growth could have a beneficial economic impact by increasing the level of adult participation within development processes (Crenshaw et al., 1997), although this positive impact is dependent upon the part of the population that is growing (Todaro, 1989; Bloom and Canning, 2001; Bloom et al., 2003; Prskawetz et al., 2004).

2.4.1 Labour supply, demand and economic activity

Labour supply is the term covering the potential labour force, whose size depends on the overall population age structure which is turn determined by preceding fertility, mortality and migration trends (Bloom and Freeman, 1986b; Mason, 2003). The relationship between demographic trends and economic development works in both directions. The key demand-side question that arises in relation to the demographic process is whether the labour market has sufficient capacity to absorb the additional labour supply that results from population growth. The response of the labour market to population change is shown in the level of employment in the shorter term and wage levels in the longer term. Unemployment and employment rates in regional labour markets reflect the extent of labour market imbalance. The economic activity rate in an area is a valuable measure of prevailing labour market conditions: lower rates can indicate poor employment creation and large numbers of discouraged workers (McCormick, 1997; Ngai and Pissarides, 2005; ILO, 2012). Low levels of economic activity and/or high unemployment levels indicate imbalance in the regional market between supply and demand as shown, for instance, when increases in employment levels are not "sufficient to absorb new cohort of workers into the labour market" (Tarantino, 2004, p. 10).

A major demographic shift occurring over ten years can be the 'echo effect' of an earlier large birth cohort entering the workforce. Crenshaw et al., (1997) and Lee (2009) observe that the initial effect of earlier high fertility levels could be that, due to lower levels of female participation in the labour market, larger family size leads to lower economic activity rates for women. A falling dependency ratio which follows on from an earlier decline in fertility rates can play a key role in increasing economic activities, although this is contingent upon increased demand in the labour market (Higgins and Williamson, 1997; Bloom et al., 2001; Eastwood and Lipton, 2011). There is a clear need for labour demand to increase when more labour supply comes available. This is the key reason why Bloom et al. (1988 and 2003), Lee et al., (2000), Berger (1983) and Dooley (1986) suggest that large increases in the young working age cohort size, due to earlier high fertility rates, often cause increases in unemployment. Insufficient growth in employment opportunities tends to accompany high population growth in developing countries (Bloom and Freeman, 1986a). This labour market imbalance means that "the effect of increased cohort size can show up in the occupational position of that cohort or in its unemployment, or labour-force participation levels" (Bloom et al., 1988, p. 134). Freeman (1979) found that, in these circumstances, it is the number of young unemployed which increases, relative to the unemployment level for older workers.

The changes in the balance between population age groups which occur during the middle stages of demographic transition therefore have numerous social and economic outcomes (Brown and Danson, 2003). For example, a change in population size and structure will influence the rate and pattern of consumption this

will, in the long-term, affect levels of demand in the labour market (Sinha, 1959). A number of contributors such as Bloom and Canning (2001), Mason (2003), Card and Lemieux (2001) and Ho and Jorgenson (1999) conclude that the effect of population changes on labour supply is shaped by the rate of economic progress. However this ultimately depends on key factors including levels of education, labour quality and productivity. High population growth also places additional pressure on the main infrastructure sectors, primarily education and health. This may have an adverse long-term effect on participation and productivity in the labour market, and thereby raise the dependency ratio (Galor and Weil, 1996; Galor and Weil, 2000; Galor and Moav, 2002; Ranis *et al.*, 2000). It is worth noting that changes in health and education levels mostly reflect government policies.

2.4.2 Migration

Migration is both a driver of, and response to, demographic change (Findlay and Wahba, 2013). Net migration influences labour supply in simple terms, as most migrants tend to be of working age (Bloom and Freeman, 1986a, pp. 383-6). The deterioration of the "economy creates considerable economic push factors that drive outmigration from a country" (McCollum et al., 2013, p. 691). Out migration plays an essential role in reducing the working age population in sending regions, while also increasing the proportion of children and the elderly in these regions (Zachariah et al., 2001). This might have a direct effect on the labour market through relieving pressure on the employment sector in the sending regions, reducing the imbalance in the labour market. The relevant example here is the Syrian labour market exporting unemployment through high emigration flows to Gulf countries having a positive effect on labour market balance (Winckler, 2009b). For example, in developing countries, skilled people migrate due to low wages offered in the local low-skilled and low-wage occupations. (International Labour Organisation (ILO, 2011). Younger workers have had better education opportunities than older workers and also have fewer restrictions on their ability to switch jobs as they search for better opportunities and wages.

Bilsborrow (1992) argues that high population growth often leads directly to population re-distribution through internal migration. For example, high growth in rural labour supply, when rural families have an inadequate chance to deliver productive employment, means the young will tend to migrate, and this in turn affects the gender, age and education level of the local working age population. Regional variations in economic activity and differentials in income levels between economic sectors are also responsible for rural-urban migration (Bloom and Freeman,1986). Rural-urban differentials (especially within the main economic sectors) are also particularly pronounced within developing countries (Corden and Findlay, 1975; Hatton and Williamson, 1991), and are closely associated with a fall in the share of agricultural employment in the economy, and an increasing share in the industrial and service sectors (Fuchs, 1982). The strength of economic growth then determines the response of the labour market to sectoral adjustments as migration contributes to variation in regional labour market trends (Rees et al., 1996; Coenen and Galjaard, 2009). Structural changes in the main economic sectors such as agriculture have led rural labour to seek urban opportunities but, with low economic growth, increasing pressure on available employment leads to growth in the informal sector. Most newly created jobs in countries where the economy is stalling are temporary or seasonal, with low salaries or incomes for self-employment.

Migration effects on age structure are potentially more rapid than the effects upon fertility and morality rates of the area concerned (McNicoll, 1984). The migration of the rural population to urban centres has important implications for population development processes, particularly in developing countries (Canning, 2011). Urban areas have experienced rapid growth due to the inflow of rural labour, and the decline in rural population size is associated with the overall reduction in the economic importance of agriculture (Compton, 1969). Mincer (1996) observes that young people who relocate to urban areas are often from rural families who "invest in their children's education" (p. 32), which increases the educational advantage of the cities over rural areas. International migrants also often contribute to urbanisation and thereby further reinforce the concentration of economic activities within urban centres (Haas, 2007a).

The theoretical material that this chapter has reviewed has established a framework that will be applied in subsequent chapters. This material has also included some empirical observations, and the chapter will now engage with empirical work which is directly relevant to the case of Syria during the period 1994-2004. The review of this material will utilise the concepts and models referenced above, with particular attention to the demographic processes summarised in the transition model. It also considers their implications for regional labour markets, with specific reference to the size and composition of working age populations.

2.5 Demographic trends: relevant evidence

The mid-20th century was a period of momentous demographic and economic changes which fundamentally reshaped the global world order. The global population increased, especially in developing countries, mainly due to improvements in living conditions (Dey, 1993). Population growth had a significant impact upon economic development during preceding decades. In direct contrast to developed countries (which experienced decreases within population growth and a low birth rate during the same period), high birth rates and rapid population growth within developing countries had constraints upon regional development (Jian *et al., 2005)*. This was closely linked and interacted with the regional levels of socio-economic development. (Shaban, 2009), led to produce various labour markets trends, which presented policymakers with a very different set of challenges (Lee, 2009).

This section provides empirical evidence about the relationship between population and labour market trends with specific reference to Syria (although global trends also provide a general framework). It then further develops this evaluation by considering evidence from other Muslim-majority Middle Eastern countries that share general socio-economic characteristics with Syria.

2.5.1 Global evidence

Since World War II, global population growth has continually increased, but at a declining rate. UNDESPA's population division observes that world population growth was recorded at 1.48% in the period between 1990 and 1995 and 1.37% in the period 1995-2000. In following years, it increased (Cook, 1997) to 6.5 billion people in 2004, and is currently projected to reach 9.1 billion by 2050. The implications of these increases are particularly profound for the less privileged sections of the global community, and around 80% of the total world population lives in less developed regions. In the period 1990-1995, the population of developing countries grew at 1.77 % per year, and this contrasts with an annual increase of 0.40 % in developed countries. These variations in growth rate between world regions reflect demographic trends associated with fertility and mortality, which can be traced back to associated socio-economic. One of the most remarkable demographic changes is the increase in life expectancy which arises from improved health provision and related factors (Bloom and Canning, 2005). This is a global phenomenon and mortality continues to decline in most countries across the world. In the period 1970-1975, global life expectancy at birth had stood at 57.9 years. By the period 1990-1995 this had increased to 64.3 years. This meant that, in around two decades, global life expectancy had increased by 6.4 years.

Cook (1997) observes that "[f]ertility has declined considerably in many regions, in some cases without any substantial social and economic development" (p. 4). While fertility rates within developed countries are virtually always below replacement level, these rates tend to differ widely between countries. In the period 1990-1995, the average total fertility rate (TFR) for these countries was only 1.7 births per woman. The combination of low fertility rate and increases within life expectancy (which rose to 75 in 2000) contributed to the emergence of a population structure characterised by a large percentage of elderly inhabitants and low percentages of young people. In many developed countries, the population count would be expected to decline in forthcoming decades were it not for the projected net inflow of international migrants (UNDESPA, 2000; UNDESPA, 2004). The Organisation for Economic Co-operation and Development (OECD) has previously observed how net migration contributed to rapid population growth in developed countries from 1967 onward. Closer reflection shows that immigration has a positive influence on the labour market in developed countries. This is attributable to the "characteristics of new immigrants, who are younger and more mobile. In addition, fertility rates amongst immigrant women are often relatively high, which can help to boost population growth" (OECD, 2001, p. 52). In the UK, for example, net migration influences population growth and age structure, increasing the labour supply. The UK population is likely to increase in the next few decades, a development which has clear implications for the size and structure of the population of working age and their participation rates in the labour market (Barham, 2002).

Changes within the international political have produced a wide range of socioeconomic impacts and consequences. However, international migration is the population components that appears to have been most significantly impacted by these changes. The fragmentation of nation-states, in combination with other international developments, has resulted in the number of international migrants to almost double in a 25 year period (increasing from 75 million to 120 million between 1960- 1990). Equally significantly, this growth has not been evenly distributed, it has tended to be concentrated and focused upon specific regions, especially the more developed regions (UNDESPA, 2000; UNDESPA, 2004).

Population growth within developing countries remains above replacement level (with a birth rate of or above 3.0 children per woman during the period 1995-2000). UNDESPA (2000 and 2004) predicts that this will remain the case for the following decades. Life expectancy in developing regions (which is estimated for the same period at 62 years) is lower than their peers in developed regions. Young population age groups still dominate the population age structure, while the percentage of the population over the age of 60 is also lower, although this is predicted to rise to future

(UNDESPA, 1997). Arab countries currently have the lowest old age dependency ratio in the world (Sibai and Yamout, 2012).

Not surprisingly, in the developing world the labour market response to imbalance between population expansion and economic growth has resulted in a growing number of migrants relocating to locations with better employment prospects (Fields, 2011). UNDESPA data (1997) suggests that this out-migration rate sharply increased from 0.3 % (in the period 1965-1975) to 2.7% (in the period 1985-1990). The regional distribution of these increases varied in accordance with economic circumstances. For instance, the oil-producing countries of Western Asia that achieved rapid growth due to oil revenues also experienced a rapid increase in migrant inflows. Although the speed of migration for work-related reasons to Western Asia dropped somewhat during the 1980s, "the migrant stock in the oilproducing countries continued to grow during that decade. Despite the massive returns brought about by the Gulf War and its aftermath, statistics on outflows from the main countries of origin of foreign workers to Western Asia indicate that labour flows to the region have not declined during the 1990s" (UNDESPA, 1997, p. 4).

2.5.2 Evidence from Middle East and North Africa

The Arab region has recently experienced similar demographic trends to those witnessed in developing countries overall. These trends are characterised by a decline in previously very high population growth rates which has this occurred at a later date than in developed regions (Rashad, 2000). According to the Population Reference Bureau (PRB) the Middle East and North Africa (MENA) experienced the highest rate of population growth of any region in the world during the period 1980-1990s (PRB, 2001). This was due to high fertility and declining death rates (Winckler, 2002, p. 617). Most of the MENA countries share the same demographic features: specifically, a high proportion of young people among the working age population and a low proportion of retirement age people (Kronfol, 2012). For some time, the Arab world experienced high fertility rates, which varied in accordance with the level of socio-economic development in each country. This has ensured that the

population profile of Arab countries has remained very young (Glytsos, 2002). The transition from high to low mortality and the decline in fertility rate is at different stages within each country (PRB, 2001; Kronfol, 2012). The question of how to provide education and employment to this large youth cohort is the greatest challenge that currently confronts these countries (Mirkin, 2010).

During the 1990s, fertility fell due to several factors, the most important of which were the increase in women's educational level (Abbasi-Shavazi and Torabi, 2012) and economic changes which contributed to improvements in standards of living. Education is a significant factor in delaying marriage and expanding individual access to contraceptive methods (Courbage, 1999a). Eberstadt and Shah (2012) provide empirical evidence of the association between fertility decline in the Muslim world and socio-economic modernization, including the growing use of family planning methods. Variations in fertility have been recorded in this region: some countries are near the replacement level while others are still experiencing high rates (Mirkin, 2010). In Turkey, for example, fertility has declined to a replacement level of 2.1 children, and this represents a fundamental change in Turkey's population history (Ergocmen, 2012).

Changes in fertility patterns in Arab Muslim countries should be viewed through the lens of family formation and in the context of cultural and religious values. Changes within marriage arrangements have been cited as a key consideration within analyses of fertility decline in countries such as Iran, Tunisia and Morocco (Obermeyer, 1992; Rashad and Khadr, 2002; Eberstadt and Shah, 2012; Hosseini-Chavoshi and Abbasi-Shavazi, 2012). During the relevant period, there were sharp reductions within the regional total fertility rate (TFR). These reductions were most clearly evidenced within North Africa. The sharpest drop was witnessed in Algeria (from 8.1 in 1970) to 4.0 in early 1990s) followed by Egypt and Morocco with their fertility levels dropped to 5.0 (UNDESPA, 1997).

The trend towards fertility decline in the Arab world is reducing the imbalance between high fertility rates and lower levels of socioeconomic development that was rooted in the Arab region (Nagi, 1985; Fargues, 1997). The average fertility rate recorded in the 1990s was around 5.0 children per woman in Syria, compared to 2.3 in Lebanon, 3.6 in Jordan and 7.1 in Yemen (Augustin, 2012). In Syria, fertility between 1960-85 was the highest level not only in the Arab region, but also globally, at 8.0 children; however, this rate fell to reach 4.0 children per woman in 2004 (Courbage, 1999b). This earlier high fertility, combined with a reduction in infant and child mortality, meant that a very large age cohort entered the working age population during the 1994-2004 period studied here (Bloom and Canning, 2005). It is also important to acknowledge that declining fertility rates have been linked to increased female participation rates in the labour market (Al-Qudsi, 1998).

In the many MENA countries that experienced high population growth, "each generation of young people enters child-bearing years in greater numbers than the previous generation, so as a whole they will themselves produce a larger number of births" (PRB, 2001, p. 2). There are a number of major consequences that result from high fertility levels and a broad population pyramid (Jones, 2012). In the short-term, the most immediate result has been very low economic activity rates (Winckler, 2002, p. 618). A 2004 World Bank report on the demography of the MENA region suggests that the dynamics of Arab demography have created the most powerful strain on a labour market that has been seen anywhere in the world since 1947 (World Bank, 2004b). The large working age population creates low incomes, low participation rates, high unemployment rates and raised dependency ratios (Crenshaw et al., 1997). This picture is widely reproduced across Arab countries, primarily within the young adult age group (Mirkin, 2010; Sibai and Yamout, 2012). Kronfol (2012) observes that youth unemployment in the MENA region has been at 25%. As the youthful labour force continues to increase in the future, increased pressures will be placed upon the labour market (Jones, 2012). Strain will also be placed on social infrastructure and education systems, which in turn will have implications for the quality and competitiveness of the emerging labour force (Mason, 2003; Afzal, 2009).

During the period 1994-1999, the average unemployment rate in the Arab world was 15%: figures from 1997 show that this rate varied from 12% in Egypt to 28% in Algeria. Although oil-producing countries enjoyed a clear economic surplus, they were by no means immune in this regard. Figures published by the International Labour Organisation (ILO, 2009) record that Bahrain, Saudi Arabia and Kuwait continued to experience high unemployment rates during this period (15%, 12% and 20% respectively). In these countries, the rate of economic growth is not sufficient to absorb new entrants to the workforce and this increases the likelihood that the younger working population will become economically inactive (Glytsos, 2002). A World Bank report on development in the MENA region found that the proportion of unemployment within the overall workforce was closely related to the proportion of high school and university graduates (World Bank, 2004a). Although the MENA region made noticeable progress in employment creation (particularly in the public sector) during the 1990s-2000s this did not match the consistent growth rate of the working age population. A substantial part of this shortfall was taken up by the informal sector: (International Organization for Migration analyses found that this sector became a leading source of employment in the Arab region in the 1990s (IOM, 2010). Yet in most regions, the agricultural sector still dominates employment (Glytsos (2002).

Edwards (2005) observes that the dynamism of MENA's labour migration movements is without parallel in any other part of the world. Mirkin (2010) concludes that "the region has witnessed substantial outflows of migration to Europe and large inflows to the countries of the Gulf Cooperation Council" (Mirkin, 2010, p. 5). More importantly, substantial labour flows occurred only after the 1970 oil boom (IOM, 2010). According to the ILO (2009) labour migration is closely associated with employment and the level of labour market development in the Arab region; it argues that insufficient local employment is the main factor pushing the labour force to migrate to an external labour market. This pattern of migration has been evidenced in North Africa countries and, to varying degrees, Iraq, Jordan and Syria. In many countries of the Gulf region (GCC), small domestic labour markets and high oil revenues have resulted in labour markets that are very different to other MENA countries because of oil sector creating a dependence on external labour (mainly from the Arab region and West Asia). The oil boom between 1970-1980 greatly affected the populations and economy of most MENA countries in general, and Gulf countries in particular (Mujahid, 2012). Countries such as Egypt, Yemen, Sudan, Tunisia, Syria and Lebanon became labour exporting countries, while the Gulf countries and Libya emerged as major labour importing countries. Labour migration to richer Arab countries positively impacted by increasing employment opportunities in poorer Arab countries; this combined with a high level of aid from Gulf countries to their poorer Arab counterpart. Over the course of the 1980s, these economic benefits gradually decreased: in responding to declining economic conditions, the governments of oil-producing countries sought to restrict foreign labour inflows and decrease the level of financial support. Since 1994 most poorer MENA countries have, as a result of the aforementioned factors, experienced economic recession. The Syrian economy was a noticeable exception during the first half of the 1990s, when it enjoyed annual growth of 7% (which was partially due to dramatic increases within domestic oil production). Syria's support for the Iraq invasion resulted in sharp increases in the number of Syrian workers abroad; in contrast, the Jordanian government's opposition to the Iraq invasion resulted in a reduction in Jordanian workers in oil countries (Winckler, 2002, pp. 623-626). Three million migrant workers with regular documents were deported from the Gulf region; most were Arab citizens whose countries were against the invasion (Fargues, 2013, p. 10).

According to Edwards (2005), migration in the Arab region has a selectively regional pattern, with migrants from North African countries evidencing a tendency to move toward Europe; in contrast, in the eastern part of the Mediterranean temporary migrants are mostly attracted to the Gulf region (rather than to the US or Europe). Net migration has made a significant impact upon the Arab region's major migrantreceiving countries. During the period 2000-2005, net migration accounted for 25% of total population growth in the Gulf region (Haque, 2010; Mirkin, 2010). The combination of high natural increase and net migration gain resulted in a number of the Gulf countries experiencing the fastest rates of population growth in the world (Mujahid, 2012). However, the proportion of Arab labour migrants in Gulf countries has since decreased over time (Kaiszewski, 2003).

2.5.3 Evidence from Syria

Several studies have been undertaken on demographic trends in Syria; however this chapter will focus upon the key literature that investigates the linked dynamics of population change and economic development, with a particular emphasis upon studies that engage with the period between 1994 and 2004. Evidence has been mostly collated from surveys of the Syrian Central Bureau Statistics (CBS), although reference will also be made to UN materials and other sources.

Syria is estimated to have one of the highest population growth rates in the world (Goujon, 1997); this means that the number of people entering the labour force will be much higher than those exiting it in 2004 (CBS, 1994). Syria has experienced rapid population growth due to its high birth rates and declining death rate (see Figures 2.2). The rate of population growth peaked in the 1980s but only started to decline from the mid-1990s (Figure 2.3). The effects of high birth rates were clearly evidenced in the early 1990s and mid-2000s, when there was a noticeable growth in the proportion of those under the age of 30. A rapid drop in birth rate can also result in a change within the age structure of population. This can in turn influence per capita growth through the labour supply (Brander and Dowrick, 1994). This is because slower population growth reduces the number of new entrants into the labour market (Hu, 1999). This is not yet the case for Syria where population growth has steadily decreased but remains high compared to most countries. This decline in population growth has altered the demographic composition of the Syrian population (ILO, 2012), leading to an increase in new entrants to the labour market every year. This has also contributed to an increase in the youth dependency ratio, which appears as a short-term negative effect of high population growth (Barlow, 1994, p. 153).

When viewed from the perspective of demographic transition, Syria can be seen to have passed through two stages of demographic change. Stage one occupied the first half of the 20th century and featured low population growth, resulting from the period's balanced birth and death rates. Stage two was characterised by high population growth resulting from high birth rates and decreasing death rates, as shown in Figure 2.5.



Figure 2.5: Demographic transition model of Syria 1950-2010. Source: Based on UN data.

Barout (2008) suggests that the second stage evidenced three sub-periods, which were characterised by varying rates of growth. The period 1947-1960 had low growth rates, the period 1960-1994 experienced the highest population growth rates, and the post-1994 period was characterized by the start of declining growth rates (which were mainly the consequence of declining fertility rates). Official statistics provided by major censuses indicate that high birth and fertility rates underpin the rapid population growth seen in Syria since 1960 (CBS 1960-04), thereby creating a wide base within the age pyramid, due to a high proportion of children within the wider population (Winckler, 1999). These demographic trends "threaten all Syria's development plans, particularly those for education" (Courbage, 1994, p. 142).

Syria's population growth rate has decreased recently as a result of declining fertility rates, affected by the prevalence of modern family planning promoted by the government in the 1980s, particularly contraceptive use among married women (UN, 2010). According to Courbage (1994), it might be possible to achieve a

balanced population growth rate by raising the education level of the population, in particular women. This in turn is a major factor in raising the female economic participation rate, and this effect was further compounded by rural-urban migration because fertility rates among urban women are lower than those of rural women (Barout, 2008; Mekdad, 2008).

Improvements in health provision have positively contributed to decreased death rates, and also increased the size of the working age population. However the economic growth rate has not kept pace with demographic growth and so economic activity rates have fallen and unemployment has increased (CBS, 1960-2004; Winckler, 1999; Satouf and Youzbashi, 2006; Barout, 2008; Shaban, 2009). The rate of emigration increased in the period 1960-81 as a result of revaluation offering various employment opportunities, mostly for men, in the Arab Gulf countries. The consequences were not only demographic but also economic because emigration relieved some of the pressure on the domestic labour market (Winckler, 1999; Winckler, 2009b). It also increased the proportion of female labour market participants (Barout, 2008).

The influx of Palestinian refugees starting in 1948 has also had a substantial impact upon Syria's demography and economy. Palestinians are treated similarly to Syrians in the job market (apart from some high-profile government jobs) and generally enjoy equal opportunities with their Syrian peers. The Palestinian refugee community in Syria grew from 85,000 at the end of 1948 to 374,521 in mid 1999. According to UNRWA, it may now have reached 450-500,000 (UNRWA, 2004). This population growth has resulted from a high birth rate, not further immigration. In general, the demographic structure of the Palestinian refugee community is little different to that of Syrians, with high fertility rates decreasing in recent years. Children (defined as those up to 15-years-of age) account for more than 45% of the total number of Palestinian refugees in Syria (Shiblak, 1996; Mawed, 1999; Jacobsen, 2003; Al Husseini, 2007).

Syria is also the country most affected by the migration of Iraqi refugees. Aita suggests that Iraqi refugees have significantly impacted upon Syria's high population growth (Aita, 2009a; 2009b, p. 11). Aside from the various documents that the UN High Commission for Refugees (UNHCR) has published since 2003, only a limited number of studies (including a few publications by the Syrian Bureau of Statistics (CBS) have engaged with this question. UNHCR estimates that, just before the US invasion of Iraq in 2003, 60,000 to 70,000 Iraqis were residing in Syria. Between the beginning of the Iraqi conflict in April-May 2003 and early 2007, the Syrian government practised an open door policy. The influx of Iraqi refugees has had a largely negative impact upon the local population. This is scarcely surprising official and non-non official sources suggest that as many as 1.5 million Iraqis may be resident in Syria (this represents close to 10% of the country's overall population). The impact has been further accentuated by the fact that almost all of the influx has concentrated upon Damascus city and its surrounding suburb. This has meant that pressures upon public and services goods and resources, most notably housing and infrastructure, have become increasing pronounced (Lynch, 2005; UNHCR and UNICEF., 2006; Doraï, 2007; Al-Miqdad, 2008; Marfleet and Chatty, 2009; Chatelard and Dorai, 2010; Fagen, (2006)).

Internal migration has also contributed to dramatic changes in both the structure and composition of regional populations (Satouf and Youzbashi, 2006). These changes have affected the spatial distribution of the population by heightening the difference in regional socio-economic patterns and migration from rural to urban areas has been particularly important in this respect (Clarke and Fisher, 1972; Hwaja, 2002). The process of urbanisation, which is often considered an essential element in the process of cultural and social change (Dewdney, 1972), has emerged as one of the most important demographic changes. Shaban (2009) provides evidence which suggests that the urban-rural population ratio has changed over time in favour of an urban population. This ratio has been gradually rising for several decades, and by 2004 the urban population finally outnumbered the rural population. According to CBS (1981), 83% of total net intra-migration flows in Syria was from rural areas to provincial centres during the period 1970-1980. Unsurprisingly, the capital Damascus received the largest share of in-migrants.

Push factors are the main reasons for the rapid movement from rural areas to urban centres. Rapid population growth in rural areas, in combination with the scarcity of limited cultivatable lands, both act as push factors. Another key factor is the low level and instability of incomes in the rural areas, due to most Syrian agriculture during this period depending on unirrigated land. This can cause a substantial reduction in agricultural production from one year to the next if there was a drought.

Aita (2009a) provides further context when he observes, with reference to the Syrian labour market, that a "gap exists between the yearly increase in the size of labour force and the number of jobs created, especially in the formal sector. The agriculture sector, which used to absorb a large number of employees, seems to be saturated, leading to an acceleration of rural-urban migration" (p49). In addition to these factors, there is also a clear rural-urban divide in the standard of social infrastructure. Higher education is another important factor for migration, and after graduating many in-migrants then stay in urban centres because there are few suitable vocational opportunities in rural areas (Winckler, 1999). This is despite by the fact that the unemployment rate in many urban centres is high among the younger age group, many of whom are young graduates from universities and other institutes of higher education (Naboulsi and Nouaimy, 2005; Ovensen and Sletten, 2007; Aita, 2009b).

The response to these changes can be seen in the sectoral profile of the labour market, which includes a high proportion of informal and seasonal employment (Shaban, 2009). The distribution of the labour force across the main economic activities reveals the gradually declining dominance of the agricultural sector in employment, while the industry sector is second in importance. Recent changes in the labour market have led to an increase in the importance of the service sector, including organised and non-organised private sectors, in providing different forms of employment. These forms include self-employment (including as street vendors and owners of small-scale businesses), and occasional workers who have no job security (Ovensen and Sletten, 2007; Aita, 2009a; Di-Bartolomeo *et al.*, 2012). There was some failures to link education policy to job opportunities by providing the vocational qualifications needed for the labour market (Winckler, 2009b). Hwaja (2002) discusses out-migration, which has risen rapidly over time, and observes that Syrian out-migrants tend to be more skilled than others, with educated male migrants being more common than educated women.

The occupational status of those in work in Syria differs among groups and sex; for example the women who do work are more likely than men to be in high-skilled occupations such as teaching (Hwaja, 2002; Ovensen and Sletten, 2007). In general the labour force is generally characterised by low levels of education (elementary or below), with just a small proportion being highly educated (Shaban, 2009).

Internal migration slowed between 1994-2004 when it involved for 1.8% of the total population, a decline from 2.6% in the previous decade (1984-1994). There were various factors which underpinned the reduced rate of migration to urban centres: problems of housing availability, rising urban unemployment, and increases in government investment in rural areas during this period (ILO, 2012). In addition, there was the effect of major refugee inflows into the major city labour markets (Lynch, 2005; Fagen, 2006; UNHCR, 2006; Doraï, 2007; Hasan, 2007; Al-Miqdad, 2008; Marfleet and Chatty, 2009; Chatelard and Dorai, 2010). This was particularly apparent in and around Damascus, where large numbers of Iraqis were competing with Syrians for resources and employment in the informal sector. At the same time, a number of positive economic impacts should also be taken into account because Iraqi refugees injected money into the economy through purchasing power, paid for living space, and established businesses.

Although this study does not cover the demographic profile of Syria for the period since 2004, it must be recognised that Syria's population is currently declining due to the ongoing political conflict that first began in 2011, which has had profound implications for Syria's demographic character. The UN estimates that currently

over 6,000 Syrians escape the country every day, and that over 4.5 million are internally displaced. This means that Syria accounts for more refugees than any other nation. Figure 2.6 shows dramatic declines in birth and population growth rates for the period 2011-2015. By 2015, Syria's total population had declined from 20.7 million to 18.5 million. As the UN estimates which provide the basis for figure 2.6 illustrate, these changes will have a long-lasting and profound impact.



Figure 2.6: Rates of birth, death and population growth of Syria 2000-2020

Source: Based on UN web data source 2015: United Nations, Department of Economic and Social Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, custom data acquired via website.

2.6 Conclusion

This chapter has reviewed literature related to linked processes of demographic change and labour market dynamics, with particular reference to Syria. Population change is the net consequence of the three major components of demographic change: fertility, mortality, and migration. Over the longer term these changes tend to conform to the demographic transition model in which a country or region shifts from a state of high fertility and high mortality to one of low fertility and low mortality. Together these changes produce variations over time in levels of natural increase; with socioeconomic factors as the underlying causes of these changes, these variations combine with net migration and appear as processes immediately responsible for population change. Migration is one of the most important components of regional and local population change, and its importance in determining rates of regional population growth or decline has substantially increased over time. Net migration often reflects the relative extent of economic and social development within different countries.

Demographic change causes major adjustments to the structure of labour force, and also alters the dependency ratio of non-working population to working population. The 'echo effect' of an earlier large birth cohort entering the workforce has a direct result through the rapid growth in the total working age population. Labour supply levels are therefore determined by preceding trends of fertility, mortality and migration. The key demand side question that arises in relation to the demographic process is whether the labour market has the capacity to absorb the increased labour supply that results from population growth.

The response of the labour market to population changes can be measured by the level of employment in the short to intermediate term, and by wage levels in the long term. Large increases in the young working age cohort size tend to produce associated increases in unemployment rates. The economic activity rate is a valuable measure of labour market conditions since lower rates can denote inadequate employment creation and large numbers of discouraged workers. Participation rates are also influenced by the age composition of the population, and this is particularly important consideration with regard to female participation in the labour market.

Migration is both a driver of, and response to, demographic change. If an area experiences net in-migration then this will, by virtue of the fact that most migrants tend to be of working age, create problems for the working-age population. The consequence of net out-migration on the local labour supply will be dependent upon the type of people who leave; more generally, when a deterioration in the economy creates the push factors driving out-migration, it reduces the excess working age population relative to the available jobs (while also increasing the proportion of children and the elderly in these regions).

This chapter has discussed the components of population growth and highlighted their diverse implications for the labour market. The specific case of Syria has been outlined in general detail; however, it is for subsequent chapters to detail how regional Syrian labour markets have responded to demographic changes. This study aims to create new knowledge by documenting the labour market response in each region of Syria during the period1994-2004. The next chapter outlines the methodology that wll be adopted and also outlines the data sources available which set the limits to the analysis which can be undertaken.

Chapter 3 Research Methodology

3.1 Introduction

The previous chapter focused on demographic change, and set out the different components of the demographic transition model. Although transition theory explains the mechanism of population growth and its potential economic impact in general terms, its ultimate contribution is still open to question. Todaro and Smith (2003) therefore suggest that the "question remains whether this theory is capable [of providing] an explanation of how demographic changes affect local labour markets" (p. 260). There is also the question of labour demand. Each country moves at its own pace towards creating specific national, regional and even local markets, which are impacted by varying levels of economic performance and population growth rates (Todaro and Smith, 2003). Measuring parallel changes in labour market demand, as well as understanding the nature and cause of economic growth level for each country, is beyond the remit of demographic transition model. The model cannot take into account economic development and the way it is influenced by diverse and inter-related variables which differ in accordance with time and place, such as technology, globalization, and political/economic changes. Each of these influences produce short and long-term changes in the labour markets. In order to recognise how these labour demand changes interact with the population trends discussed earlier it is necessary adopt a comprehensive framework of analysis. Labour market accounts measure the separate factors of change in labour markets (Owen et al., 1984) and thereby offer the basis for examining the relationship between economy and demography within a country or region.

