

**Demographic consequences of being refugees: Malian Kel Tamasheq**

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**S25: THE DEMOGRAPHY OF FORCED MIGRATION AND  
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## Demographic consequences of being refugees: Malian Kel Tamasheq

### 1. Introduction

Mali's population is economically, physically and socially heterogeneous, in part a consequence of substantial environmental diversity ranging from the Sahara, through the Sahel to savanna. Although on a world wide scale Mali is one of the few remaining countries with high fertility and high mortality (Wilson 2001) these high levels mask substantial variations which do not just reflect different socio-economic and educational sub-groups in the population, but are evidence of more fundamentally variable traditional demographic regimes. A series of surveys in rural populations practicing different production systems within the central Sahelian zone of the country, undertaken in the early 1980s are evidence of this demographic heterogeneity (Hill 1985, Randall 1984).

#### 1.1 The Kel Tamasheq

The Tuareg or Kel Tamasheq were one population for whom demographic data were collected in 1981 and 1982. The Kel Tamasheq traditionally live across Northern Mali, southern Algeria, Niger and northern Burkina Faso and were archetypal nomadic pastoralists, herding different combinations of goats, sheep cattle and camels according to the environment where they lived. Two populations were studied in 1981 and 1982 – the westernmost Kel Tamasheq who at that time spent the dry season using pastures in the inner Niger delta and left the delta in the wet season to move north and west into drier areas such as the Mema and towards Tombouctou. This pattern of movement itself was relatively recent, with the Kel Tamasheq first entering the delta in substantial numbers after the 1913 drought. Most of these Kel Tamasheq are from the Cherifen and Kel Antessar confederations of warrior marabouts. The other population studied in 1982 was in the central Gourma – south of the Niger river bend. This population had few Kel Antessar and Cherifen but many more *imghad* - traditional Kel Tamasheq vassals - and lower status free Kel Tamasheq. In both areas the populations surveyed were 100% nomadic pastoralists – no-one practiced agriculture and everyone lived in mobile tents. Both areas were socially heterogeneous with representatives of all the different Tamasheq social classes from the *imushar* warriors, the more religious maraboutic groups, the *imghad*, lower status groups, *inhaden* – the blacksmith caste, and *iklan* - slaves and ex-slaves.

The *imushar*, maraboutic classes and *imghad* along with some of the lower status free Kel Tamasheq are all descended from Berber populations who crossed the Sahara, probably in the 15<sup>th</sup> and 16<sup>th</sup> centuries. Tamasheq is a Berber language and the Kel Tamasheq are physically

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very different from the black African populations. They have fair skins and different facial and hair features and are variously referred to both by themselves and other Malians as red (*rouges*) or white (*blanches*)<sup>1</sup>. Like many communities in West Africa, slavery was a well established institution in pre-colonial times. Kel Tamasheq slaves (*iklan*) were originally captured in raids on villages and other communities living in the area. *Iklan* are black and although they all speak Tamasheq, clearly they have different genetic origins. Many slaves were freed by the French during the colonial period or after Malian independence and capturing and exchanging slaves was illegal for most of the twentieth century, although ownership of slaves still continued into the period of the 1981-2 surveys with some of the white Tamasheq having resident *iklan* to do most domestic and herding work. The 1981-2 surveys included both these domestic *iklan* and *iklan* who had been freed for several generations. Another group of *iklan*, not studied in 1981-82, are sedentary sharecroppers who work the fields owned by the white Tamasheq – particularly lands around Lake Faguibine. As far as we know, few of the Tamasheq surveyed in 1981-82 actually used sharecropping but got most of their grain from sale of animals, from gathering wild grains or from their *iklan* who used to work on the harvest for other populations in the area. Other groups of Malian Kel Tamasheq received (and receive) substantial amounts of grain from their fields – usually worked by *iklan*.