This chapter sets out the methodological approach that this research will use to empirically assess the response of the Syria regional labour markets to demographic changes over a 10 year period. The initial section discusses with the methodology of labour market accounts (LMA/cs), and thereby identifies the data requirements for measuring the components of regional labour market change. The next section discusses the process of data collection needed for Syrian regional LMA/cs, leading to an appraisal of the data sources such as censuses, labour force surveys and secondary data which facilitate the production of LMA/cs. The final section discusses data limitations and outlines the estimation strategy that will enable an investigation of the changes that occurred between 1994-2004 in the regions of Syria.

3.2 Labour market accounts

The method of labour market accounts (LMA/cs) examines the mechanisms of labour market adjustment, such as the way that unemployment and employment rates are influenced by both economic dynamics and demographic changes over a given period. It identifies how labour supply and demand interact and function in spatially defined labour market, and also can measure the separate effects of variations in the regional labour supply that result from natural changes in the working age population, net migration and changes in levels of employment, unemployment, and participation rates (Rowe, 2013).

The LMA/cs method was first established by the Cambridge Economic Policy Group (1980), to measure how far job creation in UK regional labour markets failed to match the growth in labour supply. It has been applied to assess job loss and major changes in employment, unemployment, and UK commuting patterns (Owen *et al.*, 1984; Beatty and Fothergill, 1996; Beatty *et al.*, 1997; Turok and Edge, 1999; Beatty *et al.*, 2007; Sissons, 2009). The technique has also been applied in the Netherlands (where it was used to measure the significance of labour mobility between migration flows and commuting, along with associated impacts on the labour market (Evers and van der Veen, 1985); it has also been used to investigate the interaction between employment and commuting trends in geographical patterns of unemployment in

Australia (Bill *et al.*, 2006). More recently it has been employed to assess the spatial patterns of labour migration and commuting in Chile's labour market (Rowe, 2013).

However, the LMA/cs technique has never been applied to studies of Syria, and because of this little is known about how the Syrian labour market adjusted to the various economic and demographic changes that took place in the period 1994-2004. This study aims to address this deficit.

The simple equation (3.1) below represents the aggregated components of LMA/cs. Equation 3.1

$$\Delta u = \Delta m - \Delta j$$

Where:

 $\Delta u =$ Represents the change of unemployment between 1994-2004

 $\Delta m =$ The change in the economically active population between t1 and t2 (labour supply)

 Δj = The change in employment between t1 and t2 (labour demand)

A comprehensive set of LMA/cs is not based on two datasets but several separate sources which measure specific measures (including labour demand change, natural increase in workforce and change in net out-commuting for each labour market analysed). Table 3.1 sets out a comprehensive summary of the LMA/cs method as it has been elaborated in studies of the more developed countries outlined above (nb. there are minor variations in the approach that these studies have adopted; Table 3.1 sets out an approximate synthesis of these different applications).

variables for	<u>constituent</u>	<u>constituent</u>	constituent measures $T_1 = > = T_2$		
<u>accounts</u>	<u>measures T1</u>	<u>measures T2</u>			
natural					
increase in	population of	population of	deaths of working age		
working age	working age	working age	acatilis of working age		
рор					
	$\Delta NWAP =$	$(EWAP^{t2} - WAP^{t1})$	$\times EAR^{t^2}$		
			internal migrants to region		
			internal migrants from region		
net migration			international migrants to region		
			international migrants from		
			region		
	commuters into	commuters into			
net out-	region	province			
commuting	commuters out of	commuters out of			
	region	region			
increase in	activity rate in	activity rate in			
economically	economic activity	economic activity			
activity	ages	ages			
$\Delta EA = (EEAP^{t2} - EAP^{t1}) \times EAR^{t2}$					
increase in job	jobs located in	jobs located in			
numbers	region	region			
$\Delta j = (E^{t2} - E^{t1})$					
	unemployed in	unemployed in			
increase in	region	region			
unemployment	under-employed in	under-employed in			
	region	region			
$\Delta \boldsymbol{U} = (\boldsymbol{U}^{t2} - \boldsymbol{U}^{t1})$					

Table 3.1: Components of labour market accounts

Where: $\Delta NWAP$ = natural change of working age population, EAR= economic activity rate, EWAP= expected working age population, WAP= working age population, EEAP= expected economically active population, EAP= economically active population, E= employment, U= unemployment, t1= 1994, t2= 2004.

Source: Based on Owen et al., (1984) and Rowe (2013).

The natural increase in the labour force measures the change of economically active population between t_1 and t_2 by using the cohort survival method. This basically estimates the number of people in the working age group in t_1 who would survive until 2004, calculated for five year age cohorts of males and females separately, and applying age specific death rates derived from life tables (Lopez *et al.*, 2001) multiplied by age specific economic activity rates in 2004, assuming no net migration effect. The net migration component represents the net migration of economically active people from a region, particularly the international migration flow which may have to be estimated from the residual between the expected and actual change of working age population. An increase/decrease in job numbers represents the difference between employment located in the region between t_1 and t_2 and as such is a measure of employment creation in this decade (Owen *et al.*, 1984; Owen and Green, 1991).

The LMA/cs method can be seen as a framework which is adopted in each application according to the focus of the particular study and the available data from that specific time and identified regions. The present study is of Syrian regions in the 1994-2004 period, and there are significant data constraints which apply in this case. As a minor example, the count of employed people in the census includes all those working at least 1 hour in the reference week - this includes those with a job who were provisionally not at work due to specific reasons (such as seasonal workers awaiting agricultural or other seasonal work) (CBS, 1994; CBS, 2004). The component of increase in unemployment represents all persons who worked for less than eighteen hours in the reference week or did not work, but who were seeking work for the first time and who were available to work during the reference week of the survey. Syrian census has no data on number of jobs by location of workplace, nor on the related issue of commuting between regions. As a result, all the data in the LMA/cs in this study will be based on place of residence, which will still provide valuable information about how supply and demand mechanisms functioned in Syrian regional labour markets during the period of interest because daily commuting between the regions of Syria could only include a very small segment of the labour force.

3.3 Study timeframe

The substantive question for this study is how each region in Syria coped with its demographic change in the decade leading up to 2004. The LMA/cs will measure the separate effects of demographic and economic processes in each regional labour market. In order to obtain a deeper understanding of the results, it will be necessary to incorporate knowledge of other factors, such as regional differences in religion, culture and tradition (Kupiszewski, 2013). The research focus on the period 1994-2004 has two key justifications. This period represents the interval between two

major censuses in Syria and this means that the LMA/cs analysis and associated analyses are feasible in terms of data availability and accuracy. A more substantive justification is that in this period Syria shifted towards the third stage of the demographic transition model, characterised by a decline in fertility (Al-Ashkar, 2005). This is illustrated in Table 3.2.

Table 3.2: Population growth rate

					%	
				Year	Population	% Compound
Census	Population	Change		interval	growth	annual growth rate*
1922	1725000	1905^-1922	256000	17	17.4	0.9
1947	3082000	1922-1947	1357000	25	78.7	2.3
1960	4565000	1947-1960	1483000	13	48.1	3.1
1970	6304000	1960-1970	1739000	10	38.1	3.2
1981	9046000	1970-1981	2742000	11	43.5	3.3
1994	13782000	1981-1994	4736000	13	52.4	3.3
2004	17921000	1994-2004	4139000	10	30.0	2.7

^ estimated at 1.469.000. * is calculated using the compound intrest formula: $r = \left(\sqrt[n]{\frac{p_2}{p_1}} - 1 \right) \times 100$, Where n = years interval, P1 and P2 are start and end year, repectively.

Source: Based on Al-Ashkar 2005.

Although the growth rate has been declining since 1994, the effect of preceding birth rates (during the period 1970-1994) continued to create a rapidly increasing labour force size. This period also saw adverse weather conditions negatively impact on the economic situation of the population, an impact further exacerbated by the fact that agriculture was almost the only source of income for many rural people in the 1994-2004 period (Shaban, 2009). Gross Domestic Product (GDP) growth declined and the low level of job creation resulted in higher levels of unemployment (Al-Ashkar, 2005; Barout, 2008). These factors overlapped and combined, further intensifying intra-regional and external migratory and the search for available job opportunities (Hollywood and McQuaid, 2007). This collection of circumstances makes the 1994-2004 period an especially appropriate focus for this study of the interaction of labour supply and demand changes. In addition it will also test the LMA/cs method in a situation of limited information on changes to both demand and supply sides of the labour market.

3.4 Geographic framework

Previous censuses that have been conducted within Syria (i.e. 1960 and 1970 and 1981) provide a great deal of evidence in support of the claim that demographic change in Syria varies from one region to another. This variation combines with indifferent patterns and levels of economic growth, and results in great variation within regional labour markets. This explains why it is important to proceed with the LMA/cs on a regional scale, not only to understand how these regions responded to the different development opportunities which have shaped current economic levels, but also to see how changes in population age and sex structure can be related to the background features of each region.



Map 3.1: Map of Syria's regions Source: The author based on the general map of Syria: National Authority for Topographic Survey.

Map 3.1 shows the 13 regions that this study will use to present LMA/cs and explore the economic factors that led to significant variations in labour market outcomes across Syria. All but one of the 13 regions exactly matches a single province; the one exception is that the Damascus City and Damascus Rural provinces have been combined into a single Damascus region. Combining the whole city region together in this manner internalises the suburbanisation across the old city border, and enables a more direct comparison to other regions (such as Aleppo) where the province includes both urban and rural areas.

3.5 Sources of Syrian demographic and socioeconomic data

The process of data collection and variable selection would ideally draw a whole picture of the nature of Syrian demographic and economic data relevant to regional labour markets, and thus that would enable a whole picture of Syrian demographic and economic realities to emerge. Generally speaking, data can be obtained either from official sources or generated by survey research using questionnaires. Official sources like the population census and labour force surveys are the key government data sources for this research because they provide a range of socioeconomic data and are the most reliably comprehensive in their coverage (White, 2003). The questionnaire survey is a technique for gathering spatial information about specific population characteristics not available from government sources (McLafferty, 2003). This study mainly relied upon collecting data from official sources, using electronic and distant personal communication rather than fieldwork. It had been planned to also conduct a questionnaire survey, but this also proved impossible due to the political conflict in the study area.

The required statistics on provincial labour markets can be classed as demographic (with breakdowns by sex and age groups) or economic (economically active population by sex, age and economic activity breakdown). These datasets were obtained from official sources but the migration data, for example, was particularly challenging to obtain because only small data subsets are accessible on-line. There is no data on commuting so a small-scale survey was intended to resolve this problem. The questionnaire would have been administered via main coach station agencies and would have attempted to obtain information about travel behaviour between Syria's regions. As already noted, fieldwork could not be done once the study was undertaken. The bulk of the data from official sources was collected on line by personal communication. The study used two main sources: 1994 and 2004 censuses and the Labour Force Survey (LFS) for the same years. Both datasets were compiled by the Central Bureau of Statistics in Syria. Other datasets were obtained from bodies such Fafo Foundation in Norway, who were commissioned by the Syrian government to provide internal migration data. It was extremely difficult to obtain some of the necessary data; this was particularly true of data relating to international migration and refugee movements, both of which are key potential influences on the Syrian labour market. Although considerable efforts have been devoted to different aspects of data collection in order to ensure the best possible data analysis, some limitations have to be acknowledged, and these will be discussed later. An important part of the research methodology is to evaluate the data collected in terms of its coverage, accuracy and consistency.

3.5.1 Censuses

Census data is produced and published by the Central Bureau of Statistics in Syria (CBS). There are two volumes of census results published by CBS. The first is the Statistical Abstract which provides various national scale tables, particularly working age population by sex and age groups. The second is the General Census for Housing and Population which provides details about the socio-economic characteristics of provincial populations. Census datasets cover all regions and all nationals, and the census survey is considered the most accurate and reliable source delivering various official data, and thus its data was employed in this research whenever possible.

CBS provides historical census data from 1950 up to 2004; however, these datasets had to be collected in different ways. Since the current political situation has made visiting the CBS impossible, personal communication with CBS was undertaken from the general survey of population and households. Additional statistics were obtained by exploring libraries, especially the library of Durham University where some older datasets are available including those from statistical abstracts.

Gaining access to historical data was particularly helpful as it enabled an understanding of the major changes between different censuses in terms of the coverage and methodology adopted at the date of each census, and in particular to observe changes in the age of labour force entry and exit (see Table 3.3). Metadata provided in the printed volumes was limited but has been used to document coverage of the population sub-groups in the Syrian censuses at different times.

Table 3.3: Syria censuses major changes

Syrian censuses (major cha					
	1950	1960	1970	1994	2004
Reference date	N/A	Sept	Sept	Sept	Sept
Coverage	all national		ls and foreigners		
					15 years
Economically active age	6 years and	6 years and	10 years	10 years	and
group definition	over	over	and over	and over	over
Number of provinces					
(regions)	10	11	14	14	14
Religious breakdown	19	4	X	×	X
Internal migration	✓	✓	✓	✓	~
Population by nationality	✓	✓	✓	✓	✓
	de-facto &	de-facto &	de-facto &	de-fact	to & civil
Source & method	civil records ⁽¹⁾	civil records	civil records		records
Number of					
administrative divisions					
below provinces	44	42		48	62

Source: Based on census metadata.

Using the available pre-1994 Syrian censuses allowed the research to deliver a better understanding of the deep-seated factors that contribute to demographic and economic trends in Syria. There have been no changes recorded in the census method enumeration of the population on the night of the census, including the approaches applied to deal with those who could not be measured in the normal way (people on board ships, and the enumerators themselves). Although in its fieldwork the1994 census collected data from every household in the country, only a 10% sample of the enumerated households was used to derive data about the socioeconomic characteristics of the population, such as education, and economic activity. In contrast, the 2004 census survey covered all households and the full database was used to measure all population characteristics. All censuses provide some information on internal migration, which represents the current and previous place of residence (excluding nomads). Unfortunately for this study, published data from the 1994 census does not extend to the provincial level. Another limitation is that, unlike the more detailed breakdown in previous censuses, the censuses of 1994 and 2004 only provide separate data for two national groups (Syrian and Palestinian). Both censuses provide vital statistics which include information on Syrian citizens and their vital events, and similar but separate information is also presented on Palestinians and their vital events. In addition, Table 3.3 also shows that the definition of the age of labour force entry changed in the period between the two censuses (from 10 in the 1994 census to 15 in 2004).

Regional boundaries (provinces) have also changed over time (see Table 3.4). In 1950 Syria was divided into ten *Qada* (this was the official term for the administrative districts at the time). By 1970, the ten Qada had become 14 provinces – this was the result of a series of subdivisions that created the provinces of Raqqa, DerEzor, Qunitera and Tartous (CBS, 1960-2004).

Boundary definition					
Qada/Mohafza	Province/Mohafza		Region		
1950	1960 1970 and later		Thesis (1994-2004)		
Damascus city			Damascus (Region)		
Democratic		Damascus Rural			
Damascus		Qunitera	Qunitera		
A.1	•••	Aleppo	Aleppo		
Aleppo		Idleb	Idleb		
Homs			Homs		
Hamaa			Hamaa		
T ((1)	•••	Lattakia	Lattakia		
Lattakia		Tartous	Tartous		
Aljazeera		Alhasakah	Alhasakah		
A1 Doubt	DerEzor	•••	DerEzor		
Al-Forat	Raqqa		Raqqa		
Sweida			Sweida		
Horan	•••	Daraa	Daraa		
10	11	14	13		

Table 3.4: Major boundary changes in Syrian provinces.

Source: Based on censuses.

The administrative division of each province into smaller units has been subject to constant change, particularly in the period between 1994 and 2004. Major urban

areas have grown, especially in the southern regions of Syria near to Damascus. A town with a population of nearly 20,000 is considered urban, and this has the effect of increasing the number of urban places, as shown in Table 3.5 (CBS, 2004). The instability of units at the sub-provincial level provides a further justification for using the provincial scale to collate data for the 1994-2004 LMA/cs.

	1994		2004	
Province	Major cities	Districts	Major cities	Districts
Damascus City	1	1	1	1
Damascus Rural	13	8	33	9
Aleppo	10	7	10	9
Idleb	9	4	9	5
Homs	8	5	7	6
Hamaa	5	4	8	5
Lattakia	4	3	6	4
Tartous	5	4	5	5
Alhasakah	5	3	5	4
DerEzor	5	2	6	3
Raqqa	4	2	3	3
Sweida	3	2	3	3
Daraa	5	2	11	3
Qunitera	2	1	2	2
Total	79	48	109	62

 Table 3.5: Administrative division and major city changes in Syrian provinces between 1994 and

 2004

Source: Censuses 1994 and 2004.

Information provided by the census on religious communities has also been subject to fundamental changes. The 1950 census provided interesting details for 19 religious communities, and these were grouped into four categories in 1960. It is significant problem for this study that no such dataset has been produced from the 1970 and subsequent censuses. The religious profile of regions needs to be taken into account when analysing demographic change because it shapes the regional variations in socio-economic development taking place in the study area. For example, Muslim men (Sunni or Shia) are permitted to practice polygamy. For members of the Druze sect by contrast, women enjoy a privileged equality with men in areas such as education, marriage and employment, whereas Muslim women do not always share these rights. Although these traditions are being challenged in modern society, cultural differences often appear as deep-seated factors responsible for regional variations in population growth rates, due to fertility levels in particular.

Map 3.2 shows the approximate traditional distribution of majority and minority groups throughout Syria. The map patterns are consistent with the data available from the mid-century censuses at the provincial scale. It is expected that there has been continuity in religious profile of regions, because the distinct settlement pattern of each religious group has been continuous for many centuries. The one major recent change is the increasingly diverse profile of major cities, and most especially Damascus, due to rural-urban migration flows.



Map 3.2: Religious communities in Syria Source: Based on (Izady, 2000).

3.5.2 Labour Force Surveys (LFS)

As shown by the detail in Table 3.6, the census is the ideal data source for LMA/cs, and provides data approaching 100% enumeration carried out every ten years. It also provides the regional details needed for the analysis. However, the published data does not provide all the economic data required to complete the LMA/cs because it

lacks data on jobs, economic activity and unemployment. Labour Force Surveys (LFSs) can help to rectify this shortcoming, but have the disadvantage of relying on a sample survey. LFSs are the most important source of the economic components of the Syrian labour market, because they provide a statistical database on the labour force, its level of employment and unemployment, as well as its occupational structure and some demographic and social characteristics. The CBS is the organisation with responsibility for the LFS. In 1994 the survey sampled all persons aged 10 years and over; in 2004 it sampled all persons aged 15 and over (excluding non-sedentary and institutional populations, non-resident citizens, temporarily absent persons, persons residing abroad, and members of the armed forces). Although published and produced by CBS, the 1994 data set is not available in the UK. Table 3.6 contrasts the data which is obtained from the LFS with that which is obtained from censuses.

		Census	LFS
Basis	Sample	100% survey	Sample survey
	Method	Official enumeration	Official enumeration
	Timing	Harvest time	1st quarter
Date	Latest year	2004	2004
	Earliest year of interest here	1994	1994
	Frequency	one-off (every 10 years)	Annually
Geography	Extent	Syria	Syria
	Resolution	Province	Some by Province
	Urban: rural	Some variables by U:R	
Coverage	Syrians in Syria	\checkmark	✓
	Syrians abroad	X	X
	Palestinians	\checkmark	X
	Iraqis	X	×
Population	Age groups	all	15-64
Variables	Gender	М&F	М&F
	Internal – migration	Counted at usual home	X
	Migration flows	Not available	X
	Economic activity	\checkmark	✓
Other	Community profile (by		
	religion)		N N N N N N N N N N N N N N N N N N N
	Employment sectors	√	✓

Table 3.6: Comparison of censuses and labour force surveys

Source: Census and LFS metadata.

The LFS is an annual survey conducted on a clustered sampling basis. The ultimate sampling unit is the household. The yearly sample size is approximately 16,200 households and the reference period is the week prior to the interview. The sample estimates are grossed up to the level of the total population based on the size of the population in each region. The survey provides information mainly at the national level, and provides a separate age and sex breakdown for urban and rural areas. It provides data on employment, unemployment, hours of work, wages and income, duration of employment and unemployment, level of education, and usual activity (as well as temporary internal Syrian economically active migrants).

According to the LFS, employment counts cover all persons aged 10 years and over in 1994 and 15 and over in 2004 who, during the reference week, performed paid work for at least one hour (this includes persons who had paid job for 18 hours and those with a job who were temporarily not at work for specific reasons). Unemployed persons were categorised as those who at the time of the reference week were without work but available for work. This category included persons with previous work experience, as well as persons seeking their first job. The out of the labour force category encompassed those who were without work and available for work but not seeking work, or were subject to compulsory schooling, or were retired and receiving a pension during the reference period (CBS, 1994; CBS, 2004).

There are inconsistency issues between the census and LFSs which should be highlighted and acknowledged. For example, the LFS counted the population at a different of the year and this will inevitably affect where some people are likely to be due to seasonal migration. The census is carried out at harvest time (summer) and the LFS is carried out in spring, but neither dataset it impossible to identify the effect of agricultural labour migration between regions. It is equally important to recognise that the LFS does not count the Palestinian population while the census does, and that neither source provides data on community religious profiles.
3.5.3 Mortality data

Mortality data is essential to estimate the natural increase of population because it provides the number of those who are expected to be alive at the end of the given period. The regional life table for 1994-2004 is key as it consists of data on death events by gender and age group. It was not possible to obtain other annual, or any regional, data and so the national life table for 1999 was used. It is important to highlight that the absence of region specific statistics, and the fact that only the 1999 national life table was available, meant that the analyses had to proceed on the assumption that death rates remained constant throughout the decade, and that there were no regional differences in the mortality rates of any of the age and gender cohorts.

3.5.4 International migration

A full understanding of potential labour market problems in Syria requires data on international migration over the study period. This applies both to Syrian workers in the Gulf countries and elsewhere, and to Palestinian and Iraqi refugees plus other nationals in Syria. Table 3.7 summarises the results of the extensive attempt to find data on many elements of migration from Syria's census and other datasets, as well as from other relevant statistical sources, such as the UN and the International Labour Organisation (ILO).

	Iraqis (a)		Palestir	nians	Syrians abro	oad (b)
Items	International organization*	PCBS and GAPAR **	CBS	Fafo survey	GCC estimates and various sources	CBS
Method	estimation	survey and estimation	enumeratio n	household sample survey (4900 household)	estimation	X
Latest year	2007	2002	2004	2006	2002	X
Earliest year	1999		1988	2001	1997	X
Resolution	some by region	some by region	some by region	some by region	national	X
Age groups	✓	~	~	✓	×	X
Gender	~	~	~	~	×	X
Socio-econ char	~	~	✓	✓	X	X

Table 3.7: International migration data availability

(a) Includes humanitarian refugees and asylum seekers. (b) Migration for work related reason. *includes ILO, UNHCR, and UNRWA. **PCBS is the Palestinian Central Bureau of Statistics, and GAPAR is the General Authority for Palestine Arab Refugees in Syria. GCC is the Cooperation Council for the Arab States of the Gulf. CBS is the Syrian Central Bureau of Statistics.

Source: Own research.

Although Syria experienced rapid migration flows towards the Gulf region for work related reasons, Syrian censuses are similar to those of most countries in that they do not capture data on emigrants. Winckler (2009) and the United Nations Department of Economic and Social Affairs (UNDESA, 2004) observe that, while waves of migration towards the Gulf region vary in size, there is no official data that measures their volumes. Most of the data is available in national tables that capture general numbers of the migrants to specific countries for work purposes. Many sources use estimates which are not based on official sources and cannot provide an accurate assessment of the migration flows in this period.

With regard to in-migrants, both the 1994 and 2004 censuses provide an insight into the general attributes of Palestinian refugees in Syria (with breakdowns by sex and age groups). Some data in the form of historical censuses covering the period up to 1988 has been published in the Palestinian national census. The current Palestinian national census abstracts provide the socioeconomic characteristics of Palestinian refugees, including their distribution by province and sex. These data are available for the years 1994 and 2004 based on statistics provided by the government of the Syrian Arab Republic's CBS and also an UNRWA report on Palestinian refugees in the Middle East, which was published in 2004.

Data about the numbers of Palestinians living in Syria have been collected in various research studies, such as the survey by Fafo (*The Fafo Institute for Labour and Social Research*) which was conducted in 2000. The Iraqi refugees in Syria were not enumerated in the 2004 census. Limited data on Iraqis in Syria have been taken from an academic study, authoritative data about their numbers and their socio-economic characteristics could not be obtained. The most reliable data source is the United Nations High Commissioner for Refugees (UNHCR) which provides some estimates of their numbers in Syria during the period 1994-2004.

3.5.5 Internal migration

Studies of internal migration patterns in Syria are rare. Most of the available evidence relies on limited migration data from the census, which provides in-out and net data on internal migration by province. A report by the Syria Internal Migration Survey (SIMS) was published in 2000 to measure migration flows within and across provinces, and between rural and urban areas. This data source does not conform to the one-year migration definition of the datasets used in the LMA/cs in developed countries. Hwaja (2002, p.11) explains that the "the survey includes data on net lifetime and period migration across provinces, including only internal migrants and excluding persons coming from abroad. Lifetime migration is used to distinguish individuals who changed their place of residence since birth from others. Period migration also refers to a change of residence at two time points, but with reference to the five years preceding the survey" (i.e. since 1995).

Table 3.8 compares the data from SIMS with migration dataset from the census. The data from SIMS also provides inflow data across provinces as percentage values, and in addition documents the socio-economic characteristics of migrants and examines

the reasons for their mobility. SIMS covers temporary, seasonal migration, and people's intentions to move in the future. SIMS can be seen to provide the most interesting data on internal migration in Syria, but it has limitations such as its sampling procedure being based on the 1994 census records. There is consequently a recognisable risk of under-coverage of newly built/occupied buildings, and of whole households that have moved being missed. In addition, SIMS data does not cover Palestinian camp residents.

	Items	Internal migration survey	Census
Basis	Method	questionnaire survey	Census survey
			Official
	Population	Based on 1994 census	enumeration
Date	Latest year	2001	2004
	Earliest year of interest	1995	1994
	Frequency	one-off	Every 10 years
Geography	Coverage	Syria	Syria
	Resolution	Province	Province
	Urban/Rural	Some	Yes
	Sample	20,000	Enumeration
	migration type	Permanent or temporary	Temporary
	Migrant definition	Move from place of residence for 6	Move for 12 month
	wigrant demition	months and over	or more
Subjects	Syrians in Syria?	\checkmark	\checkmark
	Syrians abroad?	×	×
	Palestinians?	×	×
	Iraqis?	x	×
Population	Age breakdown	Some data	X
Variables	Gender	\checkmark	\checkmark
	Migration flows	\checkmark	×
	Socio-econ char	\checkmark	✓
Context	Community profile	x	×
	(by religious groups).		
	Sectoral profile	\checkmark	\checkmark
	(public: private;		
	industry types)		

Table 3.8: Internal migration data specification

Source: SIMS survey and census metadata.

To conclude, as already mentioned above, when dealing with all data sources there are key metadata issues which have to be acknowledged and considered. The fact that the available data often falls short of the ideal specification for an application of the LMA/cs framework has inevitably shaped this study's methodology and coverage. A

particular example is the inadequate available data on the Iraqi refugees who arrived during the study period, and in fact there is also incomplete coverage of the Palestinian refugees present in Syria for many years. Without full treatment of these substantial population sub-groups, there are risks of considerable error when estimating the number and socioeconomic characteristics of both the active and inactive members of the Syrian labour market.

3.6 Data limitations and regional estimation method

Although official census and survey reports have many advantages, particularly concerning quality and reliability, for the aim of this research some limitations were observed which have shaped the final analysis and modelling methods. These are mainly related to aspects of coverage, but there was also issues of limited availability which arose as a consequence of unforeseen circumstances created by the crisis in Syria.

In terms of availability, some potentially valuable data tables are not broken down by province, and this has led to the use of estimation techniques to fill in these gaps. For example, the national life table for 1999 was the only available mortality data relevant to the research. Using this single dataset presumes that this life table shows the national average for 1994-2004, and also that these national mortality rates for each age cohort for males/females is a reasonably good approximation of the equivalent mortality rates of all the provinces. The only way the inevitable errors could be reduced would have been by having detailed data on death rates by sex and age for each province ideally for each year.

All the socio-economic data from the 1994 census derived from a sample that was intended to be 10% of the total population (achieved by only coding the socioeconomic data from 1 in 10 of the forms obtained from the full enumeration of the population). In fact, coverage was officially estimated at 9.17% which then requires a total grossing-up rate of 10.905 (100/9.17), and this is the only one made available by the CBS. This rate was presumably used by CBS to create the ('100%') census figures used in the study for basic demographic parts of LMA/cs, and this raises a concern about the reliability of the census numbers that claim to be a 100% count of the population. The printed tables were not grossed-up and this was what created the initial concern, as it is known that the ideal rate for grossing-up will vary between sub-populations because coverage will be variable, as it always is with samples. Therefore, the question then is whether to apply the 10.905 rate to every figure in the printed tables, or try to adjust for any variability in sampling that can be observed. It is important in this research to explore regional variations, and therefore it has to extend "difference" analyses as much as possible, by age, gender, urban/rural sub-populations, and later to apply these to the printed data. This could then produce an interesting table on the variation in grossing-up rates used instead of the 'universal' 10.905.

On this basis, sampling fraction calculations by age, sex, and urban-rural factors were performed for the nation and each region. This shows variation in the grossing-up rates used in the analysis, and to extract the actual count of sub-groups instead of using the universal value 10.905 (when it is inevitable that sampling varied by age, sex and place). Table 3.9 presents the national example to illustrate this approach. The response rate has been calculated by dividing the 10% sample (for a given age/sex and urban-rural group) by the total population in working age in the same given group. Later, the resulting rates were divided by 100 to produce its contribution to the total sample. Finally, the value for any given age/sex and place (on the printed tables) was grossed-up to the % contribution rate to produce the actual 100% figures. This procedure was repeated separately for each region. A very broad interpretation of the results at the national level (Table 3.9) is that although there is a clear inconsistency in the rates between the different sub-groups, there is no clear pattern to the ratio variations, and in fact the variability is at quite a modest level.

	% Response rate								
		Urban			Rural			Total	
		Femal	Tota		Femal			Femal	Tota
Age group	Male	e	1	Male	e	Total	Male	e	1
10 - 14	8.96	9.05	9.00	9.08	9.04	9.06	9.02	9.05	9.04
15 - 19	9.03	9.02	9.03	9.06	9.18	9.12	9.05	9.10	9.07
20 - 24	9.02	9.10	9.06	9.17	9.31	9.24	9.09	9.21	9.15
25 - 29	9.15	9.19	9.17	9.33	9.45	9.39	9.23	9.32	9.28
30 - 34	9.12	9.13	9.12	9.37	9.23	9.30	9.23	9.18	9.20
35 - 39	9.25	9.27	9.26	9.29	9.33	9.31	9.27	9.30	9.28
40 - 44	9.37	9.15	9.09	9.12	9.10	9.11	9.26	9.13	9.10
45 - 49	9.04	9.25	9.14	9.25	9.32	9.29	9.14	9.29	9.21
50 - 54	9.10	9.08	9.09	9.20	9.20	9.20	9.15	9.14	9.14
55 - 59	9.06	9.07	9.07	9.34	9.28	9.31	9.19	9.17	9.18
60 - 64	8.91	9.29	9.09	9.19	9.27	9.23	9.05	9.28	9.16
AVG total	9.09	9.15	9.10	9.22	9.25	9.23	9.15	9.20	9.17
			%	Contributi	on (gross	ing-up ra	ite)		
10 - 14	11.2	11.0	11.1	11.0	11.1	11.0	11.1	11.1	11.1
15 - 19	11.1	11.1	11.1	11.0	10.9	11.0	11.1	11.0	11.0
20 - 24	11.1	11.0	11.0	10.9	10.7	10.8	11.0	10.9	10.9
25 - 29	10.9	10.9	10.9	10.7	10.6	10.6	10.8	10.7	10.8
30 - 34	11.0	11.0	11.0	10.7	10.8	10.8	10.8	10.9	10.9
35 - 39	10.8	10.8	10.8	10.8	10.7	10.7	10.8	10.8	10.8
40 - 44	10.7	10.9	11.0	11.0	11.0	11.0	10.8	11.0	11.0
45 - 49	11.1	10.8	10.9	10.8	10.7	10.8	10.9	10.8	10.9
50 - 54	11.0	11.0	11.0	10.9	10.9	10.9	10.9	10.9	10.9
55 - 59	11.0	11.0	11.0	10.7	10.8	10.7	10.9	10.9	10.9
60 - 64	11.2	10.8	11.0	10.9	10.8	10.8	11.0	10.8	10.9
AVG total	11.0	10.9	11.0	10.8	10.8	10.8	10.9	10.9	10.9

Table 3.9: Sampling fraction by age, sex, urban and rural for 1994 censuses data

Source: Own research. based on census metadata.

3.7 Review

This chapter has detailed the challenge for the study, identifying the key elements of the LMA/cs method that is to be applied to 13 regions of Syria to examine and measure the major demographic changes and their labour market consequences in the decade 1994-2004 when economic growth slowed. The LMA/cs method is data intensive, but the chapter ended by documenting the limitation of available data on Syrian regions for this period.

To some extent the fact that this study cannot fully replicate the LMA/cs applications in countries such as the UK is less problematic than it may at first appear because the context is so different. For example, the lack of commuting data is not a critical flow because the Syrian employment data is residence based so there is not the need for net commuting flow data to align a workplace-based dataset on jobs to a residencebased data on workers. All the same, the need for estimation in compiling several of the key datasets has been acknowledged, while some datasets which would be potentially valuable for understanding the regional patterns revealed by the LMA/cs are not produced. In particular neither of the 1994/2004 censuses has statistics on ethnicity/identity/religion, when this would be highly relevant indicators of traditional culturally-driven demographic behaviour attitudes.

The next three chapters provide analyses of the available datasets related to the calculation and interpretation of regional LMA/cs. This is not solely to compile the input to those LMA/cs (which are produced in chapter 7), it is also to outline the context which helps with understanding their results. To this end, the next three chapters aim to provide a summary of the population and economic geography of Syria in the period 1994-2004.

Chapter 4

Analysis of national demographic change 1994- 2004

4.1 Introduction

The main aim of in this chapter is to build and analyse at the national scale the demographic material needed for the LMA/cs framework for the 10 year period between 1994 and 2004. This chapter also provides contextual material relevant to the interpretation of the results from the LMA/cs. The first empirical section presents the demographic trends in Syria prior to 1994. Demographic change is a very long process, and demographic events which took place many years ago can have a persistent effect on both demographic and socioeconomic trends. The next section analyses national demographic change in the period between 1994 and 2004, with specific attention to population growth and its implications (such as the size of age cohorts in the working age group). It also outlines the process of estimating natural growth of the working age population over a 10 year period. Ensuing sections estimate net international migration; this is a particularly important because it will provide an important insight into the scale and potential impact of cross border movements on Syria's national labour market. This involves synthesizing figures on in-migration, out-migration and net migration which are available from various sources, each of which has limitations. Regardless of the level of success or otherwise of the attempt to provide an overall estimate of net international migration, the analysis of these datasets will contribute to a better explanation of the mechanism of labour market change during this decade.

4.2 Demographic trends in Syria prior to 1994

There is a great deal of evidence about high rates of population growth in Syria, as census data since 1960 clearly illustrates. Table 4.1 shows that the highest annual population growth rate (3.3%) was recorded in the period 1970-1981, when the population increased by a rate of 43.5%. The rapid growth of the Syrian population in the years since 1960 was attributable to the very high fertility rates (of 7.5 children per woman) that were experienced in the 1960s. This rate then declined to 5.8 in the period 1981-1994, signalling the start of a demographic transition stage. The population size grew from 4.5 million in 1960 to reach over 13.7 million in 1994. the population growth rate has slowed since 1981 because of the decline in fertility rates, in addition to continued net out-migration over the period.

Table 4.1: Population growth rate

Change	0005	Year interval	% Population growth	% Compound annual Growth Rate*	Total Fertility Rate**	Average N Migration rate(0,000	et)**
1960-70	1739	10	38.1	3.28	7.5	1960-70	-0.5
1970-81	2742	11	43.5	3.33	7.4	1970-80	-3.1
1981-94	4736	13	52.4	3.29	5.8	1981-94	-1.7

* calculated by the author using the compound interest formula $\left(\sqrt[n]{\frac{P2}{P1}} - 1\right)$ **100**, Where n = years interval, P1 and P2 are start and end year, respectively. **Source: World Population Prospects: The 2012 Revision, Available on: http://esa.un.org/unpd/wpp/unpp/panel_indicators.htm.

Source: Based on Al-Ashkar 2005 and World Population Prospects.

These changes created the wide base to the age pyramid that is shown in Figure 4.1. It should however be noted that the proportion of children younger than 15 years old fell from 48.4% to 44.7% in the period between the 1981 and 1994 censuses. In contrast, the proportion of the working age population (15-64) increased from 48.3% to 52.2% during the same period (it should be recognised that the school leaving age in Syria is 18). These changes in population structure directly impact on the labour market through increasing the numbers of new entrants to the working age groups who are seeking work for the first time.



Figure 4.1: Population pyramids of Syrian population 1981 and 1994 Source: Based on censuses 1981 and 1994.

Syria's rate of out-migration increased, especially after the 1960s when job creation in the national labour market was lower than in the oil rich Middle Eastern countries where there were many employment opportunities, particularly for men (Winckler, 1999). At the same time there are real concerns about data availability related to outmigration for the period prior to 1994 and this makes it extremely challenging to obtain a precise estimate of net migration. Some insight is provided by the United Nations Population Division (UNPD) estimates which are shown in Table 4.2 and suggest that net out-migration rate peaked in the late 1970s (followed by a less pronounced peak in the late 1980s). It is likely that the first Gulf War (1990-91) impacted upon foreign (including Syrian) workers resident in Gulf countries, resulting in an increase of returning labour. Although it would be beneficial to disaggregate these net migrant estimates by age and sex, this breakdown is not available.

Table 4.2: Net in-migration	to Syria
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Period	Net number of migrants (per 5 year) 000s	Net migration rate (Average annual net number of migrants per 000)
1960-1965	-15	-0.6
1965-1970	-15	-0.5
1970-1975	-80	-2.3
1975-1980	-160	-3.9
1980-1985	-85	-1.8
1985-1990	-145	-2.5
1990-1995	-70	-1.0

Source: UNPD 2012. World Population Prospects: The 2012 Revision, http://esa.un.org/unpd/wpp/index.htm

In significantly impacting upon internal mobility, inter-regional migration has played a key role in increasing the rates of urban population growth, particularly since the 1960s. Most of this movement was towards provincial centres, over 80% of total net intra-national migration flows in Syria being from rural areas to these centres during the period 1970-1981 (Shaban, 2009). Table 4.3 shows that the urban population had only accounted for 36.9% of the population in 1960; but this population has since persistently increased.

Year	Urban (ooos)	Rural (000s)	Total (ooos)	
1960	1,685	2,880	4,565	
1980	4,160	4,747	8,907	
1985	5,065	5,511	10,577	
1990	6,030	6,294	12,324	
1995	7,100	7,071	14,171	
percentage	Urban (%)	Rural (%)	Total (%)	
1960	36.91	63.09	100	
1980	46.7	53.3	100	
1985	47.9	52.1	100	
1990	48.9	51.1	100	
1995	50.1	49.9	100	
Annual percentage change (Period)	Urban (%)	Rural (%)	Total (%)	
1960-1980	4.6	2.5	3.40	
1980-1985	4.0	3.0	3.50	
1985-1990	3.5	2.6	3.10	
1990-1995	3.3	2.3	2.83	

Table 4.3: Urban-rural populations in Syria

Annual percentage change was calculated by the author using the formula Compound Annual Growth rate.

Source: World Population Prospects: The 2011 Revision.

4.3 Population change 1994-2004

This period saw an annual population growth rate of 2.7% and this represented a clear decline from the period 1981-1994 when Syria's average annual population growth rate was 3.3%. The decline in population growth has begun to alter the demographic composition of the Syrian population (ILO & UNICEF, 2012), with a yearly increase in new entrants to the labour market as a consequence of the earlier high birth rate (Barlow, 1994). Syria therefore began to shift from the earlier stage of population boom towards the later stage in the demographic transition model which is characterised by declining fertility rates (Table 4.4). Syrian censuses from 1994 and 2004 reveal a total population increase of 4 million, an increase of 30.9 % over ten years. As discussed earlier, high fertility rates are behind the rapid population growth experienced since 1960 (Al-Ashkar, 2005). Population growth in the period 1994-2004 is not only attributable to relatively high fertility rates but also to long-term improvements in health conditions which have allowed the mortality rate to decline to 3.5 (Table 4.4).

Table 4.4: Change in mortality and fertility rates in the Syrian population	

	1994	2004
Population (0,000)	13782	17921
Total Fertility Rate	4.8	3.6
Crude Death Rate ^a	4.3	3.5
Crude Birth Rate ^a	33.5	28.7

*: Derived using the compound interest formula. Source: ^a (UN estimates).

Although the overall population growth rate declined during the period 1994-2004, previously very high birth rates continued to impact upon labour force size (Figure 4.2) The two five-year age cohorts growing most in absolute terms were those aged 15-24, who were new entrants to the working age population over this period. They were born during the 1970s when the fertility rate was higher, and entered the labour force when economic conditions were far from ideal.



Figure 4.2: Syrian population pyramids for 1994 and 2004 Source: Based on censuses

Table 4.5 reports that the percentage of the children in the population declined from 44.8 in 1994 to 39.5 % in 2004; meanwhile the proportion of the labour force group (aged between 15 and 64) increased from 52.2 in 1994 to 57.4 in 2004. Improved health conditions enabled the proportion aged over 64 to rise slightly due to increased life expectancy (Barout, 2008) which rose from 71.1 in 1994 to 73.9 in 2004 (UN, 2012).

Age group	1994	2004	% point change
0-4	14.9	13.9	-1.0
5-9	15.4	13.4	-2.0
10-14	14.5	12.1	-2.4
0-14	44.8	39.4	-5.4
15-19	11.6	11.8	0.2
20-24	9.1	10.4	1.3
25-29	7.6	8.0	0.4
30-34	6.1	6.6	0.5
35-39	4.7	5.7	1.0
40-44	3.8	4.7	0.9
45-49	2.8	3.6	0.8
50-54	2.5	2.9	0.4
55-59	1.9	2.0	0.1
60-64	2.0	1.7	-0.3
15-64	52.1	57.4	5.3
65+	3.0	3.3	0.3
Total	100	100	0.2

Table 4.5: Percentage of each working age group 1994 and 2004

Source: Censuses.

Table 4.5 shows a larger percentage of people falling into the younger adult categories, as illustrated by the increase in the percentage of people aged 20-24 years old. The growth of the working age population and a declining dependency rate has uncertain implications for the labour market: it can contribute to increased economic activity and prosperity, but only if the economy has the potential to absorb the increased labour force through strong economic growth.

4.3.1 Analysing age cohort change 1994-2004

In order to compile the data needed for the LMA/cs, it is first necessary to look more closely at the change in specific age groups. The initial analyses here apply the cohort method, which uses the components of demographic change (i.e. births and deaths) to project over time the size of each age and sex group of the working age population. This will allow an examination of the change in the size of each cohort over a particular period of time. As such it "can provide in-depth knowledge on population dynamics" (Siegel and Swanson, 2004, p. 31). Figure 4.3 shows the combined effect of mortality and net migration on different age cohorts by comparing the size of each age group in 1994 with the size of the age group ten years older in 2004.



Figure 4.3: % change of cohort population 1994 and 2004 Source: Based on censuses.

The age cohort 10-14 in 2004 was larger by 5.6 % than the 0-4 years old group in 1994; this can be explained by net in-migration of children born abroad to temporary emigrants, combined with the usual under-count of infants in a census (Norman *et al.*, 2008). The major effect of adolescent mortality plus strong net out-migration of those who entered the labour force notably reduced the size of the age cohorts who were 10-24 in 1994. The higher mortality rates of older people caused the increasing likelihood of the non-survival of older age cohorts, and the increasing large negative percentages for cohorts aged over 45 in 1994, clearly demonstrate this (Figure 4.3).

4.3.2 Natural change in working age groups between 1994-2004

It is now necessary to examine the changes in labour supply due to natural increase of the population of working age in the period between 1994 and 2004. The basic datasets that will enable the calculation of this component of the LMA/cs are either taken from the 1994 census or from published death rates by gender and age groups. As the methodology chapter has already observed, the national life table for 1999 is the only available life table for this period.

The cohort method projects forward population by age-sex group (Speize and Lacey, 2013) and uses estimated numbers of deaths to predict the number of people who

remain alive between 1994 and 2004 (eg. estimating the number of males or females aged 15 in 1994 who would die before reaching 25 in 2004). The procedure for estimating these components is presented below.¹

The application of the appropriate 10 year survival rate to the 1994 number in each age cohort provides an estimate of how many people should have survived until 2004. The calculations are based on life table mortality rates by sex and age group, and this allows the calculation of specific death rates (Rowland, 2003). In the absence of a full life table (single years), the practical approach is to average the survivorship rates for five years age cohorts, separately by sex. Here the 1999 life table has to be assumed to be a credible average of the ten years 1994-2004, which can be applied as required (see equation 4.1).

Equation 4.1

$$SR_a = \left(\frac{M_{a+n}}{M_n}\right) - 1$$

Where:

 $SR_a = 10$ year survival rate of a specific age-sex group $M_n =$ age-sex specific mortality rate for starting age (e.g. 5-9) $M_{a+n} =$ age-sex specific mortality rate for 10 year cohort (e.g.15-19)

Deriving a death rate for a specific five-year age group by averaging the rates for the ages bracketing that group (e.g. averaging the ones for 5-14 years old to obtain the death rate for the age group 5-9), as shown in equation 4.2.

Equation 4.2

$$DR_a = \left(\frac{D_a + D_{a+5}}{2}\right)$$

Where:

 DR_a =death rate of a specific age-sex group (e.g. 5-9)

 D_a = age-sex specific death rate for 5 year age group (e.g. 5-9)

 D_{a+n} = age-sex specific death rate for 5 year cohort (e.g.10-14)

¹ The approach described here is based on personal notes taken in a supervisory meeting with Tony Champion in March 2012 and also based on Rowland (2003).

In order to calculate the expected deaths over the decade from 1994 (equation 4.3), the base year population 1994 of an age cohort is multiplied by the death rate for that age group; the result is the number of deaths expected during the period 1994-2004 in that specific age cohort.

Equation 4.3

$$Ed_{a=}t1_a \times DR_a$$

Where:

 Ed_a = expected death numbers for a specific age-sex group $t_1a = 1994$ specific age-sex group $DR_a = a$ specific age-sex group death rate

Estimating the natural increase in working age 1994-2004 using the rolled forward method is the next step. In effect, for any age group, the natural change effect for the period 1994-2004 is the difference between the number in that age group in 1994 and the result of the rolled forward estimate for 2004 (i.e. the numbers of the age group who were ten years younger in 1994, minus the numbers of those estimated to have died in that 10 year period). For example, it is the number of those who were 30-34 in 2004 subtracted from the number of those who were 20-24 in 1994 and who are expected to survive ten years later.



Figure 4.4: Natural increase in working age population 1994-2004 Source: Based on censuses

The natural change estimation results illustrated in Figure 4.4 show that without migration the Syrian labour force would be expected to grow very substantially (in fact by around two million) over the relevant 10 year period. There is a slight gender difference overall, with males evidencing a slower growth rate than females (due to higher male mortality). Men aged 60-64 were the only working age group that would be expected to decline - this group was predicted to drop by 0.5 % (4,637 people) over the 10 year period. In calculating the natural change effect on the Syrian working age population, mortality only slightly reduces the growth because of the youthful age structure of the population. To summarise the impact on the working age groups 15-64: there are few in the retirement age groups leaving the labour force but at the same time very many young labour market entrants.

4.3.3 Estimation of net international migration as a residual

The preceding analysis of demographic changes considered population assumed have remained in the country over the 10 year period. It is also important to estimate net international migration over the 10 year period. The simplest approach is to calculate the difference between the expected (rolled forward) population and the actual population in the 2004 census. The percentage difference for each age group is shown in Table 4.6. It is worth mentioning that the youngest group aged 0-4 in 1994 was not included because there is undercounting of those aged 0 in censuses worldwide.

		Rolled	forward	rward Census 2004		Differences		% Difference	
1994	2004	М	F	М	F	М	F	М	F
5 - 9	15 - 19	1046530	994715	1053796	999916	7266	5201	0.69	0.52
10 - 14	20 - 24	989371	937101	925087	894540	-64284	-42561	-6.95	-4.76
15 - 19	25 - 29	778630	751713	708487	691392	-70143	-60321	-9.90	-8.72
20 - 24	30 - 34	598734	593024	580591	567723	-18143	-25301	-3.12	-4.46
25 - 29	35 - 39	498532	492373	501157	486475	2625	-5898	0.52	-1.21
30 - 34	40 - 44	400216	397236	414355	396260	14139	-976	3.41	-0.25
35 - 39	45 - 49	307606	300138	317985	298124	10379	-2014	3.26	-0.68
40 - 44	50 - 54	244842	236391	260915	243151	16073	6760	6.16	2.78
45 - 49	55 - 59	173626	170220	182869	166637	9243	-3583	5.05	-2.15
50 - 54	60 - 64	134191	143366	145716	141836	11525	-1530	7.91	-1.08
(05-54)	(15-64)	5172278	5016276	5090958	4886054	-81320	-130222	-1.60	-2.67
55 - 59	65 - 69	91544	94963	107220	98099	15676	3136	14.62	3.20
60 -64	70 - 74	74664	77086	99976	89536	25312	12450	25.32	13.91
65 -69	75-79	28762	25451	52538	39655	23776	14204	45.26	35.82
То	tal	5367248	5213776	5350692	5113344	-16556	-100432	7.09	2.53

Table 4.6: Roll forward of working age population

*This represents the difference as a % of the 2004 census specific age group size. Source: Based on censuses.

Table 4.6 shows negative differences from the rolled forward population if there was net out-migration, while the positive values indicate net in-migration. The negative difference in the young adult age cohorts appears to be consistent with high levels of net emigration at these ages due to the need for better jobs and higher education. The positive differences for men in middle age is consistent with the known pattern of return migration to Syria. Gender difference is far more evident for some age groups than other. The middle age-groups in Table 4.6 clearly illustrates this point: there is a somewhat unexpected low net outflow of women alongside the net in-migration of



men. Figure 4.5 shows the absolute values of the estimated net international inmigration.

Figure 4.5: Net in-migration impact suggested by the rolled forward of working age population 2004 by sex and age groups

Positive difference indicates net-in migration. Source: Based on censuses.

This evidence shows plausible patterns to the scale and age/gender profile of net international migration. As such it indicates that the differences between the rolled forward and enumerated populations in 2004 are a reasonable basis for estimating net cross-border migrant numbers. It is essential to mention that Iraqi refugees were not included in the 2004 census (CBS, 2004; Hasan, 2007; Aita, 2009b; Aita, 2009a) and so the scale and potential impact of refugees are not accounted for in these estimates. As a result, the remainder of this chapter will draw upon the fragmentary available on numerous different groups that crossed Syria's rather porous borders during the relevant study period.

4.4 International migration 1994-2004: evidence for Syria

Data on international net migration is more difficult to find and analyse than basic counts of residents. There is no single or comprehensive data source, and it is necessary to examine various datasets in order to build an overall impression and triangulate a final estimation. This component of LMA/cs requires data on net outmigration for Syria, which is ideally disaggregated into sex and age groups and which also distinguishes foreign groups (such as Iraqis) who are not included in the Syrian

population census. Some estimates of migration in the period 1994-2004, or individual years, are provided by CBS, the UNPD and the World Bank. These sources, along with others, will now be evaluated.

The aim is to estimate net migration flows over the study's 10 year period. Particular emphasis will be placed upon countries with substantial migration flows of Syrian labour market migrants: countries such as Saudi Arabia, Kuwait, the United Arab Emirates, Lebanon, and Jordan. The goal is to obtain data on net out-migration, but this may have to be generated from separate estimates of inflows and outflows. Emigrants of interest to the LMA/cs were present in Syria in 1994 (when aged 5-54) but were not resident in Syria in 2004. In-migrants were located outside of Syria in 1994 (when aged 5-54), but were resident in the country's borders in 2004. Each of these migrant flows is likely to include many sub-groups: in addition to the familiar labour migrants who are mainly Syrian nationals or Palestinian, there are also other foreign nationals and refugees (with Iraqis accounting for the largest proportion of this group).

One major problem is that the various datasets of potential interest differ in their relevance and coverage. The main concerns when examining migration data sources are: 1) whether there is breakdown into relevant sex and age groups; 2) whether the dataset is a stock count or a flow count; 3) what years or period the dataset refers to; in addition, this data should also provide a breakdown of migrant economic activity. The definition of international migration that this study applies is consistent with the international standard, which considers migration to be the change of a country of residence for a year or more. This definition excludes visitors, circular migrants, and people who commute daily across borders. Different datasets cover different groups of refugees and other migrants so the best information, including some with the necessary breakdown by age and sex, many not cover all the key groups: Syrians, Palestinians, Iraqi refugees, and other nationals who are not refugees.

The required data for the LMA/cs is the international net migration effect on the working age population (WAP) for each region. However, international migration is not routinely measured at the regional scale, and even the national studies that do exist generally fail to provide a breakdown of age and gender. One alternative could be to use the best national scale datasets, and then subsequently incorporate further information that will make it possible to distribute the final estimates by region.

Many countries struggle to provide reliable information on in-migration and especially on out-migration. Syria has historically been a receiver of refugees. Its leaky borders with Lebanon and Jordan have also enabled large numbers of circular migrants to make numerous crossings. All these factors contribute a considerable degree of complexity. The following sections will now seek to illustrate how far an analysis of the available sources can contribute to a robust estimate of net international out-migration.

4.5 Existing estimates of international migration

The United Nations Population Division provides limited data on net international migration, in the form of over 5 year periods. The estimates are derived from data on change in the foreign population (i.e. people who are citizens of a country other than the one in which they reside). Where the necessary datasets are available, the values include both non-Syrians counted as immigrants in Syria, and any Syrians counted as immigrants in other countries. The change in the numbers of refugees between the beginning and end years, as reported by the United Nations High Commissioner for Refugees (UNHCR), are added to these estimates of the change in the migrant stock. The estimates for the Syrian Arab Republic include Palestinian refugees registered by UNRWA (UNPD, 2008). The available metadata does not mention whether Iraqi refugees are included (the discussion will return to this issue when the actual statistics are examined).

The five year periods used for the UNPD estimates do not quite match with the research timeframe. Still more problematically, the estimates do not include age or other breakdowns. Despite this weakness, the dataset could be a starting point for an

estimation process, especially if the flows mostly involve the working age groups. If so then the estimated net figure can be assumed to be close to that which would be produced if there was breakdown to isolate statistics only covering age groups relevant to LMA/cs.

To appreciate the net migration profile of Syria, as reported by the UNPD, it is worth comparing it with neighbouring countries for the same period of interest. Table 4.7 shows the importance of political events and how they are linked to substantial changes from one five-year period to another because major events can result in sudden inflows or outflows. All these countries have been strongly impacted by refugee processes associated with regional civil and political instability: relevant examples include the first Gulf War (1990-1), the Lebanese civil War (1975 to 1990) and the second Gulf War (2003). During the period 1990-95, the net migration profile of Kuwait was negative due to the consequences of the 1990-1 Gulf War, which forced thousands of residents (particularly non-nationals) to flee to neighbouring countries (Swaidan and Nica, 2002). The end of the Lebanese civil war in 1990 transformed it into a country with a receiving migration pattern, which became particularly pronounced in the period 2000-5. Tabar (2010) observed that "Migrants and refugees from countries such as Iraq, Sri Lanka, the Philippines and Ethiopia have come to Lebanon in substantial numbers" (p. 11). In direct contrast, eruptions of violence and an associated recession (Gebera, 2007) during the period 1995-2000 resulted in outflows from the country.

	Net in-migration (0,000)						
Country	1990-95	1995-2000	2000-05				
Iraq	-155	-18	-266				
Jordan	401	-188	-184				
Kuwait	-602	126	200				
Lebanon	90	-29	550				

Table 4.7: Estimates by the UNPD of net in-migration to selected Middle East countries

Source: World Population Prospects, the 2012 Revision, accessed: http://esa.un.org/unpd/wpp/Excel-Data/migration.htm.

The UNPD figures estimated net Syrian outward migration during the period 1990-95 to be around 70,000. The level is estimated to have accelerated to around 130,000 for 1995-2000 and -379,910 in the period 2000-5 (see Table 4.8) The age and sex of these migrants is unknown, but a rough idea can be obtained from Hwaja's (2002) and Sadeldine's (2005) observation that Syria produces far more male out-migrants than female migrants. As is the case with most international migrants, their age profile is expected to be dominated by the younger working age groups.

Period (mid-year)	1990-2005	1994-2004 (derived)	
1990-1995	-70,000	1994	-14,000
1995-2000	-130,000	1995-2000	-130,000
2000-2005	-379,910	2000-2004	-303,928
Total	-579,910	Total	-447,928

Table 4.8: Net in-migration estimates for Syria, as suggested by UNPD

The period of interest (1994-2004) was derived assuming the same numbers per year over the 5 years.

Source: World Population Prospects, the 2012-2013 Revision: http://esa.un.org/unpd/wpp/Excel-Data/migration.htm.

UNPD estimates for the period 2000-5 suggest that Syria's net migration profile was very strongly negative. However, it is widely known that 2003-4 saw a massive influx of Iraqi refugees (subsequent to the 2003 US invasion of Iraq; Syria was a main receiver of these refugees (Aita, 2009a; Aita, 2009b). Thus it can be inferred confidently that Iraqi refugees are not included in the refugee data that the UNPD uses to establish its estimates. A UNHCR survey, whose timeframe stretched from the beginning of 2003 to the last quarter of 2005, previously estimated the number of Iraqi refugees in Syria to be around 450,000: "This estimation was obtained from cross-analysis of demographic data collected from the survey and official figures from the Ministry of Interior on immigration in Syria" (UNHCR, 2005, p. 6).

In fact there is no strong basis for deriving an estimate of the arriving number by the end of 2004 from the total that arrived between the beginning of 2003 and September 2005 (i.e. out of the total 33 months). The simplest approach is to assume that the same number came in each month. Table 4.9 provides an estimate of Iraqi arrivals in the period of interest (21 months, from early 2003 until September 2004, the date of the 2004 census) which arrives of the figure of 286,363 (which was achieved by multiplying 450,000 by the ratio of 21/33).

Table 4.9: Iraqi refugees as reported by the UNHCR

Period	Source	
2003-2005	UNHCR	450,000
2003-Sep 2004	Derived	286,363

Estimated figures for the period of interest (i.e. 2003- Sep 2004), derived by the researcher. Source: UNHCR estimates.

A closer investigation of the UNPD record of the trends in international migration stock provides further evidence that Syria experienced substantial refugee influxes between 2003 and 2004. Table 4.10 compares the UNPD dataset of international migration stock with the Syrian CBS estimation of Palestinian refugees. The number of Palestinians does not change very radically over a short period, so an estimate of the number of non-Palestinians refugees was obtained by subtracting the total number of Palestinians in 2005 from the total estimated refugees produced by UNPD in the corresponding year (Table 4.10). The sudden increase in refugee numbers in 2000-5 period most likely reflects the Iraqis who arrived in Syria between early 2003 and late 2005. A figure for the period of interest (i.e. 2000-4) was derived from the change over the period 2000-5, multiplying this by the ratio of 4.25/5 (four years, three months out of five). This number (i.e. 243,334) is similar to the one which was obtained through the application of the UNHCR figure in Table 4.9 (i.e. 286,363), providing further confirmation of the huge impact that Iraqi refugees have made on Syria's net in-migration.

Year	UNPD (mid-year) estimates of refugees (including Palestinians)	CBS (mid-year) estimates of Palestinians	Estimate of other refugees than Palestinians	
1995	375,564	333,686	41,878	
2000	388,168	372,208	15,960	
2005	747,766	445,521	302,245	
Net 2000-5	359,589	73,313	286,276	
2000-Sep 2004 (derived**)	305,650	62,316	243,334	

Table 4.10: Estimates of refugees in Syria as suggested by the UNPD and CBS

*Based on end-year estimates provided by CBS; however, the mid-year estimates were derived by averaging the preceding and following years, e.g. 1994 and 1995. ** Derived by multiplying the figure of net 2000-5 by 0.85 (the ratio of 4.25/5 or 4 years and 3 months out of the 5year period) to estimate up to September 2004 (the date of the 2004 census).

Source: Based on Syrian censuses and another UN data source.

It is important that the World Bank (WB) statistics provide similar estimates to the United Nations Population Division's figures, which engage with various five year periods, and which are generally based on UNPD World Population Prospects estimates (World Bank, 2014). However, there is a critical difference between the data reported in the period after 2000. Table 4.11 displays the WB estimates, which reflect the fact that Syria received massive migratory movements from Iraq.

Table 4.11: Net migration estimates of Syria as suggested by the World Bank

Period (start year)	Net in-migration
1989-1993	-70,000
1994-1998	-130,000
1999-2003	-379,910
2004-2008	1,140,716

Source: World bank development indicator:

http://data.worldbank.org/indicator/SM.POP.NETM/countries?page=4&display=default

The period 1999-2003 shows the same estimate of net out-migration from Syria as that of the UNPD (Table 4.8). The difference between the WB periodization (1994-1998; 1999-2003) from that of the UNPD (1995- 2000; 2000-2005) is that the UNPD has an 'overlap' year and the WB does not. This implies that UNPD are comparing estimated stocks at the mid-year point, whereas the WB seems to be adding estimates of net flows each year. Although the WB has been invited to clarify this issue, their response does not really justify the difference.²

This study is most interested in the period 1994-2004, so the WB data provides a more helpful periodization which allows the derivation of the possible impact of Iraqi refugees during the period 2003-4 (Table 4.12). Data for the year 2004 was derived from the period 2004-2008 by multiplying 1,140,716 (the WB estimate for 2004-08) by 0.20 (which is a rate of one year out of five). This resulted in a total net migration of 285,129 for 2004 (see Table 4.12). It is notable that this figure is similar to the one indicated in Tables 4.9 and 4.10 (respectively 243,334 and 286,363), which reflects the effect of Iraqi refugees during this period. This number was then added to figures

² The only data provided by the World Bank shows that the net migration as mid-point (e.g. 2002 for 2000-2005 and the reference period is from "1 July, 2000 to 30 June, 2005") (http://databank.worldbank.org/data/views/variableSelection/selectvariables.aspx?source=world-

⁽http://databank.worldbank.org/data/views/variableSelection/selectvariables.aspx?sour development-indicators).

for the periods 1994-1998 and 1999-2003, resulting in a net in-migration total of - 224,731 (see Table 4.12).

Period		Net in-migration
1994-1998	Published	-130,000
1999-2003	Published	-379,910
2004	Published 2004-08 *0.2	285,129
1994-2004	Derived	-224,781

Table 4.12: Suggested net in-migration estimates of Syria based on the World Bank estimate

Source: Own research.

Although the official international statistics of net in-migration that have been provided by the UNPD and WB are the most important net migration estimates, the values obtained remain estimates whose robustness has not been readily evaluated. The UNHCR refugee data cannot rectify this because it only counts the limited minority of refugees who registered with the UNHCR. The Syrian Border Statistics included in the annual Statistical Abstracts were another possibility; however, this source does not provide equivalent data on outflows, and cannot therefore provide the basis for calculating net flows. However, this source does at least indicate a sharp increase in the inflow of Iraqis which started in 2004 and peaked in 2007 (Figure 4.6).



Figure 4.6: Iraqis arriving in Syria 1990-2011 Source: Syrian CBS http://www.cbssyr.sy.

Iraqi refugee numbers have injected a considerable amount of uncertainty into the attempt to estimate net migration over the study period. The next section addresses

this challenge by focusing on different sub-groups of non-nationals (including Palestinians, Iraqis, other refugees and other non-nationals). This will provide the basis for an estimate of net non- Syrian in-migration.

4.6 Migration by non-Syrians

Mehchy and Doko (2011) make the important observation that "[a]lthough Syria may be considered to be predominantly a sending country of migrants, continuous changes in the socio-political environment in the Middle East in addition to its pan-Arab policies have made it one of the main receiving countries of immigrants in the region" (p. 5). The category of migrants includes Palestinians refugees (who mostly arrived in the country prior to 1970), Iraqis who fled into the country as refugees (particularly in the period 2003-4), and other non-Syrians (who came for both vocational and non-vocational reasons). Syrian censuses provide little information about non-Syrians or their specific characteristics (e.g. age/sex breakdown) but there are other available statistical sources. Palestinians registered in the country at the time of each census are counted by province, age and sex. Other sources report registered Palestinians, births and deaths by province, but fail to provide an age breakdown. Palestinian refugees have long been the largest national minority in Syria, so the initial focus here is therefore on their numbers and demographic characteristics (see sub-section 4.6.1). Iraqis who arrived in Syria between 2003 and 2004 were not counted in the 2004 census, even though Syria is the country most affected by the circulation of Iraqis to and from Iraq (sub-section 4.6.2 will discuss this in more depth). In addition, Syria has also received other foreign workers (such as women from Indonesia), and this group will be discussed in more depth in subsection 4.6.3.

4.6.1 Palestinians as refugees

In the years between 1994 and 2004, the proportion of Palestinians within Syria's overall population declined by 0.3% (from 2.0% to 1.7%). Many Palestinians are in fact fourth generation descendants of the refugees who originally settled in Syria in 1948. Irrespective of place or date of birth, Palestinians do not have Syrian

nationality. More than 60% of Palestinians live in what UNRWA and the Syrian government describe as camps and gatherings. Many of these are more accurately described as suburbs, in which Palestinians are intermixed with Syrians. Mawed (1999) observes that the camps "[are no longer isolated islands socially, culturally, and politically separated from the community of the host country. This is because Palestinians are legally equal to Syrians in everything except for the right of voting in elections" (p. 4).

In contrast to their situation in many other Arab countries, Palestinians enjoy a range of rights in Syria. Di Bartolomeo *et al.*, (2012) observe that: "Palestinian issues are ruled by Law n°260 of 10 July 1956 dedicated to those Palestinian refugees from 1948. It is stipulated that Palestinians who reside in the country when the law is promulgated will be considered as Syrian citizens of origin as regards employment, work, trade, and military service. Palestinians are thus granted the same rights and duties as national citizens, with the exception of political rights and access to real estate. Palestinians who came from the 1956 and 1967 wars were registered with a service created in 1949 and were granted the same rights as the 1948 refugees" (p. 6).