The *inhaden* or blacksmiths are an endogamous caste group. Unlike the *iklan* they are ‘free’ Tamasheq (*illelan*) but they are black rather than Berber. In general they are associated with (and protected by) a particular family or group and are seen as ‘their’ blacksmiths’. Traditionally they made and repaired all the metal, wooden and leather articles in return for which they received milk, grain and all their other daily needs.

### 1.11 Traditional Tamasheq demography

Kel Tamasheq have long had a reputation for low fertility (Gallais 1975). In the early 1980s the Tamasheq studied were demographically unusual for sub-Saharan African populations. Heterogeneity in terms of production, environment and social organisation within the Kel

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<sup>1</sup> This terminology of black and white Tamasheq will be adopted in this paper since physical differences largely determined different Tamasheq roles and fates during the rebellion

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Tamasheq population in Mali means that we cannot generalise about all Malian Kel Tamasheq demography – but some of the specificities almost certainly apply elsewhere. The demographic regime was typified by low(ish) fertility, largely a function of monogamy, and unusual patterns of mortality differentials. Higher status (and often wealthier) white Tamasheq children had much higher mortality than lower status black *inhaden* and *iklan* children. In both the Delta and the Gourma, white high status women had higher mortality than the lower status *iklan* and *inhaden* women but the opposite was the case for adult men. Although *iklan* were less monogamous than the white Tamasheq and extra marital childbearing was more acceptable, their total fertility was similar to that of the white Tamasheq (Randall & Winter 1985).

This demographic regime was interpreted largely a consequence of cultural values where the economic and social role of women had a major impact on demographic outcomes (Randall 1984, Fulton & Randall 1985). In white Tamasheq society, traditionally, women were respected within the home and expected to do little domestic work. This was possible because of the existence of the slave population. Female *iklan* did most of the domestic work such as striking and reassembling camp, cooking, pounding, child care, water carrying. Differences in behaviour were reinforced by force feeding high status girls and young women so that they were extremely fat and would have been unable to do much work anyway. The respect accorded to women is part of the behaviour upholding monogamy, despite being Muslim. Women would not accept co-wives, threatening to leave the marriage if their husbands attempted polygamy. Women were expensive to maintain – they contributed little to the household economy, would demand food, goods and material things from their husband<sup>2</sup>, and often did little childcare. Given that there was little in the way of effective health services to mediate between a child's illness and death other than the daily care the child received, childcare patterns are likely to have been partially responsible for the differential mortality rates between social classes (Hill and Randall 1984).

Obviously this is rather a static picture and fails to document diversity over both time and space. The extent of both force feeding and slavery had been declining for at least two decades before the 1981-2 demographic surveys but in the populations studied they were still quite frequent. In some parts of Mali, Kel Tamasheq had been sedentarising as a consequence of the 1973 drought and this had occurred alongside a decline in the domestic slave population with *iklan* either moving to urban areas or becoming independent herders. Although some Kel Tamasheq groups

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<sup>2</sup> Miscarriage are believed to be provoked by a woman wanting something which she can't have.

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had higher levels of education and use of health services, for the two populations studied in 1981-2 everyone was nomadic, few had been to modern school<sup>3</sup> and there was little contact with modern health services (Randall 1993). Most people lived in relatively small isolated camps and although men had contact with the outside world through travel and movement to markets, many women led very socially restricted lives.

A major drought in 1985 led to substantial herd losses, population movements, food aid distributions, and a mushrooming of international and local NGOs. Many dependent *iklan* left their owners during this period because the latter could no longer afford to keep them. Lots of people moved to the towns for a while because that was where food was distributed, and some groups started to sedentarise for a range of reasons. By 1987 and 1988 a substantial proportion of the population had returned to a nomadic lifestyle although isolation and lack of knowledge about the outside world was reduced and people developed an interest in the benefits that development projects could bring.