It is generally assumed that few if any Palestinians have arrived from or gone to the occupied territories. The same assumption is often applied to Palestinian refugee camps in other countries, leading to the assumption that their net migration flow is very low. In contrast, the numbers of Palestinian refugees in Syria show a high rate of increase (Mawed, 1999). In common with other Palestinian communities in the neighbouring host countries, the Palestinian refugee population includes a high proportion of those under 15 years of age (Tiltnes, 2006). The fertility rate among Palestinian refugees was also very high, but has declined slightly in recent years due to an increase in marriage age for both men and women, along with the provision of family planning services by UNRWA and the Syrian Ministry of Health (Jacobsen, 2003). The natural growth of the Palestinian population within Syria means that increased Palestinian refugee numbers in Syria do not necessary indicate net inmigration. The following discussion tests this assumption.

There are two different sources of information on Palestinian refugees in Syria, Syrian Statistical Abstracts provide data on registered Palestinians by sex and province, whilst the Census of Household and Population provides breakdowns of age and regional distribution. According to the statistical abstracts, the total number of registered Palestinians increased from 329,000 in 1994 to 439,000 in 2004 (Table 4.13). By comparison, the census data seem to underestimate the number of Palestinians refugees in Syria, providing estimates of 285,000 (160, 371 of working age) in 1994 and 304,000 (183, 995 of working age) in 2004.

This inconsistency between the two sources is further highlighted when other relevant material is taken into account. For example, the 2004 figure provided by the Statistical Abstracts is much closer to the by UNRWA estimate of 414,000 and the Palestinian Central Bureau of Statistics estimate of 449,000 (see Table 4.13). It is unfortunate that the censuses appear to undercount Palestinians because they are the only source that provides the age/sex breakdown of the regional counts which are of particular value to the LMA/cs.

Source		Year	
UNRWA	UNRWA (2004)	December 2003	414,000
General Authority for Palestine Arab Refugees (GAPAR)	Cited in Tiltnes (2006)	December 2002	407,000
Palestinian Central Bureau of Statistics (PCBS)	PCBS (2003)	December 2002	423,000
Palestinian Academic Society for the Study of International Affairs, (PASSIA)	(PASSIA, 2004)	December 2003	414,000
Registration Statistical Bulletin 3 rd quarter	UNRWA (2004)	September 2004	420,000
Palestinian Central Bureau of	Cited in PASSIA 2004 December 2003		436,000
Statistics (PCDS)	PCBS (2005)	December 2004	449,000
	PCBS (2004)	Mid-2004	443,000
Syrian Census Abstract	Central Bureau of Statistics (2004)	December 2003	439,000
Syrian Census of Household and Population	Central Bureau of Statistic (2004)	September 2004	304,000
Syrian Census Abstract	Control Domoso of	December 1994	329,000
Syrian Census of Household and Population	Statistics (1994)	September 1994	280,000
(PCBS)	PCBS (2003) Statistical Abstracts	Mid- 1994	329,000

Table 4.13: Estimates of Palestinian refugees in Syria by various sources 2002-2004

Inconsistent numbers are in italics/bold. Source: Own research.

Figure 4.7 uses annual Statistical Abstract data to demonstrate that population growth has been gradual, and this is consistent with natural increase. A sudden increase of 38,000 is recorded between 2001 and 2002 which indicates a potential immigration event, but there is no specific short-term event which would account for this development, and it appears equally likely that uncertainties in the data could account for this upward shift in the trend.



Figure 4.7: Annual abstract data on Palestinians registered in Syria and selected regions of interest Source: Syrian statistical abstract 1994-2004.

The Statistical Abstracts appear to give plausible values for the basic demographic trends of Palestinians in Syria. The census results provide an important additional source of information because they give the required breakdown by region/age/gender. The following procedure was followed to estimate the natural change of Palestinians living in Syria.

- a) Roll forward the region/age/gender values from census 1994 and also use the Syrian mortality rate values to produce 2004 estimates assuming zero net migration.
- b) Extrapolate each of the region/gender/age census 1994 values by the region/gender ratio of [Abstract 2004 Palestinians / Abstract 1994 Palestinians].
- c) Compare the values from the last two steps for Syria by age and gender groups.

This difference should be broadly plausible as the result of net international inmigration given what is known about the status of Palestinians. Table 4.14 gives the results of this procedure and net in-migration is estimated at 15,256 with the main net in-migration by young adults and net outflows of the middle-aged people. Given that the Palestinians in Syria have no restrictions on their work or travel, these are plausible results.

Age in 2004	Roll f (Minus	orward (Se estimated	caled) deaths)	Censu	aled)	Net in-migration			
	М	F	Т	М	F	Т	М	F	Т
10 - 14	17877	17281	35157	25139	24768	49907	7262	7487	14749
15 - 19	19638	18645	38283	21575	21694	43269	1937	3049	4986
20 - 24	19026	18208	37234	19393	19087	38480	367	879	1247
25 - 29	16265	15924	32189	16432	15809	32241	167	-115	52
30 - 34	14577	13984	28561	13238	12990	26229	-1339	-993	-2332
35 - 39	12302	11547	23849	9837	9219	19056	-2465	-2327	-4792
40 - 44	9833	9443	19276	7743	6738	14481	-2090	-2705	-4795
45 - 49	7217	6651	13868	6776	5780	12556	-441	-870	-1312
50 - 54	5541	4777	10318	5958	5016	10974	418	239	656
55 - 59	4629	3974	8603	4892	4682	9574	263	708	970
60 - 64	3738	3236	6974	3368	3215	6583	-369	-22	-391
65+*	2635	2652	5286	5601	5902	11504	2967	3250	6217
15-64	112766	106388	219154	109213	104231	213443	-3553	-2158	-5711
Total	133277	126321	259598	139953	134900	274853	6676	8579	15256

Table 4.14: Net migration suggested by the roll forward method of Palestinians in Syria 1994-2004

Positive numbers indicate net inflows while negative ones indicate net outflows. *There is no more age breakdown available for the Palestinian group. Source: Based on censuses.

Triangulating estimates in response to the deficiency of data on migration by Palestinians enables this study to conclude that ageing and mortality effects are sufficient to explain the bulk of their total demographic change, which suggests that Palestinian net migration is not substantial. Mowed (1999) and Aita (2009a) similarly suggest that the overall increase in the Palestinian population within Syria

4.6.2 Iraqi refugees

Unlike the Palestinian refugees, Iraqi refugees who arrived in Syria between mid-2003 and 2004 were not counted in the 2004 census. Iraqi refugees have dispersed to cities and villages across Syria, although they have tended to concentrate in and around Damascus, where different groups of Iraqi migrants gather in separate areas (Aita, 2009b; Smith, 2012). In the absence of refugee camps, a few are registered with the UNHCR as asylum seekers or refugees (Doraï, 2007). It has already been

is attributable to the natural increase in the population and not to net in-migration.

emphasised that the lack of data availability makes the estimation of actual arrival numbers difficult. Only a few statistics are available, and these have mainly been provided by the UNHCR who, in the final quarter of 2005, estimated the number of Iraqi refugees in Syria to be around 450,000 (UNHCR and UNICEF 2006). However, this figure may only represent refugees registered with UNHCR. Syrian CBS data, which is based on border statistics, suggests an increase from 3,000 in 1994 to over 800,000 in 2004. In contrast to the UNHCR data, this surely includes all Iraqis, whether registered or non-registered. However, this source has no equivalent statistics on rather than arrivals and so it is not possible to use it to estimate net inmigration.

Taking UNHCR estimates as the basis, and assuming that there were no return flows of registered refugees, the suggested total in-migration figure of Iraqis in Syria during the period 1994-2004, would be 286,363 (refer to Table 4.9). The age structure of Iraqis refugees is thought to be broadly similar to the age structure of the Syrian and Palestinians population in the 2004 census. People aged 15-59 make up 60.8% of all Iraqis in Syria (AlKhalidi *et al.*, 2007), which is very similar to the Palestinian and Syrian populations (59 and 56%, respectively).

4.6.3 Other nationals

The Syrian population censuses provide figures of the foreign population by nationality and associated breakdowns of age, sex and provinces. Census data suggests a substantial drop in the foreign population, from 187,625 (103,000 in working age groups) in 1994 to 126,622 (81,000 in working age groups) in 2004. In order to illustrate the cohort change of the labour market working age group, the roll forward method will be applied, using the death rates of the Syrian population by age/sex as the basis for an estimate of net-migration. On this basis, Table 4.15 suggests that 75,546 other nationals have left the country between 1994 and 2004.

2004	Roll forward (Minus estimated deaths)			Census 2004			Net including deaths impact		
	М	F	Т	М	F	Т	М	F	Т
10 - 14	12725	12206	24931	6816	6449	13265	-5909	-5757	-11666
15 - 19	13913	13419	27331	7125	6478	13603	-6788	-6941	-13728
20 - 24	13648	13075	26723	7551	6480	14031	-6097	-6595	-12692
25 - 29	10528	10255	20782	6224	5183	11407	-4304	-5072	-9375
30 - 34	9203	8851	18054	5349	4764	10113	-3854	-4087	-7941
35 - 39	7032	7035	14066	4493	4066	8559	-2539	-2969	-5507
40 - 44	5757	6271	12028	3969	3576	7545	-1788	-2695	-4483
45 - 49	4912	5172	10085	3094	2636	5730	-1818	-2536	-4355
50 - 54	4175	4003	8178	2581	2096	4677	-1594	-1907	-3501
55 - 59	2776	2661	5437	1726	1410	3136	-1050	-1251	-2301
60 - 64	2095	2146	4240	1374	1134	2508	-721	-1012	-1732
15 - 64	74038	72886	146924	43486	37823	81309	-30552	-35063	-65615
65 +*	1233	1312	2546	2246	2035	4281	1013	723	1735
Total	87996	86405	174401	52548	46307	98855	-35448	-40098	-75546

Table 4.15 Estimation of net in-migration of non-Syrian population as suggested by the roll forward method 1994-2004

*There is no more age breakdown available for non-national groups. Source: Based on censuses.

It is also possible to estimate net migration by non-nationals in another way. This can be done by using official data on population by citizenship and date of arrival (CBS, 2004). Table 4.16 uses the data for 2004 to reveal that a total of 43,096 non-nationals had not been living in Syria in 1994: this estimate of in-migration is based on the number who are reported as having been in Syria for fewer than ten years when they were included in the census of 2004. The majority of these respondents (88%) are classified as other Arabs. The remainder of the values in Table 4.16 sum to 59,300 and they can be seen as non-national stayers for the ten years of interest. Subtracting this number from the total number of foreigners in the 1994 census of 187,625 provides an estimate of out-migration (for the period 1994-2004) of 128,325.
Duration of stay	Other- Arab	Europe	Non-Arab African	Non- Arab Asian	Oceania	Americas	Total
0-9	37 906	1 186	269	3 501	16	218	43096
10-19	16 983	534	126	1 674	3	91	19411
20-29	12 197	301	85	1 258	9	53	13903
30-39	7 600	204	27	528	8	30	8397
40-49	4 811	117	11	289	3	18	5249
50-59	2 959	93	6	170	1	17	3246
60-69	1 632	88	8	100		13	1841
70-79	875	45		53	1	6	980
80-89	184	7		12		1	204
90-98	26			2			28
Unknown	3 393	505	24	2 051	6	62	6041
Total	88 566	2080	556	0628	47	500	102206

Table 4.16: Non-Syrian population by country of nationality and current duration of stay (in years)

Source: Syrian CBS, 2004 (Iraqis and Palestinians are not included).

This data source then allows an estimate of net out-migration of 85,229 to be derived by subtracting the 43,096 in-migrants from the 128,325 out-migrants. The difference between the figure and the one posited by the roll forward method (75,546) is only 9,683. One reason for this discrepancy could be that the data from the 2004 census used in the roll forward analysis has a total of 3,541 fewer foreign nationals than the data on length of stay (Table 4.16).

Syria has also received other foreign workers from 2001 onwards – mainly women from Indonesia, the Philippines and Ethiopia to perform homecare jobs – however these entrants were not officially counted by the Syrian authorities until 2010 (Hasan, 2007; Aita, 2009b). Aita (2009b) states that the legalization of foreign nationals as domestic workers "peaked after 2006, as a result of the organization of this work under specific manpower agencies; in addition, they have recently been attracted by the need for foreign experts in the Syrian economy especially in certain sectors" (p. 4). These studies suggest that the number of these immigrants rose during the period 2001-10 by between 75,000 and 100,000. On this basis, the net inflow of undocumented non-national workers arriving in Syria in the period between 2001 and 2004 can be estimated at 26,250 by taking the midpoint of 75,000 and 100,000 (87,500) and dividing it by three (to cover the three years 2001-2004 out of the full period 2001-2010). Given the general profile of the migrants, they can be assumed to be almost all in the working age group.

4.6.4 International non-Syrian net migration summary

The final estimate of international net migration which can be complied from the various estimates provided above includes four groups: Palestinian, Iraqis, other non-nationals, and undocumented workers. In the case of Palestinians, adopting the roll forward method of adjusted Syrian abstract suggests little net migration has occurred, with a value for WAP estimated as 15,256. Since there are no official estimates of total Iraqis arriving in Syria in the 10 year period, and assuming that there were no return flows of Iraqis, the suggested in-migration figure of total Iraqi arrivals in Syria between 1994 and 2004, based on UNHCR estimates, would be 286,363. An estimate of the net in-migration effect for non-nationals of -85,229 in all age groups was derived using the record of the non-Syrian population by country of nationality and current duration of stay in years (43,096 in-migrants minus 128,325 out-migrants). There is little difference between this and the one suggested by the roll forward method (-75,546). Finally, there is the estimate of 26,250 undocumented workers, mainly women from Indonesia, the Philippines and Ethiopia, who were in-migrants in the period between 2001 and 2004. Table 4.17 collates these estimates to produce an overall estimate of non-Syrians WAP net inmigration.

Table 4.17: Estimated international net in-migrants to Syria (non-nationals) for the period 1994-2004

Source	Nationality	Net in-migration of total non- national population
Derived estimates from various	Palestinians	15,256
source	Iraqis	286,363
	Others in the Census	-85,229
	Undocumented	26,250
	Total	242,640

Source: Own research.

4.7 International migration by Syrians

Sadeldine (2005) observes that: "Syria is a labour-exporting country rather than a major labour-importing country. It is likely that emigration from Syria meets the labour demand of receiving countries and is stimulated by the introduction of

policies and procedures to attract different types of migrants" (p.266). There were persistent emigration flows both before and during the period 1994-2004, and official statistics report that about 75% of known emigrants in 2004 had migrated for work-related reasons, while around 8.8% migrated for study-related reasons (CBS, 2004). Both these motivations apply almost exclusively to people in the working age group who are the focus of this search. Syrian out-migrants who were resident in neighbouring countries on census day are not of course counted in the Syrian census. Table 4.18 summarises existing relevant data sources and the level of detail available in each source. There are two main issues concerning these sources: first, the quality and reliability of any estimates which are not official enumerations; second, whether the dataset has the breakdowns needed for the LMA/cs (i.e. age, sex and region).

Source	Year/pe riod	Stock	Flow	Age	Sex	Qualific ation	Country	Total
	1990	~		~	~		v	714,140
	2000	~		~	~		~	832,270
(A) UNI D	1995-00		Net in					-130,000
	2000-05		Net in					-380,000
(B) OCED ³	2000	~				~	OECD	130,000
(C) CARIM	2000	~			~	~	Non OECD	90,000
	2010	~			~	~	OECD	123,934
(D) Kapiszewski	2001	~					Kuwait & Saudi A	265,000
(E) CBS	1994	~				~	Abroad	86,000
	2004	~				~	Abroad	114,000
(F) Fafo	2000	~		~	~	~	Abroad	110,000
(G) Council of								
EU except for	1998-	~					Europe	49,283
France INSEE	2001							
(H) DoS (Jordan)	2004	~		~	~		Jordan	38,130
(I) Ministry of		~					Saudi	
Interior	1995	•					Arabia	168,400

Table 4.18: Estimations of Syrian migrants by various sources. (Data ranges between 1990-2005)

Sources:

(A): http://esa.un.org/unmigration/TIMSA2013/migrantstocks2013.htm (dataset)

³ The OECD member countries are: Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States.

(B): OECD (2008) A Profile of Immigrant Populations in the 21st Century: data from OECD countries

(C): Docquier, F., et al. (2009) 'A gendered assessment of highly skilled emigration'

(D): Kapiszewski, A. (2004) 'Arab labour migration to the GCC states', in IOM (ed.) Arab migration in a globalized world. Geneva

(E): Census of Household and Population, (1994, 2004). CBS, Damascus, Syria.

(F): See Sadeldine, S. (2005) 'Syria: the demographic and economic dimension of migration', in Fargues, P. (ed.) Mediterranean Migration report. European Commission and European University Institute.

(G): International Organization for Migration. Cited in: Fargues, P. (2004) 'Arab Migration to Europe: Trends and Policies', International Migration Review, 38(4), pp. 1348-1371. (data collected from various years ranging between 1998-2001).

(H): Department of Statistics: Jordan:

http://www.dos.gov.jo/dos_home_e/main/population/census2004/group7/table_71.pdf (I): cited in: Girgis, M. 74 (2002) 'Will nationals and Asians replace Arab workers in the GCC?'. The Egyptian Centre for Economic Studies.

The UNPD provides estimates of net-migration which are broken down into five year periods. These estimates are based on official statistics on the foreign-born or foreign population. Unfortunately, they do not include any age or sex breakdown. Although the UNPD data provide a migration count every ten years, their terms of reference stretch from 1990 to 2000 and so do not closely map onto this study's period of interest. OECD and the Consortium for Applied Research on International Migration (CARIM) estimate Syrian migrants living in OECD and non-OECD countries by educational characteristics, but do not provide an age breakdown. Independent researchers (including Kapiszewski (2004), Girgis (2002) and Fargues (2004) have provided estimates of the stock of Syrian migrants in two major Gulf countries (Kuwait and Saudi Arabia) and/or Europe. The Syrian official statistics provide some limited data on Syrian out-migrants educational characteristics (although age/sex breakdown is not included). Fafo (Institute for Applied International Studies) provides figures about Syrian out-migrants and also provides age, sex and education breakdowns. This official survey conducted by the Syrian CBS in 2000 defined as an emigrant any person who left the household in the past five years to stay away for more than six months. The last mentioned datasets provide the strongest basis for estimating Syrian out-migrants by age and sex groups.

4.7.1 Syrian emigration data from official Syrian statistics

Several attempts were made by the CBS and other international bodies to estimate the size and direction of out-migration, but the figures published are limited and controversial (Sadeldine, 2005). The most valuable contributions draw upon official sources: specifically Syrian migration reports (SIMS) by Fafo (Hwaja, 2002) and the censuses of 1994 and 2004.

Census information can be cited in support of the estimate that total out-migrant numbers increased from 86,000 in 1994 to 114,000 in 2004 (CBS, 2004). It has already been acknowledged that it was difficult to obtain detailed migration data from the CBS and that these statistics come with no metadata. According to the 2004 census annex [Arabic], the estimates cover migrants (aged 15 years old and over) who left within the last five years and who were reported by a family member in Syria as being away for a period of at least six months. Other data sources (see Table 4.18) suggest that these are rather low estimates, which may be at least partly attributable to the method of collection. The main value of this contribution appears to derive from its insight that the number of Syrians abroad increased by nearly a third 1994-2004.

Sadeldine (2005) observes that the Syrian internal migration report by Hwaja (2002) estimated that over 110,000 people emigrated from Syria during the period 1995-2000. It is important to acknowledge that nothing is said about the international migration figure in the actual report by Fafo. The raw data obtained by personal correspondence with the CBS office in Damascus does nonetheless include variables on the characteristics of Syrian international migration during the period 1995-2000. It defines permanent out-migration as any person who left the household in the past five years to stay away for more than six months. Hwaja (2002) observes that: "the six-month time cut off has been drawn in order to allow for international comparisons, but also to distinguish permanent moves from temporary (or seasonal) migration within and across national borders" (p. 10). Unfortunately the actual count by age group was missing from this data source, but a report by Sadeldine (2005) claims that the total number of out-migrants was 110,000. When multiplied by the percentage in each age group, an estimate of 104,000 is produced for working age groups (Table 4.19). Sadeldine (2005) acknowledges that these numbers will be

under-estimates due to the survey being unable to collate data on emigrants who do not have family members who are still resident in Syria. Of more direct concern to this study is the 5 year period of the Fafo data which is of limited value for the purpose here of estimating 1994-2004 net flows as it consequently under-estimates actual emigrants.

Current age of	М	lale	Fei	male	Т	'otal
out migrants	%	Count	%	Count	%	Count
10-14	0.64	703	0.32	351	0.96	1054
15-19	1.92	2109	13.74	15112	15.65	17220
20-24	9.90	10895	21.73	23898	31.63	34792
25-29	16.93	18626	9.58	10543	26.52	29169
30-34	10.86	11949	4.79	5272	15.65	17220
35-39	2.56	2812	0.96	1054	3.51	3866
40-44	1.60	1757	0.64	703	2.24	2460
45-49	0.64	703	0.32	351	0.96	1054
50-54	0.96	1054	0.00	0	0.96	1054
55-59	1.60	1757	0.00	0	1.60	1757
70 (+)	0.00	0	0.32	351	0.32	351
Total	47.60	52364	52.40	57636	100.00	110,000

Table 4.19: Estimated out-migrant Syrians

The count of each age group was derived by the author on a basis that the total number of outmigrants is 110,000 as reported by Sadeldine (2005).

Source: Syrian internal migration survey (SIMS) 10% data sample.

4.7.2 Syrian emigration data from international sources

CARIM provides an estimate which suggests that 220,000 Syrians were living abroad in 2000; of these, 130,000 were living in OECD countries and 90,000 were resident in non-OECD countries. The United Nations (2012) has suggested that the total stock of Syrian migrants abroad was 423,617 in the mid-1990s and 488,507 in 2000. Table 4.20 presents their distribution by country of destination and also presents estimates for the period of interest.

Table 4.20: Syrian emigrants stock in mid-1990, 2000 and 2010

	UN	PD estima	ites	Derived estimates*					
	1990	2000	2010	1994	%	2004	%	1994-	%
								04	
Lebanon	23553	26159	20679	24595	5.47	23967	4.33	-628	-0.60
Jordan	51557	57684	68613	54008	12.01	62056	11.21	8048	7.74
GCC	121581	122466	203022	121935	27.12	154688	27.95	32753	31.51
Other Arabs	38182	46291	54936	41426	9.21	49749	8.99	8323	8.01
Europe	63605	94313	141881	75888	16.88	113340	20.48	37452	36.03
N America	53305	74768	94873	61890	13.77	82810	14.96	20920	20.13
Others	71834	66826	67008	69831	15.53	66899	12.09	-2932	-2.82
Total	423617	488507	651012	449573	100	553509	100	10393	100
								6	

The data used to produce the estimates refer to the foreign-born population or to foreign citizens. It also indicates in which cases the number of refugees, as reported by the UNHCR, was added to the estimate of international migrants. *Data derived based on the simple equation: [(year2-year1)*0.4+(year1)].

Source: UNPD Trends in international migrant stock 2012: Migrants by Destination and Origin (webbased migrant stock database).

Based on these UNPD figures, it is possible to infer an estimate of Syrian emigrants for the period 1994-2004 equal to 103,936 (Table 4.20). It is likely that most of the emigrants fall into the working age groups. Although emigration within the Arab region was persistently high, the period 1994-2004 clearly evidenced a shift in emigration towards more developed countries. Highly educated and skilled labour was more likely to migrate to developed countries where more high-paying professional jobs are available. OECD (2008) reports that 34.5% of Syrians in OECD countries are qualified to degree level. This finding is further echoed by research conducted by Fargues (2006) which concluded that while emigration may reduce unemployment in Syria in the short term, the loss of skilled labour will ultimately damage future economic prospects of the country.

4.7.3 Circular and returning migrants

Several of the preceding estimates have indicated that among the middle age groups there were numerous return migrants in the period between 1994 and 2004. Di Bartolomeo *et al.*, (2012) observe that, "[official] statistics cannot help here, since no estimate of returned Syrian citizens, [who were] living abroad, is given out by the authorities" (p. 4). The presence of Syrian workers is not only important in the Gulf states, but also in Jordan and Lebanon. Although Syrian temporary workers in Lebanon and Jordan have never been counted (Sadeldine, 2005), and therefore no official data about their actual numbers in these two neighbouring countries can be provided a few studies have provided estimations. Syrians constituted the largest non-Lebanese group in the labour force during the mid-1990s, but half were thought to have returned to Syria by 2002 (IOM, 2004). Sadeldine (2005) claims that "[t]here are an estimated 400,000 Syrian cross-border commuters who live in Syria and work in Lebanon (p. 267). Aita (2009a) further observes that "[t]hey consist mostly of temporary and low-skilled circular labour migrants" (pp. 10-11). It is suggested that most Syrian workers had left Lebanon by 2005 due to the Syrian military withdrawal from the country. Arouri (2005, p.145) has asserted that Syria provided large numbers of workers to Jordan in the 1990s; however, the Jordanian censuses claim that there were just 31,805 (1994) and 38,150 Syrians (2004) working in Jordan during the relevant period (Arouri, 2008; Bartolomeo et al., 2010). These official statistics suggest that the net inflow of Syrian workers to Jordan during the period 1994-2004 was only 6,345. It is also important to recognise that, under established international definitions of permanent residence in another country, circular migrants are not considered to be emigrants. The major difference between the Arouri (2005) estimate and that of the Jordanian census could well be due to the former including temporary or circular migrants whereas the latter data source does not. The major contribution of circular migration to cross-border flows is even more important in the case of the border between Syria and Lebanon because of the fact that, during this period, Lebanon adopted open visa policies, which allowed the free circulation of persons for labour and economic activities (Aita, 2009a).

Given the major uncertainties over return and circular migrants, Fafo and CBS are the only official sources that provide estimates of Syrian emigrants. Unfortunately they do not show net flows and they also clearly underestimate the counts of Syrians abroad thus the conclusion here is that neither outflows nor inflows can be measure adequately for Syrians. The most suitable approach is to use the UNPD data in Table 4.20 which suggests a net outflow of 103,936 during the period 1994-2004.

4.8 Summary of net migration effect on working age population

It has been suggested that the UNPD and WB estimates of net out-migration (respectively 448,000 and 282,000) provide an unsatisfactory treatment of Iraqi refugees in particular. Earlier discussion has attempted to identify what is already known about net flows of non-Syrians. This was the basis upon which earlier subsections triangulated the various derived estimates, including on Syrian net migration during the period 1994-2004.

The various sources summarised in Table 4.21 establish the basis for an estimate of total net in-migration for both Syrians and non-Syrians: an estimate of 125,696 for the period 1994-2004 was consequently suggested. There is substantial limitation to the approach that has been adopted, but this approach appears to provide the best basis upon which a figure of Syrian net in-migration can be derived for the period of interest.

		Table	Source
Syrian abroad	-116,988	4.6	Based on roll forward censuses*
Best estimate for Syrians	-116,988		Using roll forward because this gives age and sex breakdown for WAP
Palestinians	15,300	4.16	Based on roll forward censuses
Iraqi refugees	286,363	4.9	UNHCR estimate
Other nationalities in the census	-85,229	p.109	Census duration of stay
Other nationalities not documente in the census	26,250	p.109	Aita (2009b)
Total non-Syrians	242,684		Iraqi refugees + other nationalities
Total migration (Syrians and non- Syrians)	-125,696		Derived from above
Alternative aggregate estimates	-448,000	4.8	UNPD (implausible under- estimation of Iraqi refugee inflow)
	-224,800 4.12		WB (more plausible estimation of Iraqi refugee inflow)

Table 4.21: Estimated international net in-migrants to Syria, all age groups (national and nonnationals) for the period 1994-2004

Source: Own research.

The main goal of this thesis was to provide an estimation of the net migration effect for the working age population (WAP). Most of the available sources do not present data on age and sex group and so a comprehensive estimate of net migration of the WAP is not reliably possible. More problematically still, the numbers of the WAP that are incorporated in the LMA/cs represent the subset of the WAP who are economically active in 2004. It is not at all likely that groups such as the recently arrived Iraqi refugees have the same economic activity rate as resident Syrians. The economic activity rate for 2004 must come from the censuses and this source did not cover the new Iraqi refugees. As a result, to apply measures such as the economic activity rate to the very large number of Iraqi refugees would considerably distort the overall results of the LMA/cs. The only solution is to limit the LMA/cs to coverage of Syrians, Palestinians and other non-Syrians covered by the census.

Although this conclusion might be seen as a disappointment, given the considerable data collation and processing that has been undertaken toward an all-encompassing estimate of net out-migration, the material discussed in this chapter nonetheless provides valuable context to the subsequent discussion. Preceding parts of this subsection have shown that Syrians are increasingly migrating to more developed parts of the world, taking higher levels skills with them. More localised flows are often in the form of circular migration, which is not only extremely difficult to measure but also perhaps falls outside international definitions of migration. An equivalent level of ambiguity also involves by the status of the Palestinians refugees, who in some respects are indistinguishable from neighbour Syrians and yet are not included in the LFS despite their large number and substantial labour market input during several decades of their presence in Syria. Although it is impossible to quantify with the available data, some labour market input is also likely from the very substantial newly arrived Iraqi refugees. Their presence in the informal parts of the labour market will be part of the interpretation of the LMA/cs as context of increasing competition for jobs in difficult economic times.

4.9 Summary of national demographic changes

Syria's population has experienced remarkable demographic changes, with high growth rates since 1960 produced by high fertility and low mortality rates. These changes altered the population structure producing a very high proportion of children, followed later by a strong growth in the size of working age population. The implication for the labour market in the 1994-2004 period was a rapid boost to labour supply due to the large numbers seeking work for the first time. Additionally, internal migration has played a key role in increasing the urban share of the total population.

The potential effect of these demographic processes on a labour market with a low rate of job creation was severe imbalance between labour supply and demand, leading to increasing unemployment or falling economic activity rates, and consequently an increase in the likelihood of out-migration. During the period of interest, Syria also became a major receiver of refugees. It has long been a country with leaky borders because large numbers of circular migrants cross the Lebanon and Jordan borders to work. All these factors contribute to the complexity of measuring demographic change as an important part of labour market accounts. Attempts were made to gain a better understanding of the potential effect of various immigration and emigration flows on the demography of Syrian over the study period. Obtaining reliable information on in-migration and especially out-migration proved to be challenging and problematic. Some sources provided migrant counts which were very much at odds with those from other sources. The best estimate of net-migration has been provided by the roll forward method, which suggested a net out-migration figure of working age Syrians of over 165,000. This will noticeably reduce the size of younger age groups, because they tend to be the most mobile element of the population.

Because both censuses and LFSs omit substantial non-Syrian groups such as Iraqi refugees, it is not possible to measure their impact on the labour market. This is particularly unfortunate because they can be assumed to contribute to labour market stress by being willing to take on poorly paid employment. This last point provides a good illustration of the fact that that much of the material reviewed in this section, although ultimately not used within the LMA/cs, nonetheless provides valuable contextual information which considerably aids understanding and comprehension of the LMA/cs findings.

Chapter 5

Analysis of regional demographic change 1994-2004

5.1 Introduction

The previous chapter dealt with national demographic changes, with a particular focus on the working age population. In addition it sought to estimate international migration flows for Syrians and also non-Syrians. This chapter shifts the emphasis to examine the sub-national or regional variations in the labour supply as a result of the major population changes that were underway during the study period.

This chapter is structured as follows. The first major section sheds light on the urbanisation process which is a particularly important part of regional population changes due to the urban-rural migration deriving many inter-regional migration patterns. The next section examines major demographic trends in individual regions: it considers population growth rates and changing age structure and, as a result, the natural increase of the working age population (WAP) during the relevant period. The following section briefly summarises the impact of international migration on regions. The final section discusses how internal migration has greatly contributed to demographic trends in Syria, leading to dramatic regional changes in both the structure and composition of the population.

5.2 Urbanisation

Rapid urbanisation has been one of the most important recent demographic changes in Syria. Urbanisation has been said to be a central 'modernising' process of cultural and social change (Dewdney, 1972). It occurs when urbanised places are growing faster than more rural areas, and the largest cities grow faster than smaller cities. To look consistently for evidence of urbanisation, this study ranked the 13 regions in descending order, from the most to the least urbanised ('urban' was defined with reference to largest city size). Based on these calculations, all the 13 regions, separate regions were classified into five groups on the basis of similar city size, as shown in Table 5.1.

Group		City size 1994	City ratio	City size 2004	City ratio
1	Damascus	2,198,723	0.72	3,021,464	0.79
2	Aleppo	1,582,930	0.53	2,132,100	0.53
3	Homs	540,133	0.44	652,609	0.43
	Lattakia	311,784	0.42	383,786	0.44
	Hamaa	264,348	0.24	312,994	0.23
	Other large cities		0.36		0.36
4	Raqqa	220,488	0.40	299,912	0.38
	DerEzor	140,459	0.20	211,857	0.21
	Alhasakah	119,798	0.12	188,160	0.15
	Medium size cities		0.21		0.23
5	Tartous	89,219	0.15	115,769	0.17
	Idleb	78,899	0.09	98,791	0.08
	Daraa	75,586	0.12	97,969	0.12
	Sweida	57,645	0.21	73,641	0.24
	Qunitera	3,625	0.07	4,318	0.06
	Small cities		0.13		0.12

Table 5.1: Regions by largest urban place 1994 and 2004

City ratio = largest city size/total population (the measure of urbanisation used here). Source: Based on censuses.