### **1.12 Rebellion and refugees**

In 1990 rebellion first broke out in Niger and was followed by an attack in Menaka, east Mali. Thereafter small bands of armed Kel Tamasheq attacked military and administrative posts – sometimes killing the incumbents, usually stealing vehicles. The MPLA (Mouvement Populaire pour la Libération de l'Azawad) was created with the aim of liberating Tuareg territories in the north. The Malian Army responded at first by patrolling the areas and then clashed with the rebels. Despite negotiations mediated by the Algerians, the rebel attacks increased in intensity throughout early 1991 and gradually expanded westwards towards Tombouctou and the Mema. As the rebel attacks increased so did those of the Malian army on the white Tamasheq and white Maure population and they attacked several camps and communities killing men, women and children. The Malian population became incited against the 'whites' and there were popular attacks and raids against shops owned by Tamasheq and Maures throughout northern and central Mali. Skin colour and physical appearance was a major factor identifying those who were attacked and when the 'massacre de Lere' occurred in May 1991, the white Tamasheq in the Delta and Mema areas started to flee en masse to Mauritania<sup>4</sup> (elsewhere people fled to Algeria, Niger and Burkina Faso) just across the border to an area that was really just a continuation of the

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<sup>3</sup> Only one woman was interviewed who could speak French – she was an interviewer in the 2001 study!

<sup>4</sup> Most people in the Mema left because there was nowhere there to hide. Further north, around Goundam and Tombouctou, some fled but others hid with their animals in the mountains and the desert.

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pasture lands which many had used for their herds in the past. Some left with their herds and tried to continue to be nomadic pastoralists in Mauritania – facing major problems to do with access to water and wells. Others left everything behind – either just abandoning their herds or giving them to *iklan* or other people to look after.

UNHCR, WFP and various NGOS responded rapidly to the huge influx of people and three refugee camps were set up with emergency water supplies, food rations and health care. There were problems at the beginning because of the scale of the crisis and the isolation of the area which was several hours drive off the end of Mauritania's main arterial road.

People continued to flood into the refugee camps through 1991 and 1992 and into 1993. The majority stayed until 1996 although spontaneous repatriations continued throughout the period. Nevertheless the main waves into the Mauritanian refugee camps were in 1991 and the main wave out was in 1996 under a repatriation programme run by UNHCR and GTZ after the signing of various peace accords. Many people spent around 4 or 5 years in the refugee camps. Although the majority of camp residents had previously been nomadic pastoralists, there were also people who had started to sedentarise after the 1985 drought, along with Kel Tamasheq civil servants, teachers, traders, craftsmen and students – people who would normally have had limited contact with the nomadic pastoralists either professionally or during visits to kin in the holidays. Thus for the nomadic pastoralists there were many changes brought about by being in the refugee camps, including being fixed in one place with a huge number of other people from other social groups, lineages and those who had been educated and had moved outside the pastoral sector and zone. This led to a huge scope for a substantial social life particularly for young people. Rudimentary health care provision was provided and developed into immunisation programmes, free health care and medicines, and maternity care. Whereas before, nomadic Delta Kel Tamasheq had drunk water from marshes and the river, now boreholes provided clean tap water. In later years schools were set up in the refugee camps. There was an emphasis on training sessions for women, in dyeing, soap making, sewing and local language literacy – all with an idea that after repatriation they would be economically independent. A few domestic *iklan* fled with their masters and mistresses but *iklan* were not in general persecuted in Mali – because the persecution was largely based on physical appearance - and many stayed behind, some with the animals, some just leaving the pastoral sector altogether.

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### **1.13 Repatriation**

Repatriation made further changes to the previous Kel Tamasheq mode of life. Part of the repatriation package presented by UNHCR included promises to build schools, drill wells and help develop infrastructure in the places people returned to. However refugees were obliged to name a specific destination for repatriation for service provision. This encouraged sedentarisation and has led to a proliferation of wells surrounded by small settlements. People with few or no animals no longer needed to be nomadic pastoralists and many of those who retained animals claim now to have seen benefits in a sedentary lifestyle. This is compounded by pressure from women who, now that the majority of *iklan* have left would have to do all the pitching and striking of nomadic camps themselves.

Thus, after repatriation, much of the population is sedentarised, fewer are dependent on pastoralism, there is a major decline in the availability of unpaid slave labour and women are much thinner. Very fat women suffered terribly during the flight and both they and the men decided that substantial obesity was a major security problem. There are no longer the resources and milk surpluses to force-feed girls but also girls no longer wish to be fat. There is no longer a female *iklan* labour force so it is more difficult for a woman to be extremely fat unless her family still has access to slaves or paid servants. Other changes include an increased acceptability of education – for boys and girls - increased knowledge about and demand for modern health services; better quality water which is usually also close at hand; changing domestic roles of women who now have to do much more work in the household; increased acceptability and willingness to undertake agriculture – which is labour intensive and may demand inputs from children and wives. The population is much more highly politicized and feels vulnerable about being physically conspicuous in Mali; they are not entirely convinced that a rebellion could not develop again and there is still much suspicion.

### **2. What has this got to do with demography?**

All the changes outlined above could have major demographic ramifications. It is likely that demographic growth contributed to the tension and rebellion in the first place; population growth amongst agricultural populations further south in Mali has led to an expansion of cultivated areas and a diminution in pasture lands available and thus a reduction in the viability of nomadic pastoralism. Their own perception of relative low population growth amongst the white

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Tamasheq population (a real consequence of past low fertility and high mortality) coupled with the increased politicisation in the refugee camps may induce some people to want to increase their fertility (the process of becoming refugees has been associated with increased politicisation elsewhere – Allen 1996; fertility impacts of oppression were observed during the Palestinian *intifada*, Pedersen et al. 2001). Changing roles and values of both women and children under the new economic regime with less slaves, less nomadic pastoralism, more agriculture and more diversification may make polygamy a more acceptable option for both men and women. Increased access to health and immunisation services, more continuity of childcare and better water are all likely to have improved child mortality and adult female mortality.

The consequences of the whole period of crisis can be conceptualised as operating in two ways; **directly** from the experience of being refugees through changing attitudes and perception of identity and nationalism and **indirectly** through all the socio-economic changes engendered by the crisis. The **direct consequences** can themselves be divided into the psychological impacts of being refugees and the physical and social changes generated by life and conditions in the refugee camps. The fact that sedentarisation has been accelerated could itself have an independent effect on demographic behaviour if we believe the theories which associate nomadic pastoralism with low population growth rates (Henin 1969, Swift 1977, Randall 1993, Fratkin et al 1999).

To examine these issues a single round demographic survey was undertaken in Jan and February 2001 in largely the same population that was studied in the delta in 1981, but also including some Kel Tamasheq from further north – around Goundam - where some people did not leave Mali during the rebellion. The majority of people who transhumed into the delta in 1981 no longer go there although many still send their animals there either with *iklan* (paid in cash or kind) or with one or two members of the family. Large whole family movements are less common. This population now spends much or all of the year in the Mema – the more arid area to the west of the delta. For some, sedentarisation in the Mema began before the 1985 drought, for others after the drought, and for the majority since repatriation. Some remain semi-sedentary – based in a site<sup>5</sup> for part of the year but transhuming with animals to more distant pastures in the wet season. The population is still in a state of flux with respect to lifestyle. Some people who

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<sup>5</sup> Site is the term given to a fixed Tamasheq community which has been recently formed. A village in Mali is an administrative term referring to a settlement that has a particular administrative role. A few sites have now been granted village status but with the exception of two which were the next level up the administrative hierarchy (communes) and had existed as arrondissements before the rebellion, all are referred to as sites here.



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had been largely nomadic since repatriation had just decided to sedentarise – others who had been sedentary had left on transhumance last year and were planning to become more mobile. Each site tended to have satellite nomadic camps around it who were usually from the same fraction but were still nomadic. Often they were closely related to those in the site and herded their animals.