Table 5.1 shows that Damascus and Aleppo are the largest cities and accordingly they are each kept separate. Homs, Lattakia and Hamaa (group 3) the other large cities; they are distinct from the three medium size cities which are all in fact in more agricultural regions (group 4: Raqqa, DerEzor and Alhasakah). The table shows that in both 1994 and 2004 the group urban ratios declined in accordance with city size. The fastest increase in urbanisation rate was recorded in Damascus region, a reflection of the capital's growing importance and significance. The regions with medium size cities were the other group whose city ratio increased during this period; the agriculture sector is the major employment in these regions (Breisinger *et al.*, 2011) and potential rural unemployment may have intensified the likelihood that rural inhabitants would migrate to urban locations in search of alternative income (Hwaja, 2002; Kainth, 2010).

5.3 Regional population change

The national demographic trend for the period 1994-2004, when compared to the preceding period (1981-1994), showed a reduced annual population growth rate. As the previous chapter mentioned, in preceding decades Syria had witnessed an increase in population size due to reduced mortality rates and high fertility rates. Figure 5.1 shows that rates of population increase during the period 1994-2004 vary regionally. The highest increases in population size were experienced in Raqaa, DerEzor, Daraa, Idleb, Quneitra and Aleppo, all of which grew at a faster rate than the national average. Figure 5.1 has the regions arranged in declining urban size order from left to right so that any clear relationship between city size and region population growth would be clear.



Figure 5.1: % annual growth rates 1994-2004 by regions Ordered from most urban region to least urban region in 1994. Source: Based on censuses.

No relationship between the level of urbanisation and the rate of population growth is identifiable in Figure 5.1. Despite its very high urbanisation level, Damascus had relatively low population growth during this period, and in fact Qunitera had a higher growth rate even though it was the least urbanised region in the country.

High population growth in Syrian regions was partially due to improvements in health conditions, a point which was underlined by declining mortality rates in most

regions. Figure 5.2 shows crude death rates in 1994 and 2004 and it will be noted that regions generally reproduce the national experience of slow decline (the one notable exception is the Qunitera region, whose statistical values are prone to volatility, as mentioned earlier). The fertility rate, on the other hand, reveals regional variations around the average decline from 4.0% in 1994 to 3.6% in 2004. Most regions share the national experience of falling fertility, but the DerEzor, Raqaa and Daraa regions showed increases in their fertility rates. This contrary trend is largely a reflection of their distinctive traditional character: these regions have large Sunni majorities and a strong dependence on agriculture and as Bentley *et al.*, (1993) observed "the fertility of agricultural groups is higher and more variable" (p. 270). This sectoral cultural factor appears to be stronger than the effects of urbanisation, although it should be acknowledged that Figure 5.2 appears to suggest that the fertility rate is lower in the most urbanised regions.



Figure 5.2: Crude death (per thousand) and fertility rate (child per woman) by regions 1994-2004 Source: Barout (2008).

Figure 5.3 presents the variations across regions in the change in share of total population change that is in each broad age groups between 1994-2004. Demographic change has affected the population size and structure in every region as a larger percentage of people fall into the younger categories. The increases in working-age people as a result of past high natural growth rates has clear implications for the regional labour market because it rapidly increases supply. The regions medium size cities of Alhasakah, Raqaa and DerEzor showed very high rates of increase in the young adult age group (15-34) as a result of their traditionally high fertility rates. The largest cities are notable for having strong growth in the proportion of their population that falls within the middle age group (35-54).



Figure 5.3: Percentage point change of population by region and age group between 1994 and 2004 Source: based on censuses.

The effect of mortality and net migration can be measured by comparing the regional population in each age group in 1994 with the number of people ten years later. Figure 5.4 shows the negative changes that reflect the combined effect of mortality and net out-migration (which at the regional scale is a combination of internal and international migration). The age cohort 5-14 (becoming 15-24) fell by 8.3% on average, with the exception of Lattakia (which showed a slight increase of 0.1%).



Figure 5.4: % point change of 10-year age cohort population change 1994-2004 Source: Own research based on censuses.

The age cohort 25-44 who became (15-34 in 1994) also revealed a clear decline in their population, with the highest rate of decline experienced in Alhasakah (36.9%). The increase in size of age cohort 25-44 in 2004 in the Raqaa region was due mainly to net in-migration (prompted by investment in irrigation). The declines in the size of the older age cohort (55 and above) shows the effect of mortality, although it is possible that out-migration played a role in the largest two cities of Aleppo and Damascus (because in more developed countries the largest cities often lose older working-age people through return migration of previous rural-urban migrants).

It is relevant here to recall that the available data imposes the same mortality rates across all regions, which means that the regional variations observed are attributable to the migration element (whether this is intra or inter-national migration). In order to highlight these regional differences, the national value for each age cohort was subtracted from each region's value. This then reveals the difference between a region and the national total in each age group (see Figure 5.5).



Figure 5.5: % point difference of 10 year age cohort population change 1994-2004 for each region from the national change rate

Source: Own research. based on censuses.

To sum up, Syria was in the 1994-2004 period moving demographically towards low mortality and lower fertility rates. The effects of mortality and fertility vary between regions, meaning that some regions have shifted sooner and further while others are still at an earlier stage. This in turn produces different patterns of labour supply in each region. The largest cities (Damascus and Aleppo) do not have especially high natural change rates, but rural-urban migration might play a vital role in raising their growth rates. The increasing size of the labour supply in the northern agricultural regions (Raqaa and DerEzor) is due to the effect of high natural population growth; Qunitera and Idleb share similar patterns of high fertility. The effect of slowing natural population growth and higher death rates among older age groups is characteristic of Sweida, Lattakia and Tartous, where minority religious groups are most numerous. Low fertility rates within these regions led to a substantial increase in the size of older age groups.

5.4 Estimation of international migration

Chapter four recognised that international migration is an important influence on the Syrian labour market, it has also become also the main receiver of the influx of refugees from Iraq. The lack of data on migration by Iraqi refugees means that it is infeasible to measure their impact numbers, and this group of international migrants had to be excluded from the subsequent analyses. The roll forward method provided the basis for analysis and both the censuses and LFSs provided the regional breakdown by province/age and sex for non-Syrians (Palestinians, other nonnationalities) and the Syrian population. Each of these elements will be used here to estimate regional international migration.

When applying this approach, it should be remembered that when this method is applied on a national scale, changes in the age cohort size will be attributable either to deaths or international migration; however, when it is applied at the regional scale, this might be attributable to internal migration as well. The aim of this section is to provide a regional estimate of the distribution of international migrants by nationality and origin for an individual province.

5.4.1 Estimation of international migrants: Syrians

The Fafo survey provides various data on regional trends of out-migrants from Syria (however it excludes emigrants whose households had migrated). It can be used to draw a picture of the distribution of out-migrants by origin and so this provide the basis for a comparison with the rolled forward estimates. Table 5.2 presents an estimation of Syrian international out migrants by their region of origin. It was based on cross tabulation of two variables included in the Fafo survey: the place the individual moved from; the place that the individual lived in after the last move; and the sex of out-migrants. The percentage of each province was then scaled up to the total international migration (i.e. 110,000, as reported by Sadeldine (2005)⁴), on the assumption that the trend of migration as a percentage produced by each province can be applied to both internal and international migrants.

One should bear in mind the limitations of this estimate. The original Fafo dataset represents both internal and international out-migrants, but due to lack of relevant data on the actual distribution of emigrants by place of migration, there is no better

⁴ The reported number (i.e. 110,000) is being adopted in this research because Sadeldine (2005) is believed to have a better access to the survey dataset since the 10% row data could not be scaled up to the whole population.

option than to assume that the shares of out-migration produced by each region are the same for internal and international migrants. The results shown in Table 5.2 and Figure 5.6 highlight some similarities between the sources but some differences. The Damascus and Aleppo regions have the highest share of international migrants (27.01 and 24.63%, respectively), which seems to be consistent with their population size as these two regions constitute the largest population in Syria in 2004 when together they accounted for nearly 45% (Damascus 22.1% and Aleppo 22.6%). Homs is the third largest region in both datasets too, but among the smaller the population migration shares are not so closely correlated.

•				•	e		
Last place lived							% of 2004
in before move	Male	%	Female	%	Total	%	population
Damascus	12313	11.19	17403	15.82	29716	27.01	22.06
Aleppo	12806	11.64	14283	12.98	27090	24.63	21.59
Homs	3120	2.84	6239	5.67	9359	8.51	8.83
Lattakia	1971	1.79	2299	2.09	4268	3.88	5.42
Hamaa	3119	2.83	4104	3.73	7224	6.57	7.97
Raqqa	1150	1.05	1970	1.8	3120	2.83	4.02
DerEzor	657	0.6	2299	2.09	2955	2.69	5.16
Alhasakah	2627	2.39	2135	1.94	4761	4.33	7.42
Tartous	1314	1.2	3120	2.84	4433	4.03	4.26
Idleb	1477	1.34	1806	1.64	3284	2.98	6.57
Daraa	1314	1.2	492	0.45	1806	1.65	4.4
Sweida	328	0.3	2955	2.69	3284	2.99	1.95
Qunitera	821	0.75	1149	1.04	1970	1.79	0.35
Arab country	1313	1.19	1970	1.79	3284	2.99	-
Other countries	2627	2.39	821	0.75	3448	3.13	-
All	46955	42.69	63045	57.31	110000	100	100.0

Table 5.2: Estimated number of international migrants (1995-2000) by place individual moved from, the place that individual lived in before the last move by origin and sex

Data represents both internal and international out-migrants. Source: Fafo 10% sample data of SIMS survey.

The censuses and LFS have been used to analyse the regional demographic change of WAP in order to estimate the net emigration of Syrians by region, and this will be compared with the material contained in Table 5.2 which is based on the Fafo data on the distribution of migrants by origin. Figure 5.6 shows the distribution of outmigrants by region as suggested by the rolled forward method and also the data derived from the Fafo report of 2002 on distribution of out-migrants by place of origin (see Table 5.2).



Figure 5.6: International out-emigrants by province of origin as suggested by the rolled forward estimates and derived estimates Source: Based on the Fafo 10% survey sample.

Although the observable difference between both sources can be attributed to the different basis of each, both estimates confirm the association between the migration and population size of each region. The most notable instance of a much higher share of net out-migration according to the rolled forward method is Hamaa.

5.4.2 Estimation of international migrants: non-Syrians

The same roll forward method and data source (for censuses) were used to provide net migration estimation for non-Syrians, which include Palestinians and other nationalities but exclude Iraqis refugees. The distribution of the Palestinian population over the Syrian regions is illustrated in Table 5.3, which indicates that their regional distribution did not change greatly in a 10 year period. Palestinians mainly settled in the four provinces of Damascus, Aleppo, Daraa and Homs. These regions hosted 93.4% of this group in 1994 and 96.3% in 2004.

		Palestinians as %		Palestinians as %
		region		region
Region	1994	population	2004	population
Damascus Region	221315	7.50	303795	8.05
Aleppo	18957	0.66	24775	0.61
Homs	11684	0.99	15224	1.00
Lattakia	5146	0.72	6416	0.73
Hamaa	5321	0.50	6596	0.48
Raqqa	539	0.10	539	0.07
DerEzor	114	0.02	114	0.01
Alhasakah	238	0.02	238	0.02
Tartous	588	0.10	740	0.11
Idleb	384	0.04	502	0.04
Daraa	16098	2.72	15720	1.86
Sweida	114	0.04	110	0.04
Qunitera	439	0.93	617	0.93
Total	280937	14.35	375385	13.93

Table 5.3: Distributions of Palestinians refugees in Syria by provinces 1994-2004

Source: Census 1994 and 2004.

Table 5.4 provides an estimation of net in-migration (which is a combination of international and internal flows) for the working age Palestinian population. It breaks down by age, sex and regions and suggests a total loss of 5,711 over a 10 year period. This national trend implies a net-out-migration pattern in the young age group (those younger than 25 years old) and net in-migration of youngest age groups. Among all regions, Daraa had the largest number of net emigrants in all age groups (71% of total net emigrants of working age). The dominance of the Damascus region, is clearly observable in Table 5.4. DerEzor was another region that showed net in-migration.

	15 -		25		45-				
Age group	24		44		64		Total		
Region	Μ	F	Μ	F	Μ	F	Μ	F	Total
Damascus region	2720	4442	-3663	-3882	354	574	-589	1134	545
Aleppo	265	270	-341	-245	-59	33	-135	58	-77
Homs	-56	33	-84	-100	-67	-18	-207	-85	-292
Lattakia	136	-11	-95	-51	-12	-28	29	-90	-61
Hamaa	-181	-44	-5	-123	-90	-34	-276	-201	-478
Raqqa	-12	-12	-30	-49	-12	-19	-54	-80	-133
DerEzor	-3	6	23	24	11	14	32	45	77
Alhasakah	-6	-8	-7	-13	-5	-10	-18	-31	-49
Tartous	5	3	-7	-14	10	-8	7	-19	-12
Idleb	2	6	-11	-17	1	5	-8	-6	-13
Daraa	-550	-465	-1319	-1255	-197	-274	-2065	-1993	-4059
Sweida	3	-1	-14	-3	-1	-7	-12	-11	-23
Qunitera	-17	-3	-7	-15	4	1	-20	-17	-37
Syria	2304	3928	-5727	-6140	-130	54	-3553	-2158	-5711

Table 5.4: Estimation of net in-migration of WAP Palestinians by age/sex and provinces 1994-200 as suggested by the rolled forward method

Source: Based on censuses 1994 and 2004.

As Chapter Four has already mentioned, official censuses provide regional data by age and sex which relates to groups of non-nationalities who were resident in Syria at the time of each census. These groups have also been analysed to estimate their regional impact. The roll forward is the best method of analysing the international migration trends of this group in the period of interest. It suggests a net outmigration figure of over 70,000 (Table 5.5).

Age group	15 -24		25-44		45-64		Total		
Region	М	F	М	F	М	F	М	F	Total
Damascus region	-1868	-1865	-3419	-3986	-1664	-2695	-6951	-8546	-15497
Aleppo	-216	-343	-671	-1025	-350	-730	-1237	-2098	-3334
Homs	1806	1723	1974	2037	764	704	4544	4463	9008
Lattakia	-43	-74	-355	-173	-53	-122	-451	-368	-819
Hamaa	-34	-76	-110	-122	-12	-38	-156	-236	-392
Raqqa	-40	-21	-10	-33	-13	-15	-63	-69	-132
DerEzor	-83	-78	-110	-113	-268	-49	-462	-241	-703
Alhasakah	-13180	-12619	-11495	-11133	-4128	-3510	-28802	-27262	-56064
Tartous	-64	-73	-28	-166	-23	-118	-115	-357	-472
Idleb	-72	-58	-62	-44	-22	-67	-156	-169	-325
Daraa	-173	-176	-157	-209	-40	-140	-371	-524	-895
Sweida	-167	-152	-64	-332	-15	-137	-246	-621	-867
Qunitera	-13	-14	-17	-8	1	-2	-29	-23	-52
Syria	-14148	-13827	-14524	-15306	-5822	-6918	-34494	-36051	-70545

Table 5.5: Estimation of net in-migration of WAP non-Syrians by age/sex and provinces 1994-2004 as suggested by the roll forward method

Source: Based on censuses 1994 and 2004.

In the period between 1994-2004, a substantial drop of 32.4% (from 188,000 to 127,000) was recorded. The working age population constituted 103,000 (55%) in 1994 and 81,000 (85%) in 2004. In 2004, over 66% of non-Syrian labour market age group were resident in three provinces (44% in the Damascus region; 12% in Homs; and 10% in Alhasakah). The most significant decrease of WAP was seen in Alhasakah (-56,000), which might have been due to a decline in the numbers of skilled workers in oil fields (and potentially in their dependants). This decline was due to a drop in oil production and prices which affected this economic sector in Syria and especially within the region in this period (Plaut, 1999). This analysis finds that Homs was the only region receiving net-immigration in all age groups.

Unlike Palestinian refugees, Iraqis who arrived in Syria between mid-2003 and 2004 were not counted in the 2004 census. Iraqi refugees have taken refuge in many cities and villages throughout Syria, though primarily in and around Damascus. The lack of data availability makes it difficult to estimate actual arrival numbers and regional distribution difficult. According to a joint study by the UNHCR and the WFP (World Food Programme) that was conducted in March 2006, 79% of total Iraqis were resident in the Damascus region, with the remainder being dispersed across

Aleppo, Alhasakah, DerEzor and Homs (Al Khalidi *et al.*, 2007). However, due to data deficiency this population subgroup is excluded from the final analysis.

5.4.3 Summary of international migration estimates

The regional distribution of international Syrians and non-Syrians migrants (who were resident in Syria at the time of each census) is illustrated in Table 5.6. This was calculated by using the roll forward method (taking age, sex and province into account) to the 1994 and 2004 censuses; however, it should be remembered that the result of this method is a combination of an internal and international effect. It is evident that the largest urban cities in the country (i.e. Aleppo, Hamaa, Homs and Damascus) produced the largest number of Syrian migrants. Other non-Syrian net out-migration showed that Alhasakah province stood out in its loss of these numbers of its working age population.

	Syrians			Palesti	nians		Other no	on-Syrians	5
Province	М	F	Т	М	F	Т	М	F	Т
Damascus	-2353	-22705	-25058	-589	1134	545	-6951	-8546	-15497
Aleppo	-18117	-23197	-41314	-135	58	-77	-1237	-2098	-3334
Homs	-11969	-21771	-33740	-276	-201	-478	-156	-236	-392
Lattakia	-6181	-3807	-9988	29	-90	-61	-451	-368	-819
Hamaa	-19739	-23518	-43257	-207	-85	-292	4544	4463	9008
Raqqa	3527	-743	2784	32	45	77	-462	-241	-703
DerEzor	-7813	-12400	-20214	-54	-80	-133	-63	-69	-132
Alhasakah	-4025	-2924	-6949	-18	-31	-49	-28802	-27262	-56064
Tartous	-805	-1400	-2205	7	-19	-12	-357	-472	-357
Idleb	-3822	-8643	-12465	-8	-6	-13	-156	-169	-325
Dara	3515	-5154	-1639	-2065	-1993	-4059	-371	-524	-895
Sweida	223	-3734	-3510	-12	-11	-23	-246	-621	-867
Qunitera	598	-146	452	-20	-17	-37	-29	-23	-52
						-			
Total	-66963	-130142	-197104	-3553	-2158	5711	-34494	-36051	-70545

Table 5.6: Summary of international migration estimations by nationality, sex and province as suggested by the rolled forward method

Data includes internal migration effect.

Source: Own research.

5.5 Internal migration 1994-2004

Internal migration has greatly contributed to demographic trends within the regions of Syria, leading to dramatic regional changes in both the structure and composition of the population (Satouf and Youzbashi, 2006). Internal migration data is less problematic than international migration to obtain because the Syrian CBS produced data with age/sex breakdowns for both the national and regional levels, and this makes it easier to analyse its effect on the labour market.

The 1994 and 2004 censuses report on internal migration flows but it is important to note that this includes both migrants who moved across a district border (mainly from rural to major urban places within a province) and migrants who moved across regional borders (from one region to another). The figures suggest that internal migration volume declined from 355,000 (2.6% of the total population in 1994) to 331,000 (1.8% of the total population in 2004).

The data in Figure 5.7 reveals a varying pattern among population age groups. Generally speaking, migration decreases after young adulthood so that as people get older they have lower migration rates through to retirement age. This pattern can be seen in both the 1994 and 2004 census datasets (Figure 5.7). Men who were 35 or over were more likely than women to move (this applied in both 1994 and 2004). During the period of interest there was a substantial fall in the percentage of women moving, and this applies especially to the age groups covering young adulthood (15-34) because in 1994 women of this age had very high migration rates.



Figure 5.7: Internal migration rate by age /sex groups 1994 and 2004

The author has calculated the rates by dividing a specific age/sex group who moved by total population of that age/sex group for 1994 and 2004. Source: Based on censuses.



The educational level of migrants shows them to be more skilled than the nonmigrant population. This trend has increased notably over time (Figure 5.8).

Figure 5.8: Educational structures of migrants and non-migrants 15 year and over by sex 1994 and 2004 Source: CBS.

Figure 5,9 does not appear to indicate a substantial change within occupation structure of internal migrants because there is no clear sign of a shift within the job types of either migrants or non-migrants. It is noticeable that people in higher status work continue to display higher rates of mobility than those in lower status jobs, as has been observed previously (Hwaja, 2002; Ovensen and Sletten, 2007). In other words, less skilled occupations experience low rates of spatial mobility in the same way as Champion (1992) found in very different circumstances. The proportion of female migrants working in professional jobs decreased by 13.5% points during the period 1994-2004. Their initial high share of the migrant flow was probably related to the 'spike' in mobility of 25-34 years old women that was indicated in Figure 5.7.



Figure 5.9: Occupation structure of migrants and non-migrants 15 years old and over by sex 1994 and 2004 Source: Censuses.

One way to measure the relative importance of migration at the regional level is through the net gain or loss of population (flows between regions). The in-out ratio of internal migration was calculated for each region to allow regional comparisons and to test for un urbanisation effect (Figure 5.10). A high rate of net internal inmigration can be seen among most urbanised regions, with the capital Damascus emerging as the strongest net importer of migrants. There is a broad tendency for the less urbanised region to have stronger net outflows. The pattern of regional netinternal migration changed little over the period of interest as most regions remained net losers. Damascus saw its net inflow slightly increase between 1994 and 2004. This starkly contrasts with Qunitera's severe increase in net internal migration outflows (however it should be recognised that this is an exceptional case which results from its proximity to the Golan Heights, where the border conflict with Israel has led to population displacement).



Figure 5.10: Rate of net-internal migration by regions 1994 and 2004

The author has calculated the rates by dividing a specific net-migration number who moved in a province by its total population for 1994 and 2004. Source: Based on censuses.

Figure 5.10 shows that in 1994 there was a moderate level of urbanisation, with flows towards Damascus and away from the of smaller cities in particular. The data for 2004 is very similar, with net outflows from the less urbanised region groups, along with even stronger net flows towards Damascus.

This is a reflection of the fact that the capital is attractive to people from different regions in Syria because it provides many advantages in terms of access to public sector employment and it has a relatively well developed infrastructure (Hwaja, 2002; Ovensen and Sletten, 2007; Shaban, 2009).

The largest internal migration outflows from each region are visually depicted below. Maps 5.1 and 5.2 demonstrate that all the outflows in both years (1994 and 2004) were toward Damascus, with the one exception of Raqaa whose largest outflows were to the nearby regional city of Aleppo. The largest outflow from Damascus in both years was toward Lattakia, indicating the relative attraction of this region.



Map 5.1: Largest internal outflows from each region 1994 Source: Based on censuses 1994.



Map 5.2: Largest internal outflows from each region 2004

Source: Based on censuses 2004.

In order to further illustrate inter-regional migration flows, a certain percentage of outflows in each region was taken as a threshold for further visualisation. A threshold of higher than 20% of total outflows in a region was selected and Maps 5.3 and 5.4 then display similar outflow patterns to the ones depicted in Maps 5.1 and 5.2; however, they also show large outflows from Alhasakah and Idleb toward Aleppo, reflecting the economic significance of this region in the north.



Map 5.3: Outflows 20% and over from each region 1994

Source: Based on censuses 1994.



Map 5.4: Outflows 20% and over from each region 2004 Source: Based on censuses 2004.

To ensure that all the important flows, such as those to Homs and Lattakia are visible a threshold of 10% was then used to map outflows from each region (Maps 5.5 and 5.6). Map 5.5 reveals that in 1994, the largest outflows from Raqaa were to Aleppo followed by Damascus. Aleppo, meanwhile, was the second receiver of outflows from Alhasakah. DerEzor showed a stronger connection with its neighbouring region Alhasakah than with Aleppo. Idleb's outflows were towards the more urbanised regions of Damascus, Aleppo and Lattakia. The influence of Homs and Lattakia upon nearby Tartous is also shown (12.7 and 11.8% of its outflows were toward these two regions). Most outflows from Damascus that were not toward Lattakia were to Homs and Aleppo. Map 5.6 demonstrates that flows toward larger cities were replicated in 2004.



Map 5.5: Outflows 10% and over from each region 1994

Source: Based on censuses 1994.



Map 5.6: Outflows 10% and over from each region 2004

Source: Based on censuses 2004.

The variations in population growth and migration trends discussed here confirm the importance of specific regions such as Damascus and Aleppo. The next chapter will provide an in-depth account of the way that economic change, such as the potential concentration of growth in the largest cities, has impacted upon the regional labour markets of Syria.

Chapter 6

Analysis of variation in economic change

6.1 Introduction

In this chapter, regional variations in economic change will be assessed to measure the demand side of change in the Syrian labour market. The analyses will cover change in levels of economic activity rates, and unemployment, over the period between 1994 and 2004.

The analyses will be based on data derived from the 1994 and 2004 censuses, and will focus on the characteristics of the working age population (WAP) by age, sex and region. Syrian censuses defined the WAP as all people aged ten years or older in 1994 and 15 years or older in 2004. In order to allow comparison between the two censuses, it was necessary to adjust the 1994 census data to cover only the age group 15-64. Both censuses used the International Labour Organization (ILO) definition of economic activity to permit data comparison with statistics from other countries. According to the ILO framework on the economically active population (EAP). "[T]he international definition of employment is based on a short reference period (one week or one day) on the principle that a person must have been engaged in some economic activity during the reference period to be considered as employed. [Thus] there are some works which may for operational purposes be interpreted as work for at least one hour during the reference period. This means that work in economic activity for as little as one hour is sufficient for a person to be classified as employed" (Hussmanns, et at, 1990, p.71).

This means that the EAP comprises the employed and unemployed, and thus the inactive population (students in primary and secondary education, homemakers, the retired and income recipients) are not included. The number employed comprises all people who had worked for at least one hour during the reference week (i.e. the week prior to the census date). This includes: (a) people who were temporarily absent

for illness or any other reasons; (b) the self-employed or those who contributed to unpaid family jobs; and (c) students in higher education who had a productive job during the reference week. From a critical standpoint, this definition means that the count of those employed includes people who can be considered under-unemployed. The count of the unemployed includes those who did not work even one hour, but who at the same time were available to work and searching for a job during the reference week. Students who worked during the week were not considered to be employed unless they were in higher education (CBS, 1994 and 2004; Ovensen and Sletten 2007).

The chapter is structured as follows. The first empirical section provides insight into the main economic trends in Syria and comparator countries (Lebanon and Jordan) in the period from 1980 up to 2004. The next two sections examine – with reference to both national and regional scales – the demand side of the labour market, with a focus on the main industrial sectors. The final empirical section analyses economic activity rates and unemployment over the 10 year period, with breakdown by age and sex as well as by region.

6.2 Economic trends

The World Bank and the United Nations Population division UNPD classify Syria as a "lower income country;" (reporting average income per employee at \$1,250 in 1994 and \$1,500 in 2004 (per annum). There are many reasons for this low level of income. Political and economic events in the Middle East from the early 1960s onwards created various complications, which significantly impacted upon Syria's economic situation. According to UNDP statistics, Syria's gross domestic product (GDP) and GDP/head were evidencing unstable trends during the early 1980s. Socioeconomic and political instability affected economic growth in the wider region which "was unable to reach a balance between economic growth and population growth" (Winckler, 1999, p.53). In short, the economy was not able to create sufficient employment (El Laithy, 2005).
Table 6.1 and Figure 6.1, which draw upon UNPD data to enable a direct comparison of Syria, Lebanon and Jordan, show that the Syrian economic growth rate fell behind these two countries. Figure 6.1 shows that in the period up to 1994 there were differences in the three trends for each country. Between 1974-1984, the Jordanian economy grew faster than its Syrian counterpart (9.22% in comparison to 6.0%), with a stark contrast provided by the remarkable decline in the Lebanese economy whose contraction was attributable to the Lebanese civil war.

Country		1974	1984	1994	2004
Jordan	POP (Million)	1.75	2.55	4.06	5.29
	GDP (Billion \$)	2.55	6.15	7.43	11.64
	GDP/head (\$)	1,455	2,411	1,831	2,200
Lebanon	POP (Million)	2.54	2.67	2.98	3.85
	GDP (Billion \$)	19.13	12.99	15.34	20.92
	GDP/head (\$)	7,531	4,867	5,146	5,433
Syria	POP (Million)	7.31	10.31	13.95	17.68
	GDP (Billion \$)	6.92	12.44	17.35	26.74
	GDP/head (\$)	946	1,206	1,244	1,512

Table 6.1: GDP/GDP	per head and	population	1974-2004
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Source: UNPD indicators (http://unstats.un.org).



Figure 6.1: GDP and GDP per capita and population annual growth rates 1970-2005 Source: Based on UNPD data.

During the period 1984-1994, the Lebanese economy recovered from this recession, and this in turn resulted in a considerable rise in GDP per head that clearly contrasted with the previous period. This was mainly the result of "financial flows aid received from Arab countries as well as the mobilization of substantial investment" (Korany and Dessouki, 2008, p 77). In contrast, the Syrian and Jordanian economies showed declining growth in the period up to 1994. In the decade that is the focus for this study (1994-2004), the chart suggests that three countries had converging trends on all three variables (population, GDP and GDP/head). This suggests the overwhelming importance of socioeconomic and political events which took place at this time in the wider region which affected trends in all three countries during the period of interest.

Winckler (1999) suggests that "in a country like Syria with an annual natural increase rate of 3%, the annual increase rate of the GDP has to be at least 6% in order to achieve significant economic growth. This is because more than half of the increase will be swallowed by the natural increase rate. However such a GDP growth rate was far beyond the capacity of the Syrian economy during this period" (p.53). In the 1970s and 1980s, the Syrian economy had enjoyed substantial growth due to the rise in global oil prices, which resulted in "grants" or loans from rich Arab oil countries to support socioeconomic investments. "Arab aid to Syria in 1979 amounted to \$1.85 billion, compared to \$500-\$600 million in the mid-1970s" (Winckler, 2009b, p.113). In the 1980s Syria's GDP was affected by a sharp drop in global oil prices. As a result of lower production and declining aid flows from Arab countries due to the fall of global oil prices, Syria's trade imbalance deteriorated sharply. In addition, economic sanctions were placed on Syria by the US government, resulting in a recession (El Laithy, 2005, p.12; Winckler, 1999, p.148). As a consequence, per head income collapsed by 8.5% between 1980-1985, and that would be 3% annually in the years between 1980 and 1995 (UNPD and World Bank, 2005). In the early 1990s agriculture was affected by drought and economic growth slowed further. However in the following period (1995-2000) improved climate conditions along with rising global oil prices resulted in an annual per job GDP increase of 5%. Economic growth was then affected by the 2003 Iraq war, which led to the closure of the oil pipe from Iraq to Syria which in turn resulted in the Syrian economy losing an annual total of \$1.6 billion a year (Feldman and Shapir, 2004, p.92). The effects of this loss were further compounded when US economic sanctions on Syria were expanded in 2004.

These changes have contributed to changing patterns of economic production shown in Figure 6.2. Growth during the period from the mid-1990s to the early 2000s was mainly driven by mining and manufacturing. The mining sector is very important to the economic stability of Syria because it is "highly dependent on the oil industry and export which produces about 30% of the country's foreign currency whereas the agriculture sector employees nearly 20% of the labour force, and therefore represents the main activity of the Syrian economy" (Zaman, 2007, p.16-19).



Figure 6.2: % Structure of GDP at market prices (at constant prices 2000) by sectors other than public sector

Public sector GDP is not calculated. Source: CBS (2008).

Figure 6.2 shows that the share of mining and manufacturing fell 3% between 2000 and 2004 (from 30% to 27%). Zaman (2007) has observed that "[t]he Syrian industry is challenged with low productivity of labour and inadequate technology. Because of the low average skill of workers, the industry is characterized by activities with low value added. The investment is insufficient for bringing the necessary technical progress for increasing the economic performance of activities, which affects seriously the overall efficiency of the sector. The control of the state over public companies amplifies the inefficiency. Added to this, the oil production has declined in the recent years (from 590,000 barrels in 1996 to 460,000 in 2004), partially because of decreasing reserves, and partially because of weak technological endowment. As a consequence, the contribution of industry to the GDP has continuously declined during the last years" (p 22).

Agriculture is a very important sector in that it employs many people. However it has low productivity, and this means that its overall contribution to GDP is less than the mining and manufacturing sectors. Figure 6.2 shows that during the period 2000-2004 the sectoral balance shifted to the other services sector (which is also characterized by low productivity and wages. This development was reflected in the fact that its contribution to the national GDP grew from 42% in 2000 to 49% in 2004, This may be partly due to the opening up of the economy that took place in the early 1990s legislation that allowed and encouraged private investments" (El Laithy, 2005, p.12).

6.3 National employment trends

The industrial, agricultural and other sectors varied in their growth or decline of employment during this period. This section analyses the changes in national employment levels by age, sex and industry that characterised the period 1994-2004. In the 1994 census over 3,000,000 persons were employed in Syria, whereas the 2004 census reported that over 4,100,000 were in employment, showing that the Syrian labour market created just over a million jobs during a 10 year period. Syrian censuses break employment down into 19 individual sectors, as Table 6.2 illustrates. The analysis here collapses these sectors into five main industrial groups: agriculture, industry, construction, public services and private services. The very small sectors (embassies, other organizational bodies, private households, and not stated) are not considered in the following analyses (when considered together, they comprise less than 1.5% of the total).

National employment trends showed an increase of 33.2% over the decade. Construction and public services were the most dynamic grouped sectors (hereafter simply sectors), and they grew at a rate of 52% and 47% respectively. In contrast agriculture recorded the lowest growth rate (9%). Analysis of percentage point change between 1994 and 2004 clearly illustrates the extent to which the agriculture sector's role as a provider of jobs in the national labour market declined markedly. In large part, this was a reflection of the fact that agriculture was heavily impacted by altering climate conditions. In contrast, public services and construction showed increases of over two percentage points in their shares of the growing national number of jobs. The contribution of industry to national employment also declined, due to the drop in oil prices and the imposition of economic sanctions during this period.