### **2.1 Aims of this paper**

This paper will present the basic situation of the population surveyed as measured in 2001 and document the demographic change observed over the last twenty years and interpret such change in the light of Kel Tamasheq experience of being refugees<sup>6</sup>. Particular hypotheses were:

- There will be changes in fertility as a consequence of changes in the marriage patterns
  - An increase in marriages between non-kin
  - An increase in polygamy because of changing value of women and children and a new pronatalism
  
- There will be decreases in infant and child mortality because of increased use of health services, better water supply and healthier mothers
  
- The child mortality differentials between white and black Kel Tamasheq will have decreased because of the disappearance of many of the factors which generated such differences
  
- Adult mortality will have declined, particularly for white Tamasheq women

### **2.2 The 2001 Kel Tamasheq survey**

8268 normally resident Kel Tamasheq were censused in the Mema and Goundam regions. In the Mema we attempted to get total coverage of the population present within a circumscribed area in late January, early February which is when most people are grouped together. This population was chosen because they were the same groups who were covered in 1981; many people did

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<sup>6</sup> These are the preliminary results of this study. Field work only terminated in March and data entry in May 2001. The analyses are not sophisticated and future work may tease out more consequences of the refugee period.

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recall the earlier survey. All the sites were identified by locally knowledgeable people and on arrival in each site the team presented ourselves and our aims. We explained carefully our units of enumeration (*ejedesh* = household or dependents - larger than the tent used in 1981) and emphatically disassociated ourselves from the government administration – which might have led to under-enumeration because of fear of taxes, and from all NGOs which could have led to inflation of households and children because perceived extra per capita distributions. In most cases we were trusted because the driver was local as were most of the interviewers.

Lists of household heads included information on nearby nomadic camps associated with the site. Household questionnaire information was generally obtained from an adult member of the household. Individual questionnaires for all ever married women and men including marriage histories, birth histories and knowledge about contraception, had to be done with the respondent themselves. Problems in working with a mobile population render such individual questionnaires difficult to administer. People – particularly men but also women – move continuously. They are away visiting, at market, with the animals, working, collecting water and many were sick. Ideally one would wait to interview them later in the day when they return. However many sites were small and camps very small – often two to four households – and several such camps might be covered by the team in one day. Clearly it was not feasible to wait around for people to return or to revisit later – we only had one car and most camps were well away from any roads. Thus for absentees, data on children ever born, surviving children and numbers of marriages were collected from other members of the household. Such data were also collected for women over 55 because their birth and marriage histories were too time consuming and inaccurate. Thus fertility data presented are an amalgam of these two different sources of data. Detailed birth history and marriage data are from the subsection of men and women who were interviewed. We have no reason to suspect that they are anything other than a random choice of individuals from within their age group.

From table 1 there are already clues about changing social organisation and behaviour. Women were much more mobile in 2001 – hence a larger proportion were not available for interview. The black population is substantially smaller and includes a larger proportion of blacksmiths than in 1981. All this confirms general observations that the ex- slave population living either in the same camps or the same larger production system with white Tamasheq has decreased

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significantly – itself a phenomenon likely to have substantial impact on economic organisation and domestic production.

**Table 1: Characteristics of the study populations 1981, 2001**

	<b>Delta Tamasheq 1981</b>	<b>Kel Tamasheq 2001</b>
<b>Total de jure population</b>	6125	8268
<b>sex ratio</b>	0.98	1.04
<b>white Tamasheq</b>	1.07	1.06
<b>black Tamasheq</b>	0.88	0.96
<b>Individual interviews</b>	<b>all women 15-50</b> 1289 interviews 89% eligible women	<b>ever married women 12-55</b> 1326 interviews 80% eligible women <b>ever married men</b> 719 interviews 53.2% eligible men
<b>White Tamasheq percentage</b>	53	76.5
<b>Blacksmiths as percentage of black population</b>	8	16