Group	Census sector	1994	%	2004	%	% change	%point change
A 1 10	Agriculture	689178	22.1	750753	18.1	9.0	-4.0
Agriculture	Fishing	1828	0.1	2377	0.1	30.0	0.0
Industry	Mining	12821	0.4	8909	0.2	-30.5	-0.2
	Manufacturing	408439	13.1	522598	12.6	27.9	-0.5
Constructio n	Construction	487016	15.6	741629	17.9	52.3	2.2
Public services	Electricity, gas and water supply Public	55720	1.8	64893	1.6	16.5	-0.2
	administration & defence	508195	16.3	806624	19.4	58.7	3.1
	Education	212136	6.8	266430	6.4	25.6	-0.4
	Health and social work	49685	1.6	77911	1.9	56.8	0.3
Private services	Real estate & renting	38278	1.2	58827	1.4	53.7	0.2
	Wholesale and trade	356459	11.4	448269	10.8	25.8	-0.6
	Hotels & restaurants	17890	0.6	31632	0.8	76.8	0.2
	Transport, storage and communication	180741	5.8	244501	5.9	35.3	0.1
	Other community, social & personal services	55899	1.8	77781	1.9	39.1	0.1
	Financial intermediation	5199	0.2	3138	0.1	-39.6	-0.1
Other (not included)	Embassies	536	0.0	422	0.0	-21.3	0.0
	Extra-territorial organization bodies	223	0.0	334	0.0	49.7	0.0
	Private households	7288	0.2	4591	0.1	-37.0	-0.1
	Not stated	26301	0.8	35989	0.9	36.8	0.0
	Total (individual)	3113832	100.0	4147858	100.0	33.2	0.0
						%	%
Group	Sector	1994	% 1994	2004	%	change	point
1					2004	(94-	change
	Agriculture	601001		========	. 0 .	04)	
	Industry	091006	22.4	753380	18.3	9.0	-4.1
2	Construction	421200	13./ 15 8	741620	12.9	20.2 52.2	-0./
4	Public services	825736	26.8	1215858	20.6	47.2	2.2
5	Private services	654465	21.3	864148	21.0	32.0	-0.2
	Total (groups)	3079484	100.0	4106272	100.0	33.4	0.0

Table 6.2: National employment by industrial sectors 1994 and 2004

Source: Based on censuses.

Table 6.2 shows that the industrial sector comprises of two main industries, mining and manufacturing. The decline in mining jobs can be attributed to a reduction in

oil production. Manufacturing can be broken down into four main types: food, chemicals engineering and textile industries. With regard to their broader importance to GDP, the food and textile industries are the most important producers of gross production, followed by the chemical and engineering industries. Abu Dan (2004) and Basata (2004) suggest that one of the main reasons for its declining share of employment is the dominance of the food and textile industries: the instability of these two sectors is a reflection of their reliance upon the agriculture industry which has itself been profoundly impacted by changes within climate conditions. Private services are generally characterized by low productivity but are characterised by high levels of employment. Table 6.2 shows, with % point change measures, that there has been a noticeable relative decline in wholesale, trade or financial intermediation jobs. It is likely that the informal (undocumented) sector has replaced some of these jobs.

Figure 6.3 shows that public services and agriculture are more important in providing jobs for women, presumably because women take advantage of the flexible work benefits offered by these sectors (Ovensen and Sletten, 2007). The proportion of male jobs in agriculture dropped from 21.8% to 17.1%, with lower declines in the public services. To some extent, these sectors may during the 1994-2004 period have been characterised by the displacement of men by women. This is particularly notable in the case of agricultural because it is a rural sector which is in relative decline, whereas public services are spreading beyond their earlier concentration in cities and growing in their share of all jobs in the economy.



Figure 6.3: % national employment by sex and main industrial sectors 1994 and 2004 Source: Censuses.

Age and gender variations are presented in Table 6.3. The absolute number of employed men grew by over 800,000 during this 10 year period, but their percentage of the total national employment declined by 2.2% points, with women gaining over 200,000 jobs in the same period. The young group (aged 15-34) saw a decline in their share of the jobs in the labour market, even though their share of the labour force grew strongly due to natural change. This result might be partly due to the under 35s including an increasing number of students (who are less likely to seek employment). The decline of the proportion of jobs taken by the oldest male age group may be associated with early retirement and withdrawal from the labour market. During the period, women benefited more from employment growth rates than men across all the broad age groups whose data can be seen in Table 6.3, but the most remarkable growth was enjoyed by women in the middle age group. Their strong rate of growth is partly due to their low share of the jobs available in 1994.

	1994		2004		Change	
Age	Male	Female	Male	Female	Male	Female
15-34	1624307	259109	1998488	362648	374181	103539
35-54	885400	96878	1324668	204460	439268	107582
55-64	201922	11867	201440	14568	-482	2701
15-64	2711630	367854	3524596	581676	812966	213822
percentage of total						
15-34	52.7	8.4	48.7	8.8	-4.1	0.4
35-54	28.8	3.1	32.3	5.0	3.5	1.8
55-64	6.6	0.4	4.9	0.4	-1.7	0.0
15-64	88.1	11.9	85.8	14.2	-2.2	2.2
percentage change	(1994-2004)					
15-34					23.0	40.0
35-54					49.6	111.0
55-64					-0.2	22.8
15-64					30.0	58.1

Table 6.3: National employment by main age group and sex 1994 and 2004

Source: Based on censuses.

6.4 Regional employment trends

The census data reveals major differences between regions in their employment structure by age, sex and industry. The classification of regions based on their city size is used here to examine possible urbanisation effects in the changing distribution of employment. Damascus, the largest urban region in Syria showed an employment increase at around 31% over the period (Table 6.4). Public and private services grew at a faster rate, whereas the agriculture sector saw absolute decline (-3.1%). These changes in employment structure can be seen in the context of various socio-economic factors, particularly rural-urban migration, urbanization having a role in reducing land available for agriculture. The rapid growth of public services in this region may be explained by the direct government control of this sector of employment, which in this capital employs a large share of those who have a higher education degree (Ovensen and Sletten, 2007).

The distribution across the labour force of jobs created in Damascus between 1994 and 2004 is broadly similar to that which Table 6.3 had documented for the country as a whole. The number of jobs held by women increased faster than those held by men in percentage terms though not in absolute terms (Table 6.4). The youngest and oldest age groups experienced lower job growth rates than those of middle age.

Sector	1994	2004	% change
Agriculture	46707	45239	-3.14
Industry	125645	156618	24.7
Construction	109636	145509	32.7
Public services	207216	282839	36.5
Private services	198531	267702	34.8
Total	687735	897907	30.6
Male	610661	781216	27.6
Female	77073	116691	51.4
Age 15 - 34	414498	482426	16.4
Age 35 - 54	230299	364630	58.3
Age 55 - 64	42937	50851	18.4

Table 6.4: Employment by industrial sector in Damascus 1994 and 2004

Source: Censuses.

The Aleppo region, which includes the second largest city in Syria, created more job opportunities than Damascus, with over 292,000 more jobs being created over the 10 year period (43.6% change). In comparison to Damascus, there is a dramatic difference in that female employment in Aleppo displayed an even more substantial increase at over 90% during the period (Table 6.5). This may be in part a 'catching up' process because the proportion of all jobs held by women in 1994 was much lower in Aleppo in comparison to Damascus.

Aleppo's higher job growth rate can be attributed to two factors. The first is the government's ongoing investments in the industry sector –undertaken with the intention of building many manufactring and industrial facilities in this region – which resulted in more jobs, particularly in the textile, tourism, electrical and chemical industry. As a result of this investment, the Aleppo region emerged as Syria's prime industrial region (Syrian Economic, 2015).

Sector	1994	2004	% change
Agriculture	130456	164377	26.0
Industry	138107	202235	46.4
Construction	134053	222546	66.0
Public services	102846	158792	54.4
Private services	165240	215297	30.3
Total	670702	963247	43.6
Male	619207	865422	39.8
Female	51495	97825	90.7
Age 15 – 34	422630	591064	39.9
Age 35 – 54	204822	324012	58.2
Age 55 – 64	43250	48171	11.4

Table 6.5: Employment by industrial sectors in Aleppo region 1994 and 2004

Source: Censuses.

In the other large cities (Homs, Lattakia and Hamaa) 172,000 jobs were created, as Table 6.6 demonstrates. Agriculture was a worst hit by substantial employment losses (21% change). This may be attributable to the adverse climate conditions which badly affected agricultural production of arable lands, in particular in the Gab valley ("Sahl el Ghab") located in the north west of the Hamaa region, which is one of the most significant agricultural areas in Syria and which is strongly dependent on irrigation. One interesting feature that characterises this group of regions is that female jobs did not increase much more than those for men. This lack of a strong 'catching up' effect closely corresponds to the fact that the proportion of jobs held by women at the start of the period (17.2%) was notably higher than the 12.2% across the country as a whole (Table 6.3).

Sector	1994	2004	% change
Agriculture	193499	152787	-21.0
Industry	83619	83064	-0.7
Construction	106803	162975	52.6
Public services	235154	363013	54.4
Private services	133456	163013	22.1
Total	752531	924852	22.9
Male	622819	759782	22.0
Female	129713	165070	27.3
Age 15 - 34	449821	506234	12.5
Age 35 - 54	244561	368932	50.9
Age 55 - 64	58150	49686	-14.6

Table 6.6: Employment by industrial sectors in other large cities 1994 and 2004

Source: Censuses.

The more agricultural regions of Raqaa, DerEzor and Alhasakah (medium size cities) experienced distinctive trends that clearly contrasted with other regions. Table 6.7 shows that growth in total employment (35.5%) was higher than the national average (33.4%), and unlike the national pattern all five broad sectors in this region showed positive growth. Although other sectors grew more quickly than agriculture, this primary economic activity grew by nearly a third due to the rapid expansion of government agricultural projects in this region, particularly in Raqaa and DerEzor. These have improved the land output, increasing irrigated areas across the Euphrates River, ensuring that this region remains the most significant agricultural region in Syria ("Breadbasket of Syria"). The huge increase in the number of jobs held by women is an equally dramatic trend (Table.6.7). It should however be acknowledged that this development suggests a certain degree of 'catching up', because women in these regions held fewer than 10% of the jobs in 1994.

Sector	1994	2004	% change
Agriculture	193388	256306	32.5
Industry	31891	35566	11.5
Construction	64614	98429	52.3
Public services	87141	127667	46.5
Private services	65293	81293	24.5
Total	442326	599261	35.5
Male	401324	500129	24.5
Female	41002	99132	143.0
Age 15 – 34	279145	369350	32.3
Age 35 – 54	134645	201075	49.3
Age 55 – 64	28536	28836	1.1

Table 6.7: Employment by industrial sector in medium size cities 1994 and 2004

Source: Censuses.

The relatively strong job growth in the region of the smallest cities (Tartous, Idleb Daraa, Sweida and Qunitera) was characterised by the growing importance of construction and public/private services, along with a decline in the contribution of agriculture to total employment (Table 6.8).

Sector	1994	2004	% change
Agriculture	126956	134421	5.9
Industry	41999	54024	28.6
Construction	71910	112170	56.0
Public services	193379	283547	46.6
Private services	91945	136843	48.8
Total	526189	721005	37.0
Male	457619	618048	35.1
Female	68571	102957	50.1
Age 15 - 34	317323	412062	29.9
Age 35 - 54	167951	270479	61.0
Age 55 - 64	40916	38464	-6.0

Table 6.8: Employment by industrial sectors in small cities 1994 and 2004

Source: Censuses.

National and regional employment trends show an interesting dramatic shift in job growth towards women, particularly in certain regions such as Aleppo and the medium size cities. In order to engage more consistently with these variations, it is important to test the hypothesis that an increasing proportion of women held jobs in 2004 as the result of a 'catching up' process in which a series of socio-economic and cultural changes have tended to reduce previously marked regional contrasts. Figure 6.4 compares the percentage of jobs held by women in 1994 to the rate of growth in their share of jobs (shown as the ratio of female-held jobs in to the number in 1994). The evidence does support the proposition of a 'catching up' trend because the regions with a higher percentage of female employees in 1994 jobs experienced a lower rate of increase between 1994-2004.



Figure 6.4: Comparison between % jobs held by women in 1994 to the ratio of % jobs held by women in 2004/1994 Source: Own research.

Figure 6.4 confirms that the more agricultural regions with medium size cities (DerEzor, Raqaa, Alhasakah) had lower rates of female employment in 1994, followed by a strong catching-up effect of increased female economic participation during the period 1994-2004. In contrast, Lattakia, Tartous, Hamaa and Sweida showed an above average percentage of women among the employed in 1994, and lower growth in the rate of female economic participation in the decade leading up to 2004.

The preceding discussion of the distribution of jobs by sex and region over the decade has suggested that the issue of differing levels of economic activity is an important issue that would reward further analysis. This study now turns to this issue and takes it as its primary focus of analysis.

6.5 Economic activity trends

The economic activity rate can be obtained by dividing the total economically active population (EAP) by the full potential labour force (the working age population, or WAP. The category of 'economically active' includes both those in employment, and also those who are unemployed (as long as they are actively seeking available work). To be explicit: discouraged workers are among the economically inactive, along with those with no wish to work. The economically active thus include the actively unemployed as well as the actually employed. When considered in combination, the employment, unemployment and economic activity rate can provide a holistic overview of the exact status of a regional labour market and the extent to which it mirrors the levels of national labour market imbalance. In instances where the economic activity rate is low, there has probably been poor employment creation which has produced large numbers of discouraged workers.

Figure 6.5 shows the national rates for economic activity in the years 1994 and 2004, broken down into employment and unemployment rates, age and sex. The addition of the values in each column reveals that the overall economic activity rate has dropped slightly (0.04%) between 1994 and 2004 (from 47.45% to 47.41%). Women had far lower activity rates than men, but whereas the male economic activity rate

declined by 3.5%, the female percentage age rate rose by 3.3%. The age breakdown shows that economic activity is only around 50% for the middle age group (35-54), and lower for both the younger and older age groups. These low levels exacerbate the extent of dependency, which is already high due to the large proportion of the population aged under 15. Moreover, the low activity rate of females is a reflection of traditional cultural considerations and influences, that feed into concerns over the types of jobs and working locations that will be considered suitable for female workers (Ovensen and Sletten, 2007).

Figure 6.5 highlights the labour market difficulties that male workers experienced in the years between 1994 and 2004. During this period male employment rates dropped 6.9%, while unemployment rates almost doubled. During this same period, women saw their employment rate increase by 1.2% and this will be partly due to changes within the labour market which benefitted women. In particular women have seen increased success in gaining jobs within more education-intensive sectors such as the public services.



Figure 6.5: % National economic activity rates by age and sex 1994 and 2004 Source: Based on censuses.

The employment rates of the young age group declined by 3.8%, but their unemployment rates doubled. Declining economic activity, was evidenced within the older age group (55-64) and this could be attributed to increased withdrawal from

the labour market as jobs became more scarce relative to the growing labour force. In parallel, the middle age group experience only a small decline in its employment activity (by 0.8%), thus affirming this the age group's success in searching for jobs.

In the Damascus region, male employment rate fell rapidly (4.7%) over the 10 year period, while female employment rates evidenced a contrasting decline (Figure 6.6). It was the youngest and oldest age groups who experienced reduced employment rates, although it needs to be recalled that employment and participation rates in Damascus had been relatively high in 1994.





Each bar represents total EAP (employed is the lower part and unemployed is the upper one). Source: Based on censuses.

Figure 6.7 shows that in the Aleppo region male employment rates declined, while for women there was growth from a low base. This indicates that women benefitted more from the strong regional job creation. It should also be noted that growth for the middle age group was not as dominant in this region.



Figure 6.7: % economic activity rates in Aleppo compared to national equivalent value by age and sex 1994 and 2004

Each bar represents total EAP (employed is the lower part and unemployed is the upper one). Source: Based on censuses.

The group of other large cities (Homs, Lattakia and Hamaa) displays a similar trend to the Damascus region, with declining employment rates seen among young people. As Figure 6.8 illustrates, males generally and the older age group also experienced large falls in employment rates.





Each bar represents total EAP (employed is the lower part and unemployed is the upper one). Source: Based on censuses.

In the medium size cities, male and young age group employment rates noticeably fell. This could have been the result of adverse weather conditions which impacted on the agriculture sector (particularly in Alhasakah and DerEzor) because in these regions it is a main source of employment. In contrast, female participation steadily increased from its low level in 1994 (Figure 6.9).



Figure 6.9: % economic activity rates in medium size cities compared to national equivalent value by age and sex 1994 and 2004

Each bar represents total EAP (employed is the lower part and unemployed is the upper one), by age and sex 1994 and 2004.

Source: Based on censuses.

The group of small cities is distinctive in achieving an increase in the employment rate of the younger age group (in comparison to all other region groups, which were characterised by declines in the employment rates of this age group). The activity rate among the oldest working age group was the lowest compared to other age groups. Similar to other regions, women displayed a slight increase in employment rates for both males and females decreased by age (highest in the younger age groups and lowest among those in the oldest age groups).



Figure 6.10: Economic activity rates in small cities compared to the national equivalent value by age and sex 1994 and 2004

The analysis provided above shows a substantial increase in female participation, particularly amongst those within middle age groups. Changes in factors such as education levels and cultural constraints may have been contributors causes of this increase. It is also possible that in 1994 here was underestimation of the actual number of women who worked in agricultural unpaid jobs.

A number of such studies (Ovensen and Sletten (2007) and Khlifaouy and Alkash (2007) have suggested that the low education level of Syrian women is accountable for their low participation in the labour market. Until the 1990 female participation was primarily limited to basic jobs (such as those in agriculture) which do not require academic skills. It should also be noted that when women in Syria marry they are more likely to abandon their job and become economically inactive. This may change when their children are old enough to help in household tasks, as this makes it easier for them to combine household tasks with work outside the home (such as in the agriculture sector).

The relationship between marriage and economic activity is also linked to education, because this tends to delay marriage age. The relatively rapid increase in the female activity rate can be partly attributed to the fact that rates of female employment were

Each bar represents total EAP (employed is the lower part and unemployed is the upper one). Source: Based on censuses.

previously so low. This allows scope for the catching up process to take effect upon female participation rates, partly driven by rising education levels. As Figure 6.4 illustrates, the catching up process was particularly clear in the intensive agricultural regions where the proportion of women participating in the labour market had been especially low due to traditional attitudes to gender roles. The modernisation of Syrian society promoted by the government then contributed to general improvements in the status of women, encouraging them to take part in the labour market and leading to reduced cultural differences between regions. (Ovensen and Sletten (2007) observed that cultural and gender differentials had been gradually shrinking, with a distinct growth in numbers of highly educated women who would then take public sector jobs, where low wages were compensated by the flexible working hours that enable women to combine work with household tasks. They make an important observation that "women, whether or not highly educated, tend to seek work that can be combined with household tasks" (p. 15).

In any analysis of regional economic activity or focus on unemployment rates it is important to identify the imbalance between labour supply and demand. As in many other countries "the unemployment level is one of the most controversial issues in Syria. Inward and outward migration, permanent and circular internal migration, participation in the work force and informal economy all significantly influence unemployment" (Aita, 2010, p.230). In the period between 1994-2004, the overall national unemployment rate nearly doubled by increasing from 6.8% to 12.8% (nb. here the percent is calculated with the total economically active as the denominator, unlike Figure 6.5 where the denominator was the working age population). The key reason for this is the strong increase in the size of the young part of the labour force, which was not matched by a growth in the number of new jobs available. Figure 6.11 combines all economically active age groups to show significant regional variations in the rate of unemployment.



Figure 6.11: Unemployment rate 1994 and 2004 for 13 regions Source: Based on censuses.

In 1994 the highest unemployment rates were found in small cities such as Sweida (where it was almost double the national average), Daraa, Qunitera and Tartous. The lowest unemployment rates were in the more agricultural regions of Raqaa and DerEzor, along with Aleppo. Most regions had higher unemployment rates in 2004 than in 1994, with the highest percentage point increases seen in Alhasakah, DerEzor, Lattakia and Tartous. Other regions showed rises in their rates, but they remained below the average national rate (12.5%). The extreme change in Lattakia and Tartous could be attributed to a new unemployment registration that was introduced by the Syrian government (resolution no. 71 dated 25.11.2001) in an attempt to encourage new business investment and these regions were more likely to benefit. The substantial increases in Alhasakah region and DerEzor will partly reflect the effect of rainfall shortage on the agricultural sector, but will also result from the strong increase in the labour supply that has arisen as a result of the 'catching up' phenomenon in female participation in these regions.

6.6 Summary

This analysis of economic change has revealed large variations in regional labour markets during the period 1994-2004. The growth of the Syrian economy was weak due to political, social and economic events in the Middle East. An increase the

numbers of economically active persons entering regional labour markets were not matched by adequate job growth, creating an imbalance between labour demand and supply. One possibility is that these trends encouraged more of the economically active to join informal economic activities, abandoning the economic sectors represented in official statistics.

The chapter's analysis of employment revealed an absolute increase across regions, with construction and public services typically accounting for the highest growth rate and agriculture and industry for the lowest. In general terms, the economy shifted towards the service sectors characterized by low rates of productivity. The employment of females rose faster than that of males: the absolute number of employed men grew, but the percentage of jobs that they held declined over the study period.

Employment rates vary strongly by age, peaking with the middle age group. The youngest group (aged 15-34) actually experienced a decline in their employment rate. The national shift of job growth towards women was particularly strong in certain regions such as Aleppo and the group of largely agricultural regions with medium size cities. The shift in these regions appears to derive from a 'catching-up' effect of female participation: in these regions the proportion of women who worked had traditionally been very low.

The national unemployment rate nearly doubled over the 1994-2004 period, despite an increase in the economic activity rate. Earlier high birth rates led to a strong increase in the size of the young component of the labour force and this was not matched by a growth in the number of jobs that they were able to obtain. The highest unemployment change rates were seen in more agricultural regions, along with the coastal Lattakia and Tartous. These regional contrasts will be examined in much more detail in the next chapter, which will use the LMA/cs to disentangle the separate processes on the supply and demand sides of the labour market, and compare their varying outcomes (such as out-migration and unemployment).

Chapter 7

How did the Syrian regional labour markets respond to demographic and economic changes?

7.1 Introduction

Earlier chapters dealt with the national and regional demographic and economic changes that took place over the period of interest, and placed a strong emphasis upon the working-age population. This established the basis for an understanding of regional variations in the labour market in terms of supply and demand as separate issues. This chapter draws together information provided earlier on the various components of regional labour market accounts in an attempt to answer this study's central concern of how Syrian regions coped with economic and population changes.

Previous studies (Ovensen and Sletten, 2007; Aita, 2010) have attempted to analyse how demographic push factors have impacted upon high unemployment rates in Syria and inputted into Syrian policy-making decisions. However those studies were limited to the national level and neglected the role of net migration in changing labour supply. Equally importantly, there is no existing study which applies a comprehensive framework to the adjustment of the labour market during the period 1994-2004. The key contribution of this thesis (particularly this chapter) is in providing an understanding of how regional population change has interacted with different patterns and levels of economic growth. It considers how Syria's regions have responded to different development opportunities that have shaped economic activity levels, and seeks to measure this labour supply and demand interactions at the regional scale by calculating Labour Market Accounts (LMA/cs).

All the data used in the LMA/cs compiled in this chapter has been presented in one or more of the previous chapters. This does not mean that the same values can be seen in earlier tables or figures. The principal reason is that statistics such as natural change in the LMA/cs have been modified by taking into account the 2004 economic activity rate of each specific age/sex group in that region. The impact of this process is most evident when comparing some values for the two sexes, due to the much lower participation rates of women.

This chapter includes five more sections. In the initial section, the labour market accounts procedure is fully specified together with the methodologies employed for estimating its components and for assembling data from the various sources available. In the next section the extent of national labour market change is investigated for the period 1994-2004, as revealed by the results of the labour market accounts analysis. In the third substantive section variations related to urban size effects on the labour supply and demand in the 13 regions of Syria are considered. The following section maps the key components of regional economic, demographic and labour market changes, identifying regional difference in responding to labour market change. After these preliminaries, section 7.6 collates all these perspectives in presenting the LMA/cs for each region. A brief concluding section considers the relative importance for different regions of specific labour market dynamics during this period of rapid demographic and slow economic change.

7.2 Labour market accounts methodology

The method of labour market accounts measures the individual effect of specific demographic and economic changes on regional labour markets, identifying several distinct labour demand and supply components. Using this technique, the influence of changing levels of economic activity, employment and net out-migration on the level of unemployment in a region is evaluated. The method highlights the extent to which employment creation in a region failed or succeeded in matching the increase in labour supply. This approach can provide a deeper understanding of labour market mechanisms, taking into account the role of these specific factors in producing these results in each region (Owen *et al.*, 1984; Owen and Green, 1991; Sissons, 2009; Bill et al., 2006; Rowe, 2013).

As outlined in the methodology chapter (section 3.2), the analysis is based on separate components which represent individual elements of change to the demand

and supply sides of the labour markets. The demand side measures change in the number of jobs between 1994 and 2004. The supply side is more complex, involving natural change in the working age population, plus change in the rate of participation in the labour market. The analysis framework also includes potential outcomes including increased unemployment and net out-migration. Some applications in the UK, unlike that by Owen *et al.*, (1984), also have a component reflecting change to net out-commuting. However commuting datasets are unavailable for Syria, so this study has to make the assumption that the change in net commuting flows was zero over the period of interest. Another simplification derives from the fact that there is no Syrian dataset on the amount of time people are working: as a result, it is impossible to calculate "full time equivalent jobs" and thereby under-employment: one employed person is assumed to be equivalent to one job. Taken together, the issues of data availability mean that in the case of Syria it is impossible to replicate exactly any other application of LMA/cs.

LMA/cs focus on the measurement of job shortfall created when growth in job numbers (labour demand) is less than growth in labour supply. Unlike some later applications (Beatty and Fothergill, 1996; Beatty *et al.*, 1997; Turok and Edge, 1999 and Bill *et al.*, 2006), Owen *et al.*, (1984) include the participation change effect in calculating the change in labour supply. In cases where participation change can be one important response to job shortfall through the growth in numbers of discouraged workers, which is certainly one possible consequence in the case of Syria, then it is more interesting to show job shortfall as purely the difference between growth in jobs and growth in the potential labour force and to consider as a separate component any change in participation rate. As a result, it is necessary to calculate labour supply change based on a 'roll forward' of the working population so as to highlight the potential labour supply that would have existed in the absence of any migration, while also assuming that there was no change to sex and age-specific participation rates. Thus, the key summary measure termed job shortfall is defined as:

(Equation 7.1)

$$J_{t1 \rightarrow t2} = N\Delta_{t1 \rightarrow t2} - E\Delta_{t1 \rightarrow t2}$$

Where:

J = job shortfall for those of working age $N\Delta =$ natural change of working age population who are economically active $E\Delta =$ change in the number of working age people who have a job t1 = 1994, t2: 2004

LMA/cs need to compile the components of the job shortfall measure by estimating the supply side change measure. The first component is the basic demographic effect of the ageing of the population, and the second is an estimate of those dying. The 10 year cohort who in 1994 were up to ten years too young to be in the working age group will effectively replace the oldest ten year cohort in 1994, who are assumed to have passed into retirement by 2004. This ageing effect is calculated by first comparing [1] the number who would be economically active if this 'rolled forward' population were participating at the same rate as people in the same sex and age group in 2004, *versus* [2] the actual number of the 1994 working age group to which the participation rates of people in the same sex/gender and age group in 2004 were similarly applied. Therefore, the natural change component is defined as follows:

(Equation 7.2)

$$N\Delta_{t1 \rightarrow t2} = \left(R_{t(1)2}^{\wedge} \times P_{t2}\right) - \left(T_{t1} \times P_{t2}\right)$$

Where: *R*= rolled forward population of working age who would survive ten years later *P*= economic participation rate *T*= population of working age

After establishing job shortfall as the difference between employment change and the basic demographic natural change (due to ageing and deaths), LMA/cs seeks to measure how this shortfall has been distributed between the alternative components of participation change, unemployment change and net out-migration.

Change in economic participation is calculated by comparing [1] the number who would be economically active if the 'rolled forward' population were participating at the same rate as people in the same sex and age group in 1994, *versus* [2] the potential labour supply measure used to calculate the natural change measure (i.e. the same rolled forward population, but with participation rates of 2004). This change is calculated in such a way as to make it positive if participation declined, so that it can then be grouped with unemployment change as one possible response to job shortfall:

(Equation 7.3)

$$P\Delta_{t(1)2} = (R_{t(1)2} \times P_{t1}) - (R_{t(1)2} \times P_{t2})$$

Where: $P\Delta$ = Declining participation between 1994 and 2004

Unemployment change is calculated from the difference in unemployment between 1994 and 2004:

(Equation 7.4)

$$U\Delta = U_{t2} - U_{t1}$$

Where:

 $U\Delta$ = Unemployment increase between 1994 and 2004

The other component is net out-migration. For the national scale LMA/cs, this clearly only includes flows that are international, but on the regional scale it will combine the effect of both international and inter-regional flows. The component is estimated as the difference between the 'rolled forward' population and the actual working age population in 2004 (with the 2004 participation rate applied to both). This value is configured so the values are positive with a net outflow (another possible response to job shortfall). The net out-migration component of the LMA/cs can therefore be defined as follows:

(Equation 7.5)

$$M_{t(1)2} = (R_{t(1)2} \times P_{t2}) - (T_{t2} \times P_{t2})$$

Where: *M* = estimated net out-migration (international and/or internal flows)

At the end of this process, the job shortfall measure should ideally equal the three components (unemployment increase, declining participation and net outmigration), which are assumed to be the three possible responses to job shortfall. Due to the estimation procedures required in calculating the LMA/cs, it can be expected that there will be errors which prevent these three component values exactly equalling the job shortfall estimate:

(Equation 7.6)

$$e = J_{t2} - (U\Delta_{tt1} \rightarrow t2 + M\Delta_{t(1)2} + P\Delta_{t(1)2})$$

Where: *e*= error

Once these measures are put together, it should be possible to obtain information about how supply and demand mechanisms function in national and regional labour markets, and how levels of job shortfall may stimulate different geographical mobility patterns and other labour market behaviours such as changed levels of participation. Job shortfall (surplus) can be seen as a core element of the LMA/cs and measures the extent to which changes in supply are matched by demand between 1994-2004. The construction of job shortfall in this research follows the methodologies adopted by Owen *et al.*, 1984; Owen and Green, 1991; Turok and Edge, 1999; Session, 2009 and Beatty and Fothergill 2006 to measure how far national and regional economic distress is absorbed by other labour market adjustments. It thus allows the identification of regions experiencing high unemployment rates due to employment decline and those in which it is response to rapid change in number of economically active people seeking job.

7.3 National labour market accounts

This section seeks to measure the national labour market adjustment, that occurred over the period 1994-2004. It uses 1994 and 2004 census regional data to calculate the components of LMA/cs separately for each five year age/sex cohort so as to allow any distinct features of these categories to be identified. The resulting regional values for each component are then summed to give the aggregate national figures. The procedure involved in the estimation is as explained above (section 7.2).

Figure 7.1 sets out the basic picture of Syrian labour market change 1994-2004. It presents the basic results of national LMA/cs, showing as percentages of economically active population the extent of job shortfall created by the difference between natural change and employment change. Figure 7.1 shows the other LMA/cs components measuring potential responses to job shortfalls, together with the error level resulting from estimation process here. The key finding to emerge from Figure 7.1 is that women displayed higher values for many components in comparison to the male equivalent values. This is primarily because in 1994 they had low levels of participation, and hence low values on all absolute values such as the number employed. This means that, for example, if the number of unemployed women increased by the same number as the increase in unemployed men over the decade, then the percentage increase for women was much higher because their original number was much lower. The difference between men and women in natural change rates may initially appear surprising, but it is attributable to the focus on the active working age in 1994.



Figure 7.1: % Components of national labour market accounts by sex 1994-2004 All components represent % of the 1994 Economically Active Population, except for job shortfalls and error which are expressed as a percentage of 2004 EAP (the concern of the LMA/cs). Source: Own research.

It is clear that natural growth in the economically active population was not fully absorbed by adequate employment growth, leaving an overall job shortfall of 11%. Men were more affected by the job shortfall than women. It is important to note that women experienced faster natural growth accompanied by substantial employment growth, but that these changes were countered by a strongly growing participation rate (represented by the negative value on the declining participation measure). Women also displayed higher levels of unemployment increase and net outmigration. The LMA/cs methodology assumes that the job shortfall measure will equal the sum of the three possible labour market responses of unemployment increase, declining participation and net out-migration; an error measure then shows how far this equality has not in fact been achieved as a result of data limitations and the various estimation procedures which are required.

In the case of Syria, in this period when job growth was slowing but labour supply was still increasing strongly, declining participation is potentially the most dynamic response to job shortfall. If the natural increase in population creates a job shortfall but this is not balanced by declining labour force participation, then these effects can be shown by calculating the 'supply imbalance' which results. In this calculation, which is a new addition to LMA/cs data presentation, the measure of job shortfall is adjusted by the decline in participation of the economically active population:

(Equation 7.7)

$$S_{t2} = J_{t2} - P\Delta_{t(1)2}$$

Where: *S* = Supply imbalance

Table 7.1 reports the absolute results of the contributory factors in the national job shortfall and includes a breakdown by age group. The general picture that emerges is of a growth of employment of over one million during the 10 year period, with the number of jobs held by men growing more substantially (0.85 million) than those held by women (0.22 million). Despite this, the growth of employment was less than

the natural increase of working age population (1.6 million). All age groups, with the exception of 60-64 year old men, experienced demographic growth. It will be noticed that the values for employment change presented in chapter 6 do not quite match those in the main LMA/cs (Table 7.1). This is partly because some jobs could not be put into the classifications used for tables in chapter 6, but also partly due to a grossing up process used for the 1994 economically active data on employment hence some difference can be expected.

1	Nat	ural $ riangle$	Emp	loyment $ riangle$
Age	Male	Female	Male	Female
15 - 19	119093	28244	24126	22851
20 - 24	294512	58796	136302	33740
25 - 29	246692	46405	120982	25434
30 - 34	177663	34518	121576	26894
15 - 34	837960	167963	402986	108919
35 - 39	170702	34569	148845	38977
40 - 44	131298	26078	128828	36318
45 - 49	103028	15593	99974	22048
50 - 54	67725	6945	68055	11232
35 - 54	472753	83185	445702	108575
55 - 59	33282	2942	27275	3394
60 - 64	-1947	520	-22315	-405
55 - 64	31335	3462	4960	2989
SUM	1342048	254611	853648	220483

Table 7.1: Components of national labour market accounts by age and sex

Source: Own research.

Figures 7.2 initially shows the age profile of the male side of the LMA/cs, in which demographic pressure leads to strong natural growth in labour supply. The most dramatic increase was for those aged between 20-24 years of age. As mentioned earlier (chapter 4), this was mainly due to past high birth rates, while the slower growth amongst those aged between 15-19 years of age was a reflection of the slowing of the natural growth rate of the population.

The growth of employment over the 10 year period presents a more uniform shape, with a very slow increase for those aged 15-19 years of age, and declining increases for those nearing retirement age. The data on women reveal a strong increase in the 35-44-year olds in the labour supply. The notable pattern here is that female employment showed even faster growth than the natural change. Women experienced this substantial employment growth having historically had low levels of economic activity in the Syrian labour market. This low initial level of economic activity does, of course, mean that very high percentage change rates can then result from relatively modest absolute increases in the numbers of new jobs gained. There was an overall job shortfall produced by scale of natural change among women surpassing their employment growth, but there was actually a negative job shortfall (job surplus) for most of the older female age groups because their natural increase was more than met by their success in benefiting from employment growth.



Figure 7.2: % components of national labour market accounts by age and sex 1994-2004 Natural and employment changes represent percentages of the 1994 EAP. Source: Own research.

Table 7.2 shows that the combination of natural and employment changes resulted in a job shortfall of over 0.5 million jobs, with men far more severely hit. It is also noticeable that younger groups were especially subject to job shortfalls, while women aged 35-59 experienced job surpluses (i.e. negative shortfalls). The most significant adjustment to job shortfall among men was withdrawal from the labour force through falling participation (represented as positive values on the declining participation measure), with over 230,000 economically active men becoming inactive. At the same time, participation for women increased rapidly, with this trend being responsible for an increase of over 165,000 in the number of women in the labour force during the period 1994-2004. Table 7.2 shows the supply imbalance measure which results from combining the job shortfall and declining participation measures. It can be seen that both men and women faced a labour market with far more people looking for work than would be able to find jobs; this highlights the fundamental crisis in the Syrian labour market during this period.

Age	Job shor	Job shortfall		Declining participation		Supply imbalance	
1150	Male	Female	Male	Female	Male	Female	
15 - 19	94967	5393	63275	-23543	31693	28936	
20 - 24	158210	25056	28106	-38504	130103	63559	
25 - 29	125710	20971	16818	-22100	108892	43071	
30 - 34	56087	7624	17783	-16109	38304	23732	
15 - 34	434974	59044	125982	-100256	308992	159298	
35 - 39	21857	-4408	13359	-22658	8497	18250	
40 - 44	2470	-10240	13639	-22381	-11169	12141	
45 - 49	3054	-6455	15248	-12810	-12194	6356	
50 - 54	-330	-4287	18947	-6473	-19277	2186	
35 - 54	27051	-25389	61193	-64322	-34143	38933	
55 - 59	6007	-452	18027	-1732	-12020	1280	
60 - 64	20368	925	27664	378	-7297	547	
55 - 64	26375	473	45691	-1354	-19317	1827	
SUM	488400	34128	232867	-165932	255532	200060	

Table 7.2: Components of national labour market accounts by age and sex

Source: Own research.

Figure 7.3 expresses the absolute values for men from table 7.2 as percentages and thus reveals that job shortfall was extremely serious for males up to 30 years old. At the same time, there was very little problem for those 35 or over (with the high value for those aged 60-64 being due to the small size of the denominator). In a country like Syria with a rapidly increasing labour supply during difficult economic times, it is likely that declining participation will appear as a major response to job shortfall. Figure 7.3 shows that this occurred for all age groups of men, and that this effect was particularly pronounced among older age groups (with reduced participation by the youngest age groups partly reflecting an increase in post-compulsory education). As a result, the overall level of supply imbalance decreased for younger men and actually turned negative for men aged 40-64.



Figure 7.3: % components of national labour market accounts by age (Male) 1994-2004

Job shortfall and supply imbalance represent percentages of 2004 Economically Active Population (the concern of the LMA/cs), while participation change is expressed as a percentage of 1994 EAP. Age group as 2004. Source: Own research.

Figure 7.4 shows very different results for women, for whom participation had increased (negative values on this measure of declining participation). Women in the middle age groups were unusual in experiencing substantial job surpluses rather than shortfalls but, like younger women, they also showed a marked increase in participation (i.e. negative values on this measure of declining participation). The consequence is that all age groups of women experienced the labour market effects of supply imbalance but, as was the case for men, the younger age groups were the most severely affected.



Figure 7.4: % components of national labour market accounts by age (Female) 1994-2004

Job shortfall and supply imbalance represent percentages of 2004 Economically Active Population (the concern of the LMA/cs), while participation change is expressed as a percentage of 1994 EAP. Age group as 2004.

Source: Own research.

This analysis of Syria during the period 1994-2004 has demonstrated the insights into labour market dynamics which the innovative measure of supply imbalance can reveal in the interaction job shortfall and declining participation. The differences between age groups, and men and women, is starkly revealed. In comparing the data presentation, it is important to note that Table 7.2 shows absolute value, whereas Figures 7.3 and 7.4 express these values as percentages of the economically active population (in 2004). The former emphasises that in absolute terms the burden of supply imbalance is mostly borne by young men. The latter takes account of the lower levels of economic activity among women and reveals that, on this proportionate basis, supply imbalance was a more acute problem for women, and was more widely felt across the age range. It is now necessary to focus on the remaining components of LMA/cs, showing the other possible responses to labour market problems, unemployment and net-out migration.

In highlighting the other forms of adjustment to job shortfall, Table 7.3 reports that almost 250,000 men were 'absorbed' by increasing unemployment and about 70,000 by net out-migration. At the same time, the number of unemployed women grew by 116,000 while net out-migration accounted for nearly 26,000. The response of outmigration as negative values for some age groups indicates a net inflow of migrants (nb. The net inflows of the youngest age group are likely to be the children of return migrants). The large numbers of net out-migrants aged 20-34 year old reflects the tendency of young adults to be mobile in looking for better job opportunities. The middle age group of 35-54 years old showed the net in-migration, attributable to returning migrants. It is clear that these international migration effects were much stronger for men than women.

4	Unemployn	Unemployment increase		nigration
Age	Male	Female	Male	Female
15 - 19	57825	22878	-9928	-640
20 - 24	92566	42225	49305	7489
25 - 29	51770	23417	63764	12106
30 - 34	26812	13150	17195	5455
15 - 34	228973	101670	120335	24410
35 - 39	15908	8186	-2377	1541
40 - 44	6754	3436	-13263	192
45 - 49	2655	1365	-9373	137
50 - 54	300	930	-13237	-654
35 - 54	25617	13917	-38250	1215
55 - 59	-1271	339	-6064	230
60 - 64	-3355	297	-5555	85
55 - 64	-4626	636	-11619	315
SUM	249964	116223	70466	25940

Table 7.3: Responses to job shortfall in the national labour market by age and sex 1994-2004

Source: Own research.

The percentage response to job shortfall by men (Figure 7.5) mostly takes the form of increasing unemployment. The labour supply excess was also absorbed through increasing net out-migration, mostly among the youngest age group, while returning migrants can be seen in the negative out-migration values for men aged over 40. Women in all age groups under 40 displayed strong percentage increases in unemployment, largely because the initial numbers of unemployed women were low.



Figure 7.5: % responses to job shortfall in the national labour market by age and sex as 1994 EAP Source: Own research.

Table 7.4 shows variation between sex and age groups in the size of the LMA/cs error
value. The error is only very large for a few of the women's age groups when this value is presented as the percentage of the economically active population in 2004. Part of the reason for this is that these are age groups with relatively low female participation and so rather small numbers were economically active, which means that an error of a fairly moderate absolute size will be a high proportion of the small total population 'at risk' in this calculation.

As mentioned earlier in this chapter (section 7.2), it is inevitable that some measurement error is associated with performing the estimation processes needed to complete the components of national and regional labour market accounts. This includes the calculation of survivorship rates (eg. applying the same national rates to all regions) which are then used as the basis of the rolled forward working age population and subsequently applied to calculate the net out-migration component. A more general source of potential error is the census data source, and in particular the fact that the 1994 information relied on a 10% survey.

Age in					Difference		% error as		% error as	
	Job shortfall		$\Sigma U_{\Delta}, M, P_{\Delta}$		(error)		2004 EAP		2004 WAP	
	Μ	F	М	F	М	F	Μ	F	Μ	F
15 - 19	94967	5393	111172	-1305	-16205	6698	-3.3	5.8	-1.5	0.7
20 - 24	158210	25056	169977	11211	-11768	13845	-1.7	8.6	-1.3	1.5
25 - 29	125710	20971	132351	13423	-6642	7548	-1.0	5.7	-0.9	1.1
30 - 34	56087	7624	61790	2497	-5703	5127	-1.0	4.9	-1.0	0.9
15 - 34	434974	59044	475290	25825	-40317	33219	-1.7	6.5	-1.2	1.1
35 - 39	21857	-4408	26890	-12931	-5033	8523	-1.1	9.5	-1.0	1.8
40 - 44	2470	-10240	7131	-18754	-4660	8514	-1.2	12.6	-1.1	2.1
45 - 49	3054	-6455	8531	-11309	-5477	4854	-1.9	11.9	-1.7	1.6
50 - 54	-330	-4287	6010	-6197	-6340	1910	-2.9	8.0	-2.4	0.8
35 - 54	27051	-25389	48561	-49191	-21510	23801	-1.6	10.7	-1.4	1.7
55 - 59	6007	-452	10692	-1163	-4685	711	-3.5	6.6	-2.6	0.4
60 - 64	20368	925	18754	760	1614	165	2.2	3.3	1.1	0.1
55 - 64	26375	473	29446	-403	-3071	876	-1.5	5.5	-0.9	0.3
Total	488400	34128	553297	-23768	-64898	57896	-1.6	7.6	-1.3	1.2

Table 7.4: Percentage error of the LMA/cs by age and sex as EAP 2004 and WAP 2004

Source: Own research.

The sheer scale of demographic and participation changes in different sex/age groups means that the inevitable errors in the estimation processes are magnified. The method works adequately in countries like the UK where trends are slow and datasets

robust; however problems arise when the technique is applied to a country like Syria where the data is of variable quality and the trends very volatile. The more severe errors among the female groups clearly demonstrates that they are more sensitive to this error potential which is not surprising given their rapid change economic participation especially. Although the analysis may not provide a totally accurate measure of labour market change, it can still be insightful and the observed error may itself highlight relevant issues related to specific age/sex groups.

7.4 Urban size effects on regional labour markets

Having established the broad national picture, this chapter now moves to the regional scale which forms the basis for the analysis of individual regional labour market accounts that will be presented later stage. The great regional variation of urbanization levels, as reflected in this study's classification of regions based on their urban level will be used here to examine variations of job shortfall and the responses to it by men and women. This section initially looks at variations in the job shortfall and supply imbalance measures, broken down into specific age groups. It then analyses the response level of the economically active to the observed changing employment prospects, with specific reference to entries to and exits from the labour market (by unemployment or migration).

Figure 7.6 shows that the levels of age-specific job shortfalls displayed similar trends across region groups; it peaked among the youngest groups, and declined sharply for those aged 35-54, with a sharp increase for those aged 55 years and over (this basically resulted from calculating ratios based on very low initial values). This late age group effect is more than cancelled out by withdrawal from the labour market. Declining participation is taken into account by the supply imbalance measure. This innovative measure shows a smooth decline in the severity of the problem from the youngest to the oldest age groups, indicating the effect of the demographic push factor in this variation. The highest job shortfall rates were mostly experienced by the other large and the medium size cities, with the age groups 20-24 and 55-64 years old exhibiting noticeably higher rates than the national equivalent values. These city

groups showed higher supply imbalance rates for both the 25-34 and 35-44 age groups. In contrast, the young in the Damascus and Aleppo regions have lower job shortfall and supply imbalance rates (and even small job surplus rates for those aged 35-54). Although the two largest cities show some degree of difference from the national average, there is not a strong urbanisation based pattern because the other large cities show the opposite deviation from the average. These broad patterns suggest that the basic problem of the Syrian regional labour market over this decade was that that the younger age groups were worst hit by job shortfall; compared to this age-specific variation the contrast resulting from the scale of urbanisation is relatively slight.



Figure 7.6: % job shortfall of regional labour market by urban size groups and age (Total). % of 2004 EAP Source: Own research.

Figure 7.7 shows that male job shortfalls differed only slightly from the total picture. Perhaps the single most notable difference is that the job shortfalls for younger men were even higher in medium size cities than in the other large cities (which had similarly high rates when the data for men and women were combined, as in Figure 7.6).



Figure 7.7: % job shortfall of regional labour market by urban size groups and age (Male). % of 2004 EAP

Source: Own research.

In contrast, Figure 7.8 reveals strong regional variations in the rates of job shortfalls for women (or job surpluses, where there are negative values). Whereas for men, the supply imbalance measure demonstrates that declining participation rates tend to reduce the job shortfall values, for women the opposite effect is clearly evidenced (Figure 7.8). The fact that many women across all age groups entered the labour market for the first time led to their job shortfall rates escalating into high rates of supply imbalance. Apart from those aged between 25-34 years-old, women in Aleppo experienced job surpluses (i.e. negative rates of job shortfall). In contrast, Damascusbased women aged up to 34 years old experienced high job shortfalls. Upon returning to the supply imbalance measure, it is noticeable that the two largest cities did have similar rates for the younger age groups. Once again the values of the other large and medium size cities are at the opposite end of the value range to that of the two largest cities, so there is no clear effect of urban size on the regional values.



Figure 7.8: % job shortfall of regional labour market by urban size groups and age (Female). % of 2004 EAP Source: Own research.

Table 7.5 summarises the demographic and economic components of job shortfalls in the five urban size region groups. It is noticeable that in these absolute values of change over the period, the scale of change does not vary consistently across the four different measures. For example, other large cities saw the highest natural increase in the economically active but one of the lowest increases in the number of employed women.

Urban group	Natu	ral \triangle	Employment $ riangle$		
	Male	Female	Male	Female	
Damascus	239871	43380	173430	39032	
Aleppo	331568	39965	253271	47052	
Other large cities	292267	76358	148781	37754	
Medium size cities	234429	49680	107399	60781	
Small cities	243913	45228	170767	35864	
Syria	1342048	254611	853648	220483	

Table 7.5: Components of job shortfall by sex

Source: Own research.

Analysis of the percentage change reveals important regional variations (Table 7.6). The medium size cities (i.e. Raqaa, DerEzor and Alhasakah), and the Aleppo region to a lesser extent, experienced rapid female employment growth; they also had the highest rates of natural change in the number of economically active women. These regional values are largely the result of high levels of increasing economic participation due to the 'catching up' process discussed in Chapter 6.

Urban group	Nati	ural \triangle	Employment $ riangle$		
	Male	Female	Male	Female	
Damascus	37.0	48.2	26.7	43.4	
Aleppo	51.5	72.2	39.3	85.1	
Other large cities	44.0	52.5	22.4	26.0	
Medium size cities	54.6	113.1	25.0	138.4	
Small cities	49.8	56.6	34.9	44.9	
Syria	46.7	61.4	29.7	53.2	

Table 7.6: Components of job shortfall by sex (percentage)

Percentages as 1994 EAP.

Source: Own research.

The net effect of high natural change and slower growth of employment is job shortfall. All the regional groups experienced job shortfalls. Table 7.7 shows this for both men and women, with the exceptions of Aleppo and the medium size cities (where women experienced job surpluses because employment growth was more than sufficient to absorb the natural increase in economically active women in the labour market). This is a remarkable outcome, because it was the same regions which had seen the fastest natural change to the female labour supply (Table 7.6)

Declining participation is a major potential response to job shortfall. Table 7.7 shows in absolute figures the effect of this LMA/cs component in reducing the job shortfall values, thereby producing the innovative supply imbalance measure. The job shortfalls for men in all regional groups were too large to be fully cancelled out by declines in participation (positive figures). Damascus saw the most substantial proportional lowering of its labour market imbalance as a result of declining participation. In contrast, the response of male declining participation in the other large cities was low in comparison to the size of job shortfalls. Hence the supply imbalance values for men were lowest in Damascus and highest in the other large cities. Economic participation change for women was characterised by the increases that are represented by the negative values of declining participation values for all region groups. The most notable female labour supply growth was observed in the agricultural region of the medium size cities, where the scale of increasing participation by women hugely outweighed the benefit of their negative job surplus (Table 7.7). In other words, the increase in the numbers of employed women was less than their labour supply growth but, unlike some regions, the supply growth was less conditioned by natural change and more impacted by increases within participation.

Urban group	Job shortfall		De part	eclining icipation	Supply imbalance	
	Male Female		Male	Female	Male	Female
Damascus	66441	4348	48595	-16673	17846	21021
Aleppo	78297	-7087	29836	-30760	48461	23673
Other large cities	143486	38604	48327	-31443	95159	70047
Medium size cities	127030	-11101	69992	-62147	57038	51046
Small cities	73146	9364	36118	-24909	37028	34273
Syria	488400	34128	232867	-165932	255532	200060

Table 7.7: Responses to job shortfall of regional labour market accounts by sex

Source: Own research.

Table 7.8 highlights the key point, which is that the most notable variations in regional responses to job shortfall involve the more agricultural regions (i.e. medium size cities). These displayed evidence of 'catching up' in the level of involvement of women in the labour market: in these instances, male job shortfalls were higher and female shortfalls lower (in percentage terms) than the other regional groups. They also saw the highest rate of declining participation by men and by far the fastest increase in women becoming economically active in the labour market. However, it should be noted that these regions had very low female participation levels leading up to the 1994 (due to their largely rural populations having very traditional cultural norms). In all these regional groups, men showed lower supply imbalance rates than women.

Urban group	Job sh	ortfall	Dee parti	Declining participation		Supply imbalance	
	Male	Female	Male	Female	Male	Female	
Damascus	7.9	3.1	7.5	-18.5	2.1	14.9	
Aleppo	8.4	-6.3	4.6	-55.6	5.2	21.0	
Other large cities	16.2	16.8	7.3	-21.6	10.8	30.4	
Medium size cities	20.8	-8.6	16.3	-141.5	9.3	39.4	
Small cities	10.4	6.8	7.4	-31.2	5.3	24.9	
Syria	12.3	4.5	8.1	-40.0	6.4	26.6	

Table 7.8: Responses to job shortfall of regional labour market accounts by sex (%)

% of 2004 EAP except for declining participation, in1994 EAP. Source: Own research.

The other potential responses of job shortfall are increased unemployment and net out-migration (shown in Table 7.9. Supply imbalance for men and women was substantially absorbed by increasing unemployment. The net out-migration flows varied much more across the regional groups, and involved a relatively high number of both men and women from the other large cities, especially in comparison to the medium size cities where the scale of supply imbalance was similarly high.

Table 7.9 presents the error values resulting from the estimation procedure in the LMA/cs, showing a consistent pattern across the regional groups, in which the values are negative for men and positive for women. A possible interpretation of this is that much of the error may be rooted in the estimation of the declining participation change component of the LMA/cs, because those values too frequently showed negative values for one sex and positive values for the other.

Urban group	Unem	ployment crease	Net out-migration		Error	
	Male Female		Male	Female	Male	Female
Damascus	19826	11630	9365	3648	-11345	5744
Aleppo	39909	10570	16610	2444	-8058	10659
Other large cities	71794	47243	35468	12292	-12102	10512
Medium size						
cities	75177	24724	6956	3256	-25095	23066
Small cities	43258	22056	2067	4301	-8296	7916
Syria	249964	116223	70466	25940	-64898	57896

Table 7.9: Response components of regional labour market accounts by sex

Source: Own research.

The percentage version of the LMA/cs response components is presented in Table 7.10. All the values for women are subject to much higher rates than men, simply because of their substantially lower economically active populations at the start of the 10 year period. Table 7.10 confirms several points made in the preceding discussions, perhaps most importantly showing that key agricultural regions (those with medium size cities) have experienced the steepest unemployment increases (for both men and women). In contrast, the lowest rates of unemployment growth were seen in Damascus. However, it should be noted that this is not a simply an urbanisation effect, otherwise the small cities would not have rather average trends. At most, this is the combined effect of sectoral and cultural contrasts, with the agricultural regions being characterised by traditional demographic trends but stalling job growth, whereas the more cosmopolitan Damascus population was characterised by low natural change and access to the capital's strong service sector. Table 7.10: Response components of regional labour market accounts by sex (%)

Urban group	Unemp incr	nemployment increase		Net out-migration		Error	
_	Male	Female	Male	Female	Male	Female	
Damascus	3.1	12.9	1.4	4.1	-1.3	4.1	
Aleppo	6.2	19.1	2.6	4.4	-0.9	9.4	
Other large cities	10.8	32.5	5.3	8.5	-1.4	4.6	
Medium size cities	17.5	56.3	1.6	7.4	-4.1	17.8	
Small cities	8.8	27.6	0.4	5.4	-1.2	5.7	
Syria	8.7	28.0	2.5	6.3	-1.6	7.7	

% of 1994 EAP, except of error as of 2004 EAP. Source: Own research.

The chapter will now proceed to map the components of regional labour market change; this is undertaken with a view to recognising the 13 individual regional labour market accounts (which will be detailed later in Section 7.6).

7.5 Mapping regional variations

In order to provide context for the analysis of regional labour market adjustments, it is first necessary to discuss each component individually and to map them as percentages of the economically active (separately by sex). The various components of natural increase (employment change, unemployment increase, declining participation and net-out migration) are represented as percentages of the 1994 economically active population, while job shortfall is calculated as a percentage of the 2004 economically active population. The maps show the location of the main city in each region, with a symbol that indicates the city size group to which it belongs. The regions which are most dominated by agriculture are the three in the north-east, where the Euphrates river runs through Syria. Much of the central area east of Homs is largely desert. In the light of the conclusion from section 7.4 that urbanisation levels are not the key influence on regional labour market trends, it is relevant to check whether there are broad spatial patterns deriving the regional differences.

Map 7.1 shows the relative strength of one of the key LMA/cs components, natural change in the labour supply, in each individual region. It highlights that, while all regions individually experienced natural growth in their economically active populations, women displayed faster growth rates than men (due to the fact that their levels of economic activity were initially low). The agricultural regions in the north, with medium size cities, show strong demographic growth rates for both males and females. The other region with high rates for both sexes was Daraa which is culturally similar to the agricultural regions despite being spatially remote from them. The more obvious non-spatial factor is the distinctiveness of Damascus, which most closely resembles the culturally diverse region of Lattakia in that they both have lower natural change rates than other regions.



Map 7.1: Natural change in economically active population by region and sex (1994-2004) Source: Own research.

Over the course of this chapter it has frequently been noted that growth in employment was more pronounced for females than males, and this regional pattern is clearly illustrated in Map 7.2. Regions with a strong emphasis upon agriculture produced substantial employment growth for females as part of the 'catching-up' process which has already been discussed in great detail. This process underlies the high rates of natural growth seen in Map 7.1 for these regions, with medium size cities together with Daraa which also experienced substantial increases in female employment. Qunitera was another region particularly strong growth in female employment (although there was no strong spatial pattern for male employment): caution is advisable when interpreting results for this region due to its very small population size and unique unsettled status as a result of it encompassing the Golan Heights.



Map 7.2: Employment change in economically active population by region and sex (1994-2004) Source: Own research.

The national pattern (which has already been discussed in section 7.3) was generally that men were more subject to job shortfall than women because their greater economic activity made them more vulnerable where job creation was insufficient to absorb the expansion of the labour force, (especially for the many young people seeking employment for the first time due to population growth). The increase in jobs held by women moderated their job shortfall levels and most regions reflected the national picture of a higher job shortfall for men than women, although Idleb was an exception in this respect (Map 7.3). The fact that there was no strong spatial pattern to male employment change (Map 7.2) resulted in a rather mixed pattering of the male job shortfall by region. In contrast, the female results reiterate the distinctiveness values of the north regions and east, because their distinctiveness was clear in both the contributory processes (Maps 7.1 and 7.2). Here the strength of the 'catching up' process for women drove their strong employment growth in Raqaa, DerEzor, Alhasakah and Aleppo so women there enjoyed substantial job surpluses. The most severe female job shortfalls were experienced in medium sized cities such as Hamaa. The regions of Damascus, Daraa and Sweida showed similar rates of job shortfall for both men and women.



Map 7.3: Job shortfall by region and sex (1994-2004) Source: Own research. The most notable form of labour market adjustment in Syria tends to be changes to within the labour force participation levels. Map 7.4 shows declining labour force participation in all regions for men, accompanied by a general increase in economic activity (that is, negative values on this measure) for women whose participation, it will be recalled, was previously at very low levels. In the more agricultural regions, particularly in Raqaa and DerEzor, the most rapid rates of increase for women were accompanied by rapid declines in male participation. Idleb was exceptional in actually seeing a decline in participation by women, a fact which appears as less of a surprise when it is recalled that it was the one region where job shortfall occurred at a higher rate for women than for men (Map 7.3).



Map 7.4: Declining participation by region and sex (1994-2004) Source: Own research.

Map 7.5 reveals the results derived from the calculations of the innovative measure of supply imbalance. These results show how changing participation rates have either moderated or highlighted levels of job shortfalls. The results for women, especially in more agricultural regions, show a transformation from the apparently beneficial high levels of job surplus to problematically high levels of supply imbalance (this is the consequence of the start of a 'catching up' in the participation rates of women). Sweida and Tartous were historically characterized by high female participation rates, but they experienced relatively high levels of growth in participation, producing high female supply imbalance levels. The effect of declining participation in moderating female supply imbalance levels can be seen in Idleb. In contrast to these strong regional variations for women, this measure did not vary significantly for men, where the broadly similar regional rates of job shortfall and declining participation produced a low level of variation in their levels of supply imbalance.



Map 7.5: Supply imbalance by regions and sex (1994-2004) Source: Own research.

As outlined earlier (section 7.3), an increase in unemployment is one major response to job shortfall and this affects more men than does any other form of labour market change. Increasing unemployment affected all regions during this period (Map 7.6). The more extreme regional rates of unemployment increase that women experienced were entirely due to their low initial levels of economic activity: in absolute numbers unemployment increases were roughly twice as high for men as for women. Agricultural regions were again among the regions that recorded the highest growth in female unemployment, and men in Alhasakah experienced increasing unemployment at a percentage rate similar to that seen for women in some regions. This was despite the much higher initial levels of male economic activity which meant that high percentage rates for men were far less likely.



Map 7.6: Unemployment change by region and sex (1994-2004) Source: Own research.

Migration (Map 7.7) was found to play a relatively small role in responses to regional labour market imbalance. Its potential relocation of excess labour supply across regions or abroad in pursuit of better employment opportunities depends on their being suitable job opportunities migrants could reach during the period of interest. Regions showed a complex gender variation in this response to job shortfall. Men experienced net out-flows in most regions, even in Damascus and other large cities where net international outmigration must have outweighed the urbanisation trend in internal migration flows. The net in-flow patterns in Raqaa and Daraa might be a response to the expansion of agricultural jobs offered in these regions, due to new irrigation schemes, while in Sweida the net in-flow could have been due to a distinct spike in numbers of returning international migrants. There were no regions with net inflows for women, and the distribution of their rates of net out-migration had no clear spatial pattern. One notable similarity in the regional results for men and women was the high net outflows for Hamaa, a region which had very high levels of job shortfall for both sexes (Map 7.3).



Map 7.7: Net out-migration by region and sex (1994-2004) Source: Own research.

7.6 Regional labour market accounts

This section brings together all the demographic and economic LMA/cs data about individual regions, and also highlights regional features which help explain how the LMA/cs components for each region differ from the national average.

7.6.1 Damascus Region

Damascus has only become Syria's largest city fairly recently. Urbanisation is therefore central to the process of demographic change in this region, with its rapidly growth rate a reflection of its importance as the national capital. This role fuelled the growth of public and private services, which are particularly important sources of regional economic change. At the same time the agriculture sector experienced relative decline. Informal private services also grew in response to both rural-urban migration and the fact that Damascus is the primary destination for refugees, including Iraqis. The natural increase of both young men and women was at much lower rates than the national equivalent rate (see Figure 7.9). This was mainly due to the region sustaining a fertility rate below the national rate. The dynamic of employment in Damascus was characterized by job growth which was mostly close to the national average, (although men and women aged 55-64 saw higher growth rates than their peers in other parts of Syria.



Figure 7.9: % natural and employment changes in the for labour market in Damascus region, by broad age group and sex % of 1994 EAP. Source: Own research.

Figure 7.10 shows that the combined effect of lower natural and higher employment change produced lower job shortfalls in the Damascus region in comparison to the national level. The principal beneficiaries were young and old men, who displayed lower shortfall rates than average, but women in the old age group also benefitted from above average job surpluses. Declining participation among men, which appeared as a response to labour market pressures, was at a similar level to the national rate. Those within the older age group again appeared as an exception, with their participation rate declining less rapidly than the national equivalent. Women's participation increased, but because their participation rate was already high this was at a less rapid rate than seen nationally (except for the older age group).

The outcome in terms of supply imbalance was very different to the national level for the younger age group, whose lower supply imbalance rates indicate less severe labour market conditions (for both sexes) tend to prevail in the capital in comparison to the rest of Syria.



Figure 7.10: % job shortfall and participation change in the labour market in Damascus region, by broad age group and sex % of 2004 EAP, except for declining participation rate of 1994 EAP.

Source: Own research.

Figure 7.11 shows estimated labour market responses in the Damascus region for men and women. Relatively beneficial labour market conditions have kept unemployment increases and net out-migration rates (apart from older age groups) below the national rates. However, there were still increases in unemployment for all age and sex groups (except for men aged 55-64, whose experience was similar nationally).

The error margins in these calculations are lower than the national rates, with the margins for young women showing a much lower error rate. The latter observation is of more general interest, because this group had shown a very low level of participation change and this reinforces the association between error levels in these calculations and the difficulty of calculating this component in instances where the change in participation was especially strong.



Figure 7.11: % components of labour market accounts in Damascus region, by broad age group and sex

% of 1994 EAP, except for error rate which is of 2004 EAP. Source: Own research.

7.6.2 Aleppo

Aleppo is the second largest urban region in Syria and it has one of the higher natural growth rates (Figure 7.12). Although Aleppo is the industrial heart of Syria, the region also includes a large rural population and the agricultural sector here is an important segment of the economy. This rural dimension explains why the fertility rate was

higher than the national average, although cultural and religious reasons (such as the fact that most of its population are Sunni Muslims, a group who generally favour a large family size) should also be acknowledged (refer back to Map 3.2).

The region performed better than the national average in terms of job creation, with women's employment displaying substantial increases over the period (Figure 7.12). This may be due to a 'catching up' effect because the proportion of all jobs held by women up to 1994, had much lower than in Damascus and many other regions.



Figure 7.12: % natural and employment changes in the labour market in Aleppo region, by broad age group and sex

% of 1994 EAP. Source: Own research.

Job shortfalls (Figure 7.13) were experienced by younger and older men, but the strong job growth in the region meant that the problem in Aleppo was less severe than nationally. Women also saw the benefit of growing employment so that job surpluses, particularly for older and younger women, were higher than the national average. The main corollary of these job surpluses was a substantial increase in participation rates for women, which increased from a previously very low level. Male participation declined at a slightly lower rate than the national average. The net effect of faster job growth but above average participation change was that the levels of supply imbalance were similar to the national equivalent rates for men, and slightly lower for women (with the exception of those aged 55-64).



Figure 7.13: % components of the labour market in Aleppo region by broad age and sex

Job creation in the region ensured that the increase in both female and male unemployment remained lower than national equivalent rates (Figure 7.14). Both sexes displayed broadly similar net out-migration rates to the national average, except for older women who experienced well above average net out-migration rate. Errors in these calculations for Aleppo were close to the national equivalent rates (Figure 7.14).



Figure 7.14: % responses of the labour market in Aleppo region by broad age and sex

% rates of 1994 EAP, except for error which is of 2004 EAP. Source: Own research.

[%] of 2004 EAP, except for declining participation rate which is of 1994 EAP. Source: Own research.