### 2.3 Lifestyle and the refugee camps.

In 2001 data were collected on an individual's dominant lifestyle for 4 different time periods:

Before 1985	before the last major drought
1985-1990	between the drought and the beginning of the rebellion
1991-1996	During the rebellion
1997 +	Since repatriation

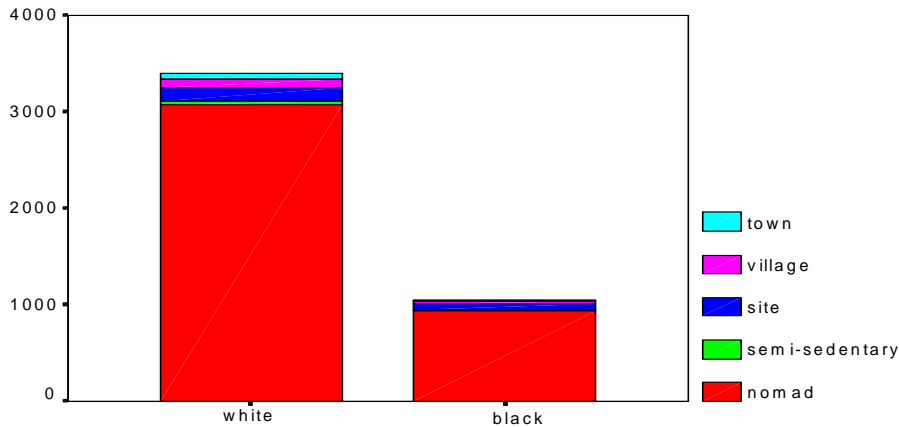
Nomadism precludes collecting detailed migration histories. Within each time period people probably moved several times although the majority had one lifestyle which may have involved movement. Lifestyles were defined as:

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- nomadic** - moving regularly with animals through out year
- semi-sedentary** - fixed in one place (usually a site) for at least 6 months of the year but moving with animals during the wet season.
- site** - fixed in a site (see footnote 3) all year. No movements with animals
- village** - fixed in a village (see footnote 3)
- town** - lives in an urban area
- refugee camp** - resident in refugee camp for the majority of the period (some people were only in the refugee camps for a few months. This was recorded separately – here we were interested in the dominant way of life in that period).

**Figure 1: Way of life before 1985**

Kel Tamasheq aged 16+ in 2001



**Before 1985:** (figure 1) The vast majority of people were nomadic, although interviews with site chiefs indicate that tentative starts at sedentarisation had begun in a few places in 1983 and 84.

**Table 2: Probability of sedentarising in different periods**  
(semi-sedentary included in mobile)

	before 1985: after 1985 Impact of DROUGHT	Before rebellion: after rebellion Impact of REBELLION
<b>White Tamasheq</b>	0.149	0.465
<b>Black Tamasheq</b>	0.106	0.345

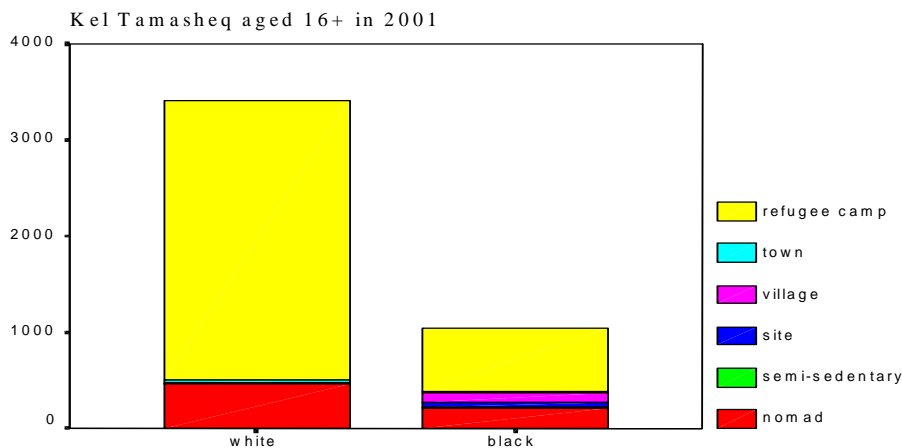
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Although sedentarisation really started in this zone after the 1985 drought<sup>7</sup>, it did not really take off until after the repatriation (table 2), after which about half of the white Tamasheq who were mobile before the rebellion became sedentary. This suggests that either life in the refugee camps or the repatriation process had a major impact on lifestyle, although to what degree this was psychological or economic is beyond the scope of this paper.

**Table 3: Probability of going into refugee camps by previous lifestyle**

	Mobile before 1991	Fixed before 1991
<b>White Tamasheq</b>	.831	.929
<b>Black Tamasheq</b>	.669	.487

**Figure 2: Lifestyle during the rebellion**



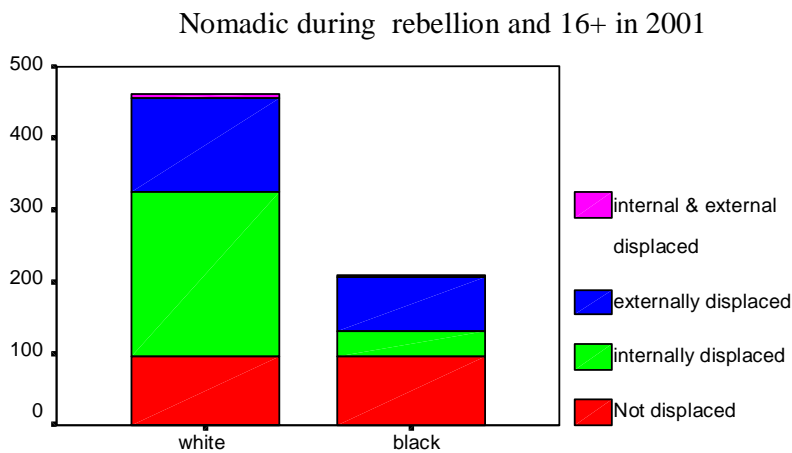
The vast majority of this white Tamasheq population, whether sedentary or mobile (table 3) before the rebellion, went into refugee camps in Mauritania (figure 2). Fewer black Tamasheq were in the refugee camps – although far more than expected given that they had no reason to fear for their own lives. However for both dependent *iklan* and blacksmiths, their patrons were the ones who provided them with employment and support; if the patrons went into the refugee camps it was only natural for the *iklan* and blacksmiths to follow. There is also a selection effect; the black Tamasheq surveyed in

<sup>7</sup> Some sedentarisation which involved dropping out of the pastoral system and moving to villages and towns has probably been going on for decades (see Bonfiglioli 1990).

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2001 were those who lived in or around Tamasheq sites and were likely to be those still in a dependent relationship with white Tamasheq – whether unpaid or paid. Black Tamasheq who used the rebellion or the drought as a motive for leaving their former owners and setting up an independent life either in villages or urban areas will not have been included here – neither were the long sedentarised, sharecropping black Tamasheq.

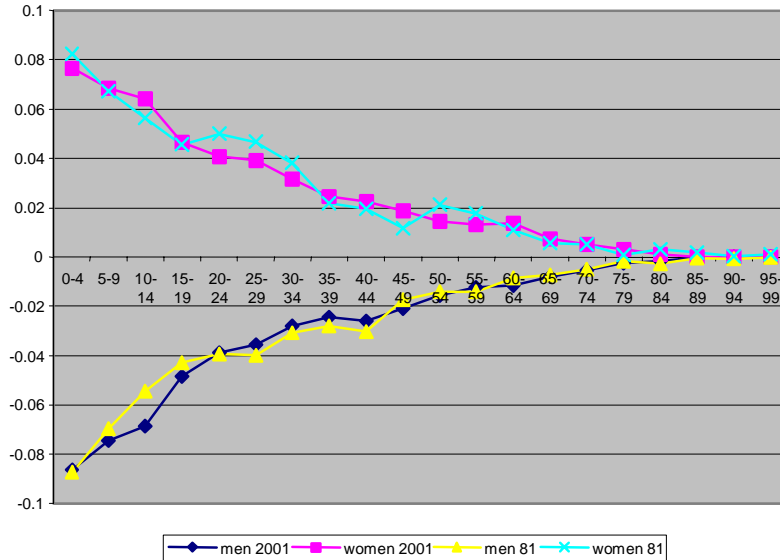
**Figure 3: Nomadic Kel Tamasheq displaced during the rebellion**