7.6.3 Homs

Homs is the third largest city in Syria and also a major industrial region. This region is characterized by religious diversity, with a mixture of the majority Muslim and minorities like Alawites and Christians. This may have contributed to a more rapidly declining fertility rate which has led to natural growth in the economically active population being slightly below the national average (Figure 7.15). Young women saw below average employment growth, but this was partly due to the proportion of jobs held by women having been relatively high at the start of the period. Employment growth for men very closely resembled the national rate.



Figure 7.15: % natural and employment changes in the labour market in Homs region, by broad age group and sex Source: Own research.

The overall job shortfalls in this region were similar to the national levels (Figure 7.16), with the exception of young women who had, as has been noted, seen employment grow at a lower rate than the national average. The participation rate response to job shortfall was also distinctive in Homs: young women experienced an unusual declining rate, when at the national level young women generally displayed increasing participation rates. This participation change by young women meant that their supply imbalance rates became similar to the national level, thus cancelling out their unusually high job shortfall.



Figure 7.16: % shortfall in the labour market in Homs region by broad age group and sex % of 2004 EAP, except for declining participation rate as 1994 EAP.

Source: Own research.

Both men and women displayed broadly similar unemployment and net out-migration trends to the national averages (Figure 7.17), although young men experienced above average unemployment increases while the increase for women was below average. As for the LMA/cs error rates, once again there was a lower rate for young women in a region where their participation change level was low, providing further evidence that the participation component of the LMA/cs is problematic to calculate accurately in instances where this value is changing rapidly.



Figure 7.17: % components of the labour market in Homs region, by broad age group and sex Error as % of 2004 EAP. Source: Own research.

7.6.4 Lattakia

This region is the main coastal region in Syria and is characterised by a high level of cultural diversity. Khoury (1987 p.15) states that the Alawite sect comprises the majority of the population; Sunni Muslims, Christians, plus small numbers of other minorities such as Ismailiyah make up the remainder of the region's population. This cultural mix and its high level of urbanization is reflected in very low fertility levels (by Syrian standards), producing a natural increase rate much lower than the national average (Figure 7.18). Employment growth rates for the young age group in both sexes were also much lower than the national average, due to higher than average initial employment rates among young women in particular. Surprisingly both men and women in the older age groups experienced a decline rather than growth in their employment rates.



Figure 7.18: % natural and employment changes in the labour market in Lattakia region, by broad age group and sex

Source: Own research.

Although demographic pressures within Lattakia were less pronounced than in most regions, its moderate employment growth produced higher than average job shortfalls for all ages, and particularly for women in the older age group as a result of their distinctive experience of a declining employment rate (Figure 7.19).



Figure 7.19: % shortfall in the labour market in Lattakia region, by broad age group and sex

Women in this region increased their participation rates to a similar extent as women nationally, apart from the older age group who showed substantially declining rates in response to their high job shortfalls. The supply imbalance was above average for younger people – this feature was particularly pronounced among young women, due to the participation rate change being similar to the national average when their job shortfalls were higher.

The higher supply imbalance rates among young men and women led to above average increases in unemployment (Figure 7.20). The net out-migration response was lower than for older groups. The levels of error were similar to the national average, with the one unusual feature that the error for older women were negative rather than positive.

[%] of 2004 EAP, except for declining participation rates as 1994 EAP. Source: Own research.



Figure 7.20: % components of the labour market in Lattakia region, by broad age group and sex

Error as % of 2004 EAP. Source: Own research.

7.6.5 Hamaa

The majority of the population Sunni Muslims (although there are also small numbers of minorities such as Ismailiyah). Natural changes to the economically active population show comparable rates to national averages, except for women in the older age groups, whose rates are noticeably lower (Figure 7.21). The rate of regional job creation was lower than the national average, particularly for each of the female age groups.



Figure 7.21: % natural and employment changes in the labour market in Hamaa region, by broad age group sex

% of 1994 EAP. Source: Own research. The gap between demographic growth and employment creation has resulted in higher job shortfall rates than the national average, for all age and sex groups (Figure 7.22). The response to job shortfall in this region was a notable decline participation rates for men, while the female participation rate did not match the level of increase that was seen at the national level. The effect of these clear participation change response to the above average job shortfalls was that Hamaa's supply imbalance rates resembled the national average.



Figure 7.22: % shortfall in the labour market in Hamaa region, by broad age group and sex

% of 2004 EAP, except for declining participation rates of 1994 EAP. Source: Own research.

The very high level of net out-migration by young people is perhaps the most distinctive feature of the Hamaa LMA/cs. It is also of note that the estimation error levels are lower than the national equivalent rates once again showing a link between the size of the error and the relative scale of female participation change.



Figure 7.23: % components of the labour market in Hamaa region, by broad age group and sex error % of 2004 EAP. Source: Own research.

7.6.6 Raqqa

Raqaa is one of the most important agricultural regions in Syria and it has benefitted from the expansion projects associated with the Euphrates development project that was initiated by the Syrian government in the early 1990s. The region consequently became highly attractive to migrant agricultural labourers from neighbouring regions. The region's natural increase in population was the highest in Syria, which was partly a reflection of the general trend for high fertility rates to be concentrated within agricultural regions. A cultural factor also play a significant role in the high fertility rates, because the great majority of the population are Sunni Muslim and polygamy is common in this region: men with more than one wife can have many children, who are often expected to take part in unpaid family agricultural work.

Figure 7.24 shows that although the region already had a distinctly young population, natural change was well above the national average for young women. Female employment growth was also more rapid than was typical nationally, mainly due to the 'catching up' process in this traditional region where historically only a very small proportion of jobs were held by women.



Figure 7.24: % natural and employment changes in the labour market in Raqqa region, by broad age group and sex % of 1994 EAP. Source: Own research.

Figure 7.25 reveals that whereas job shortfalls for men were close to the national, however for women the increase in available work more than cancelled out the pressure from population growth to result in job surpluses (ie. negative job shortfalls). At the same time, the 'catching up' process saw their participation rate substantially increase: consequently, the female job surpluses were cancelled out by rates of supply imbalance close to the national average (except for women aged 55-64, whose imbalance rate exceeded the national average).



Figure 7.25: % shortfall in the labour market in Raqqa region, by broad age group and sex

% of 2004 EAP, except for declining participation rates of 1994 EAP. Source: Own research.
Figure 7.26 shows that, in terms of responses, unemployment increased at around the national rate for men, while low net out-migration rates were shaped by inflows of agricultural workers. Female 'catching up' increases in participation contributed to a strong increase in female unemployment rates. Here again the strong change in participation rates for women is associated with larger error rates than the national equivalent values.



Figure 7.26: % components of the labour market in Raqqa region, by broad age group and sex

Error % of 2004 EAP. Source: Own research.

7.6.7 DerEzor

This region neighbours Raqqa and has similar socioeconomic characteristics. Its economy is dominated by agriculture and the majority of the population are Sunni Muslims (although there is a small Christian community in the city centre). The region has the second highest natural growth rate in Syria, along with the highest fertility rate. Natural and employment growth in this region (Figure 7. 27) very closely resembled those experienced by Raqqa



Figure 7.27: % natural and employment changes in the labour market in DerEzor region, broad age group and sex. Source: Own research.

The similarly to Raqqa extends to this region's job shortfall rates (Figure 7.28). The participation rate of women showed the same 'catching up' but in DerEzor it was stronger for women in the middle and old age group. Once again, the net effect was that the region's supply imbalances were similar to the national average for most age and sex groups.



Figure 7.28: % shortfall in the labour market of DerEzor region, broad age group and sex

% of 2004 EAP, except declining participation rates as 1994 EAP. Source: Own research.

Figure 7.29 shows rates of male unemployment increase and net out-migration which closely corresponded to national trends women, meanwhile, experienced unemployment levels substantially above the increases seen at the national level. The out-migration rates of DerEzor's women also exceeded the national average. As in other region, the above average error rates correspond to higher levels of changes in participation rates.



Figure 7.29: % components of the labour market in DerEzor region, by broad age group and sex

Error % of 2004 EAP. Source: Own research.

7.6.8 Alhasakah

Although this region, in common with Raqqa and DerEzor, has a strong dependence upon agriculture, the oil industry is also an important economic consideration because the main oil fields in Syria are based in this region. Although it has a large Sunni Muslim majority, Alhasakah is also characterised by a considerable level of religious diversity due to including large minorities of Christians and plus a small minority of Yazidis. The region has a lower natural population growth rate than the national rate (Figure 7.30). Employment change for men was similar to the national growth rate, but employment growth for women in the region was twice the national average.



Figure 7.30: % natural and employment changes in the labour market in Alhasakah region, by broad age group and sex Source: Own research.

Job shortfall showed a similar trend to adjacent Raqqa and DerEzor, as young men experienced above average job shortfalls; whereas women experienced above average job surpluses (Figure 7.31). The response to job shortfall was quite similar to that in DerEzor, with a declining participation rate seen among men (who had much lower rates than the national equivalent rate); in contrast, the increase in female participation was above the national average. Young people experienced supply imbalance rates that were higher than the national average, with this effect being particularly pronounced among young women.



Figure 7.31: % shortfall in the labour market in Alhasakah region, by broad age group and sex

% of 2004 EAP, except for declining participation rates as 1994 EAP. Source: Own research.

Men and women in Alhasakah experienced much higher unemployment increases than the national rate; unemployment affected women more than men, with the impact most acutely felt by young people (Figure 7.32). The net out-migration rates were fairly close to the national average and closely resembled those of the two adjacent Euphrates agricultural regions. Levels of LMA/cs error for women were relatively high, is keeping with the pattern that links this to dramatic levels of female participation change.



Figure 7.32: % components of the labour market in Alhasakah region, by broad age group ages and sex Error % 2004 EAP. Source: Own research.

7.6.9 Tartous

The demographic and labour market changes evidenced in this region very closely resemble those of Lattakia, which is the other coastal region with a majority Alawite population. This sect generally has a lower family size than Sunni Muslims, linked to a high education level of the population, and of women in particular. As a consequence of this low fertility pattern, the natural growth of economically active men and women was lower than the national average (Figure 7.33). Employment growth was also below the national average, although middle aged women experienced an above average increase in their employment rates.



Figure 7.33: % natural and employment changes in the labour market in Tartous region, by broad age group and sex

% of 1994 EAP. Source: Own research.

Figure 7.34 shows that, as a result of its below average levels of both natural and employment change, Tartous had job shortfall levels fairly similar to the national average. Tartous women had a faster participation increase, and this in turn led to them experiencing above average supply imbalance rates.



Figure 7.34: % shortfall in the labour market in Tartous region, by broad age group and sex

% of 2004 EAP, except for declining participation rates, as 1994 EAP. Source: Own research.

With regard the region's labour market responses to its supply imbalance, Figure 7.35 shows that male unemployment increased at around the national average rate. In contrast, female unemployment increased much more rapidly than in the country overall. At the same time, both men and women had net out-migration rates close to the national average. Overall error levels were around the national average.





7.6.10 Idleb

Olive and almond production are important components of the local economy. The majority of the population are Sunni Muslims, although there is also a small minority of Druze. Population growth rates within Idleb are among the highest in Syria. The rates of natural and employment growth for men (across all age groups) were similar to the national average (Figure 7.36). Both natural and employment change for women were below the national average.



Figure 7.36: % natural and employment changes in the labour market in Idleb region, by broad age group ages and sex.% of 1994 EAP.Source: Own research.

Figure 7.37 shows that these trends resulted in job shortfall rates that exceeded the national average. This shortfall impacted on both young and old, but with a more pronounced impact upon women. Idleb was very unusual because in response to this job shortfall there was a substantial decline in participation among young and older women. This meant that Idleb's female supply imbalance level fell below the national average.



Figure 7.37: % shortfall in the labour market in Idleb region, by broad age group and sex % of 2004 EAP, except for declining participation rates, of 1994 EAP.

The region's exceptional decline in women's participation kept their unemployment increases and net out-migration levels below the national average; in comparison, the male pattern did not greatly diverge from the national average (Figure 7.38). Idleb's negative female participation change is the context for its unusually high level of negative LMA/cs estimation errors.



Figure 7.38: % components of the labour market in Idleb region, by broad age group and sex

Error % of 2004 EAP. Source: Own research.

7.6.11 Daraa

The vast majority of the population in this region are Sunni Muslims, although there is a Christian minority. It is above average population growth is similar to other regions where agriculture remains the leading sector of employment.

Both men and women experienced slightly higher natural growth rates than the national average, although for young women the difference was negligible (Figure 7.39). Employment growth was much higher than the national average for older women, an example of the 'catching up' process which arose from very low earlier levels of employment. Male employment trends in Daraa compared positively to those experienced across the country as a whole.



Figure 7.39: % natural and employment changes in the labour market in Daraa region, by broad age group and sex % of 1994 EAP.

Source: Own research.

With regard to job shortfall, stronger employment growth for men led to lower shortfalls than the national average; those in middle age even experienced a job surplus (Figure 7.40). Women overall experienced a job surplus rate above the national average, although this was not the case for young women. In responding to job shortfall, young women in Daraa were unusual in displaying declining participation rates: men were equally unusual in slightly increasing their level of participation. For older women the 'catching up' process observed across various agricultural regions was evident in the region's high levels of growth in participation. Overall these changes, whose impact was particularly pronounced upon men, resulted in lower rates of supply imbalance than the national average levels.



Figure 7.40: % shortfall in the labour market in Daraa region, by broad age group and sex % of 2004 EAP, except for declining participation rates, as 1994 EAP. Source: Own research.

Figure 7.41 shows that the lower supply imbalance for women resulted in rates of unemployment increase that were below the national average. Men of middle age and older experienced net in-migration flows which were probably fuelled by the effect of returning emigrants. There was no strong pattern to the LMA/cs error levels apart from a high level for middle age women that echoes their rapid participation rate change.



Figure 7.41: % components of the labour market in Daraa region, by broad age group and sex

Error % as 2004 EAP. Source: Own research.

7.6.12 Sweida

The vast majority of the population in this region are from the minority Druze sect, although there is also a Christian minority. Druze women traditionally enjoy a relatively privileged status of near equality with men, particularly in the areas of education, jobs and marriage. It should also be recognised that this cultural explanation of the lower fertility rate in this region may have been exacerbated by low household incomes and generally poor local economic conditions. Sweida had the lowest population growth rate in the country.

Natural growth in the overall economically active population closely corresponded to the national average (Figure 7.42). Middle and older age women experienced faster job growth than the national average rates. It will be recalled that this was a feature of the 'catching up' regions and as such it is somewhat surprising to encounter it in Sweida. The difficult economic conditions held back growth in employment for young people, although many young people were perhaps pursuing further education because educational self-improvement is promoted and by Druze culture.



Figure 7.42: % natural and employment changes in the labour market in Sweida region, by broad age group and sex. % of 1994 EAP.

Source: Own research.

The job shortfalls levels in this region were broadly similar to those of the country as a whole, although middle and older age women experienced job surpluses rates which

exceeded the national average (Figure 7.43). Male participation decline broadly corresponded to the national rate, but for women of 35 or over participation increased even faster than the national average. These changes effectively neutralised the region's previously distinct job shortfall levels so that its although supply imbalance levels became similar to the national average.



Figure 7.43: % shortfall in the labour market in Sweida region by broad age group and sex % of 2004 EAP, except for declining participation rates, as 1994 EAP. Source: Own research.

Because the natural growth in the economically active male population was not met by equivalent levels of job growth, above average net out-migration of young people occurred (Figure 7.44). The high rate of net out-migration meant that male youth unemployment remained below the national average, although unemployment among women accelerated. There was a strong net in-migration flow among those aged 35 and above, especially for men, which can be linked to returning migrants. The region's overall LMA/cs error levels were around the national average.



Figure 7.44: % components of the labour market in Sweida region, by broad age group and sex Error % of 2004 EAP. Source: Own research.

7.6.13 Qunitera

This region is the least urbanized and has the smallest population. It also has a complex geopolitical situation because the Golan Heights fall within its regional border. The result is that its statistical profile is more volatile than those of other regions. A particular example of this data uncertainty can be seen in Figure 7.45: the data from the 1994 census an older women's economic participation was zero/missing, so no change rate can be calculated. The majority of the population are Sunni Muslims. Figure 7.45 shows that women had natural and employment growth rates that were higher than the national average. Rates of regional job creation exceeded the national averages.





% of 1994 EAP. Source: Own research.

In comparison to national levels of job shortfall, employment growth in the region created higher job surplus rates for women and slightly lower job shortfalls for men (Figures 7.46). Men showed similar levels of declining participation to the national equivalent rates, which kept rates of supply imbalance rather low; this was in contrast to women, who experienced an extraordinarily rapid increase in rates of participation and, as a consequence, higher supply imbalance rates.



Figure 7.46: % shortfall in the labour market in the Qunitera region, by broad age group and sex

% of 2004 EAP, except for declining participation rates, as 1994 EAP Source: Own research.

The rapid increase in women's participation resulted in above average increases in unemployment and net out-migration rates by young women (Figure 7.47). Unemployment increases for young men were below the national average, and their net in-migration was also relatively low. To an even greater extent than in other regions, LMA/cs estimation errors for Qunitera were more substantial for women than men, reflecting its vulnerability to data uncertainty.



Figure 7.47: % components of the labour market in Qunitera region, by broad age group and sex % of 2004 EAP, except for declining participation rates, as 1994 EAP. Source: Own research.

7.7 Summary

The implementation of national labour market accounts clearly demonstrated that the natural increase in working age population was not met by a growth in employment. All age groups experienced demographic growth, with the exception of the 60-64 age group. This meant that there was a job shortfall of over 0.5 million jobs, which impacted upon men with a greater degree of severity. It was also found that younger people (and the older age groups to a lesser extent) were the most subject to job shortfalls, while middle age women experienced job surpluses.

As the overall growth of the economically active population was not met by equivalent job growth unemployment increased, but this was not the only labour market response. Other responses include reduced participation rates and net out-migration. In cases such as Syria in this period, when job growth was slowing but labour supply still increasing strongly due to previous rapid demographic growth, declining participation is potentially the most dynamic response to job shortfall. These factors led to this study introducing the supply imbalance measure in the labour market accounts to measure this how far job shortfall was either exacerbated or moderated by a decline in economic participation of the working age population. This analysis then provided a valuable insight into the economic and social challenges that emerged in each region. The response to job shortfall by men mostly took the form of increasing unemployment, but the effect of declining participation was not very much less. The labour supply excess was also absorbed through net out-migration (although returning migrants produced negative values for net out-migration of men aged over 40). At the same time women saw dramatic increases in participation, which was a very different labour market response to that of men. The general pattern shows that younger women had the lowest job shortfall. Women in the older age groups experienced very little unemployment increase and minimal net out-migration, although this was linked to of their lower rate of increase in participation.

The regional analysis revealed that regions with a greater dependency upon agriculture experienced high natural growth in their labour supply. The job growth in these regions was not sufficient to absorb the extra labour and the response took the form of a decreasing participation rate among men and increasing unemployment for men in particular. The same regions where agriculture is more important had traditionally very low female participation rates, but in this period there were some 'catching up' effects and many of the newly available female workforce gained jobs (although these regions' women also saw unemployment increases at rates well above the national average). Damascus and Aleppo were similar in having lower than average rates of job shortfall for young people, but more generally there was relatively little evidence of any systematic urbanisation effect across the regional LMA/cs. Instead the regional results have shown that the LMA/cs approach can reveal distinctive regional processes and patterns (which in Syria could often be traced back to regional cultural distinctiveness). One unanticipated result of this diversity is that the traditional agricultural regions' tendency for a 'catching up' effect of extremely high rates of change from their initially

very low levels of female participation seems to have caused much of the error in the LMA/cs estimation results.

Chapter 8 Conclusion

8.1 Introduction

The purpose of this research was to investigate the population dynamics and economic factors underlying the trends within Syrian labour market prior to 2004. The key motivation for the study was that in the period 1994-2004 Syrian labour markets (both national and regional) became subject to huge economic and demographic pressures. This research sought to better understand the interplay of population and employment dynamics by applying the labour market accounts methodology at a regional scale.

This chapter will initially recall the main empirical findings of the LMA/cs, and summarise their assessment of regional variation in demographic and economic changes during the period 1994-2004. The following section then discusses the challenges and resulting limitations of applying the labour market accounts methodology to Syria. The third section assesses the contribution of the thesis to research methodology and knowledge of Syria. The penultimate section considers possible policy implications of the research findings. The final section, after recognising the profound changes that have occurred in Syria since this research study began, suggests some opportunities for future research to build upon the contribution of this thesis.

8.2 Summary of empirical findings

The analysis of the demographic changes in Syria over the period 1994-2004 demonstrated remarkable regional variations in the high growth rates which had rapidly boosted the labour supply (especially of first-time job seekers). The basic effect of these demographic processes on a labour market experiencing low rates of job creation was severe imbalance between labour supply and demand, and this imbalance

was increased in many regions by strongly rising female economic activity rates. The consequences were rising unemployment and also increased likelihood of net outmigration – with young people most affected – plus declining participation by men. The main findings at the regional scale are summarized first with respect to demographic changes, then economic changes, and finally labour market outcomes.

8.2.1 Demographic changes

A demographic transition was underway in Syria by the 1990s with birth rates declining from the preceding period when Syria's natural population growth rates were among the world's highest. The 1994-2004 period studied here saw an 'echo effect' of the very high earlier birth rates because there was a large age cohort to enter the labour force as a result of reaching working age between 1994 and 2004, causing a rapid growth in the size of the working age population. In common with many developing countries, Syria also experienced a rising concentration of its population in urban areas. Syria's mosaic of cultural and religious influences also contributed regionally distinctive dynamics to the geographical pattern of labour supply growth.

All regions in Syria have experienced demographic transition but there has been regional variation in their reduction of high birth rates and their deceleration of population growth. The regions of Raqaa, DerEzor, Daraa, Idleb, Quneitra and Aleppo appeared to be at an earlier stage of demographic transition because they recorded the highest increases in population and consequently the highest rates of increasing labour supply. All the remaining regions experienced population increases below the national average and, of these regions, Sweida, Lattakia and Tartous shifted sooner to a later stage of demographic transition with sharp declines in fertility rates, lower population increases and distinct patterns of labour supply. Religious diversity in Syria played an important role in regional population change: regions with large numbers of Druze (Sweida), Alawite (Lattakia and Tartous), Christians (Alhasakah) or numerous minorities (Damascus) were characterized by lower natural growth rates than the other regions where Sunni Muslims were very much the majority group.

Internal migration contributed to demographic trends in Syria, leading to changes in

the composition of regional populations. The dominant pattern was of net flows towards the largest cities and Damascus region in particular was the main receiver of migration flows from across the country. Damascus overtook Aleppo as the largest urban centre, largely because its role as national capital led to increased public sector employment (which was accompanied by growth in private services). In contrast, peripheral regions with smaller cities (such as Qunitera, Sweida, and Idleb) were major exporters of population. The role of geographical proximity in internal migration was also shown in large flows to Aleppo and Homs from neighbouring regions.

International migration during this period also contributed to demographic change across the regions, with this effect being particularly pronounced in Damascus. Syria was a major receiver of refugees, and especially Iraqis in the last years of the study period, Syria has long been a country with a leaky border, as evidenced by the large numbers of circular migrants who cross the Lebanese and Jordanian borders routinely. Studies of international migration (of both Syrians and non-Syrians) during the period 1994-2004 found that, prior to Syria receiving many Iraqi refugees between 2003 and 2004, for most of the period Syria was a labour exporting country.

High levels of emigration among young Syrian adults can be attributed to the search for better jobs, as well as educational opportunities. However, this period saw reduced job opportunities in the Gulf region due to slowing levels of economic growth, and this contributed to increasing flows of Palestinian and Syrian workers returning from overseas. All these factors contributed to the levels of complexity that were evident in Syria's rapidly changing regional labour markets.

8.2.2 Economic changes

The key question for Syria in the period 1994-2004, given its dramatic labour supply increases resulting from past population growth, was how far labour demand grew during a period when economic trends reduced the likelihood of job creation. The weak economic growth during this period was in part attributable to wider political and socio-economic developments within the Middle East.

Syria's economy continued to shift away from dependence on agriculture, while the energy sector (the main source of the country's overseas revenue) also declined. Job growth was largely limited to service sectors and they are characterized by low productivity and wage levels. The trends in key sectors varied both nationally and regionally. One of the most distinctive regional features was that in Raqqa and Daraa agriculture grew due to new irrigation systems: this resulted in more job opportunities, particularly for women, and in turn contributed to net in-migration. Aleppo maintained its role as the main industrial region of the country.

Although the absolute number of employed men grew, the proportion of women in the total workforce increased. This trend was particularly strong in Aleppo and the group of medium size cities; the strong shift in these regions appears to be a 'catchingup' process because female economic participation had been especially low in these regions.

8.2.3 Labour market accounts findings

Adopting the LMA/cs method was valuable in demonstrating that the natural growth of the economically active population was not fully absorbed by employment growth, leaving substantial job shortfalls. Gender variation was seen, with men being worse hit by job shortfalls in all regions. Age variations were also noticeable, with younger age groups being particularly vulnerable to job shortfalls; in contrast, middle-aged women experienced noticeable job surpluses.

The severe job shortfalls for men led to a substantial withdrawal from the labour force. This falling participation response by men is broadly similar to that seen in countries such as Britain during the de-industrialisation in the 1980s (Owen *et al.*, 1984). The response to job shortfalls in Syria during this period was very different for women (who had gained more of the jobs created during this period). The most significant change for women was their increasing participation rate: the number of women that joined the labour force over the period was in excess of what would have resulted purely from the natural change effect.

In order to reveal the combined effects on labour supply of natural change and participation rate change, together with change in levels of employment, the data in the LMA/cs has been used to present the novel measure of supply imbalance. This measure shows how far job shortfall was mitigated by declining labour market participation: in all regions, the shortfall was lowered for men but increased for women as a result of their changing participation rates. The largest urban regions of Damascus and Aleppo displayed lower imbalance rates than the national rate, whereas the more agricultural regions (Raqqa, DerEzor and Alhasakah) experienced the highest supply imbalances rates due to their particularly rapid labour supply growth (fuelled by high natural change, along with 'catching up' increases in participation rates for women).

The response to these severe labour market conditions was shown in increasing unemployment and net out-migration, both of which affected young people most. At the national scale, only men aged 40 or over experienced neither substantial increases in unemployment nor net out-migration. The regional data from the LMA/cs provided evidence of some variations around these general patterns, many of which were explicable due to significant cultural differences influencing labour market behaviour, especially by women.

In registering these results and drawing informed interpretations, the possibility of measurement errors in the LMA/cs must be acknowledged. This error was found to be particularly pronounced with regard to the estimation of regional labour market outcomes for women, and especially those of middle age. The pattern of error levels across the country appears to be correlated with the scale of changing female participation in the labour force.

8.3 Limitations

Although the research design of this project has made every effort to acknowledge, and where possible address, limitations to the empirical analyses, it is important to recognise that they will inevitably affect the final results. The main potential source of problems in this respect include the coverage and accuracy of the data, and the fact that the available metadata was very limited (due in part to the ongoing unrest in Syria

reducing the potential follow-up enquires to resolve ambiguities).

Although the official censuses and survey reports that have been drawn upon by this research have some clear advantages (particularly with regard to relative quality and reliability), some key issues remain. National and regional mortality data for 1994 and 2004 are completely missing from the censuses, and estimation techniques were needed to calculate the natural population change between these dates. A national life table for 1999 was the only available relevant source to the research, and it had to be assumed that this showed the average for 1994-2004 and also that the national values could be applied to each region. Given that there will be regional variation in age/sex mortality rates, this process will inevitably have introduced some error into the LMA/cs.

In addition to the above limitations, there are no recent statistics on ethnicity/identity/religion. Local knowledge and part research, plus the emerging results on measures such as fertility rates indicate that this data would have provided very useful insights into the effect of long-standing differences in socio-demographic behaviour, as a result of cultural attitudes to issues such as female economic participation. Available data on international migration was also inadequate: with no single comprehensive data source, it was necessary to examine various datasets and then triangulate a final estimation. This was then compared with estimates provided by this research using the rolled forward method which, as with any estimate, is inherently subject to error as a consequence of its in-built assumptions and dependence on limited available data.

More fundamentally perhaps, the whole of the socio-economic data from the 1994 census was based on a sample which aimed to cover 10% of the population. Actual coverage was officially estimated at 9.17%, and this led to a global grossing-up rate of 10.905. This in turn had to be applied universally to all groups in the population in every region (although the census printed tables were not grossed-up). The concern here derives from the knowledge that rates for grossing-up really should vary between sub-populations due to uneven levels of under-enumeration across age, gender, urban/rural and cultural sub-populations.

The labour market account method adopted for this research is also inherently subject to measurement error, and this was found to most affect the data on women and those age groups who have more dynamic trends (as has been highlighted with the apparent correlation between error level and scale of participation change). Measurement error in the labour market accounts methodology is further accentuated in this study because Syria is a country with porous boundaries and this affects its data coverage. In particular there is the absence of data on commuting or circular migration. The method works adequately in countries like the UK where trends are slow and datasets robust; by contrast applying this technique to a country like Syria, where the data itself can be problematic and the actual trends are highly dynamic, makes the research results more vulnerable to error, whether this is systematic or random.

Taken together these facts mean it is impossible in the case of Syria to very closely replicate any of the previous applications of LMA/cs. Yet despite this the LMA/cs proved to be valuable in measuring the interacting demographic and economic changes in Syria. Their application in this study has arguably advanced understanding of how far the LMA/cs method can be of value in countries with more volatile demographic and economic trends.

8.4 Contribution

This thesis has contributed to knowledge by providing a theoretically grounded understanding of Syrian regional variations of demographic and economic changes and their underlying dynamics. This contribution is noteworthy because this issue has only received a limited amount of attention from researchers within the field of Syrian population geography (eg. Hwaja 2002; Barout 2008; Aita 2009; Miqdad 2010). The thesis has produced original findings on issues which were not given sufficient attention in previous studies: particular emphasis is now placed on three points. Firstly little was known about how religious affiliations and other cultural influences impact on regional fertility rates, and this thesis has addressed this by highlighting a clear relationship between the cultural and religious composition of regional populations and their demographic trends. This was most clearly evidenced in regions with a very large Sunni Muslim majority, where there was a much a higher labour supply growth than in regions where the majority population was Druze or Alawite in particular. Secondly the regionally varied 'catching up' in female participation rates turned several low regional job shortfalls into large supply imbalances. Here again cultural distinctiveness was implicated in the regional variation in this effect on labour market outcomes. Finally the effect of urbanization proved to be less considerable than might have been anticipated. This was illustrated by the fact that net out-migration, although showing a clear tendency for flows to be towards Damascus, was not a very large component of the LMA/cs within any region.

With regard to methodology, the thesis has extended the application of LMA/cs methodology to a context other than the developed countries such as Britain (eg. Owen, *et al.*, 1984; Bill et al., 2006; Sissons, 2009) where the methodology has been used to reveal region-specific labour market outcomes. The application of LMA/cs in a less developed country reveals the method to be rather data-intensive, and drawn attention to the limited evidence available on regional labour markets in Syria (as reflected in the fact that some error values were rather high). This testing of the method in a different context has led to the conclusion that, despite its limitations, LMA/cs offer a deeper understanding of how each region in Syria coped with its demographic changes and restricted levels of economic growth. More importantly perhaps, this application has introduced a new way of presenting the data within the LMA/cs methodology with the innovative supply imbalance measure. In cases such as Syria with strong demographic growth, and modernisation trends causing a rapid increase in female participation, this new measure can increase the value of applying LMA/cs by dramatising the levels of imbalance in regional labour markets.

8.5 Policy implications

This research has revealed that there are clear limitations to data availability from Syria's official censuses and other surveys. There is a clear case for both the creation and publication of regular regional life tables and the collection of commuting or circular migration data. Equally importantly, this study has underlined the potential value of accurate recent cultural and religious information which would help to illuminate demographic changes in future research. These are considerations for the Central Bureau of Statistics in Syria to address, so that the next official census can better support future regional planning. In such planning of employment and regional labour market developments, the differing regional demographics require further attention to avoid over-emphasis on the largest urban regions of Damascus and Aleppo as major attractions for migrants (with huge numbers of refugees then making additional demands on city infrastructure in the period studied).

These policy implications have to be seen as rather hypothetical now that Syria's population is radically changing, and indeed greatly declining, due to the ongoing conflict which began in 2011. The profound implications for the demographic and economic future of Syria are indicated by the fact that UN estimates state that Syrians refugees now out-number any comparable national group. These changes will have a huge effect on Syrian demography in the future when Syrian policymakers consider the challenges posed by the possible return of refugees to regions which have been transformed by internal conflict.

8.6 Further research

The demographic profile and trends observed in this thesis continued up to the year 2010, with past population growth producing pressure on the labour market, while slow economic growth continued to create too few jobs to absorb new entrants to the Syrian labour market. Further research could extend the analyses here to understand the regional pattern of post-2004 high unemployment rates and underlying processes in regional labour markets in the period leading up to the onset of internal conflict.

Another possible extension of the research would be to apply the labour market accounts method, as it was adapted here, to other Middle East countries. This application could focus upon periods when their regional labour markets were similarly challenged by low job growth and earlier population increases, as well perhaps as some 'catching up' in female participation rates (which further boosts labour supply imbalances).

Syria's ongoing war has directly contributed to substantial population decline and very high out-migration of refugees. Economic recession and the massive destruction of infrastructure are further consequences of the conflict. All of these hugely challenging issues will need to be addressed in future, not only by policy makers but also by scholars. It is possible that, even within such radically different circumstances, revisiting the LMA/cs method may provide a valuable tool for research in support of the essential future recovery of the country's population and economy.

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