Those who did not go into the camps were also affected by the rebellion. Some fled to Mauritania but maintained a nomadic lifestyle outside the refugee camps with their animals – and there were cases of formerly sedentary or even urban Tamasheq becoming nomadic again during the rebellion. Others took their animals and hid in the bush within Mali for months at a time. Black Tamasheq had a third option – to leave the dangerous bush areas and retreat to villages and sites. Of those black Tamasheq who were sedentary before the rebellion only half went to the refugee camps and the rest were in villages (30.8%) sites (16.9%) and towns (3.6%). Figure 3 shows the degree to which even those who remained (or became) nomadic during the rebellion perceived themselves as being physically displaced in some way. Ultimately only 117 white Tamasheq adults (3.4%) and 223 black Tamasheq (21.3%) stated that they were not displaced at all during the rebellion.

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Figure 4: Age-sex structure - Kel Tamasheq 1981, 2001



### 2.4 Age-sex structure

A comparison of the age-sex structures in 1981 and 2001 (figure 4) suggests no dramatic change in demographic regime. The main change appears to be an improvement in age-reporting especially for adults – and the serious distortions in 1981 suggests that comparisons of sex ratios by age would be futile. The improvements are probably for two reasons: the 2001 interviewers were older and local and had a much better rapport with the respondents. Also the local driver provided lots of local terms for each year going back to the 1950s enabling the development of an effective event calendar.

The rebellion appears to have had little direct impact on the population either in terms of selective killing (or flight and subsequent absence) of young men (overall white Tamasheq sex ratios are unchanged - table 1), nor any evidence of a temporary fall in fertility as a response to the crisis.

### 2.5 Fertility

In both 1981 and 2001 fertility data were collected using birth histories from women. In 2001 summary information was obtained for absent women from another adult in the household. In both surveys I suspect that dead children were underreported – several cases came to my attention

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in 2001 – it is impossible to get someone to talk about something they don't want to talk about. The underreporting was probably more severe in 1981.

Reported parity (figure 5) by age differs little between 1981 and 2001, although within the 2001 survey there are indications that women in Goundam have higher fertility than in the Mema. This is reinforced by the age specific fertility curves (figure 6), although the rather bizarre shapes of both curves suggest they are being distorted by age misreporting.

Total fertility can be measured directly from the reported age specific fertility schedule or estimated using the P/F method.

**Table 4: Fertility measures for 1981 and 2001**

	<b>Directly measured TFR</b>	<b>TFR estimated using P/F</b>	<b>Mean parity 45-59 (45-50 for 1981)</b>
<b>All 1981</b>	5.2	6.5	5.2
<b>All 2001</b>	5.2	5.9	5.8
<b>Mema 2001</b>	4.7	5.1	5.9
<b>Goundam 2001</b>	6.1	7.0	5.8

It is hard from table 4 to conclude that there has been any significant change in fertility over the last twenty years, although last year fertility was probably higher in Goundam than the Mema. However given the rather strange age specific fertility schedules and the weight the P/F method places on them I am inclined to be sceptical about the magnitude of the difference.

Given that the major factor shaping Tamasheq fertility in 1981-2 was the marriage regime and marriage is the demographic behaviour most susceptible to immediate manipulation we must now consider changes in marital behaviour.

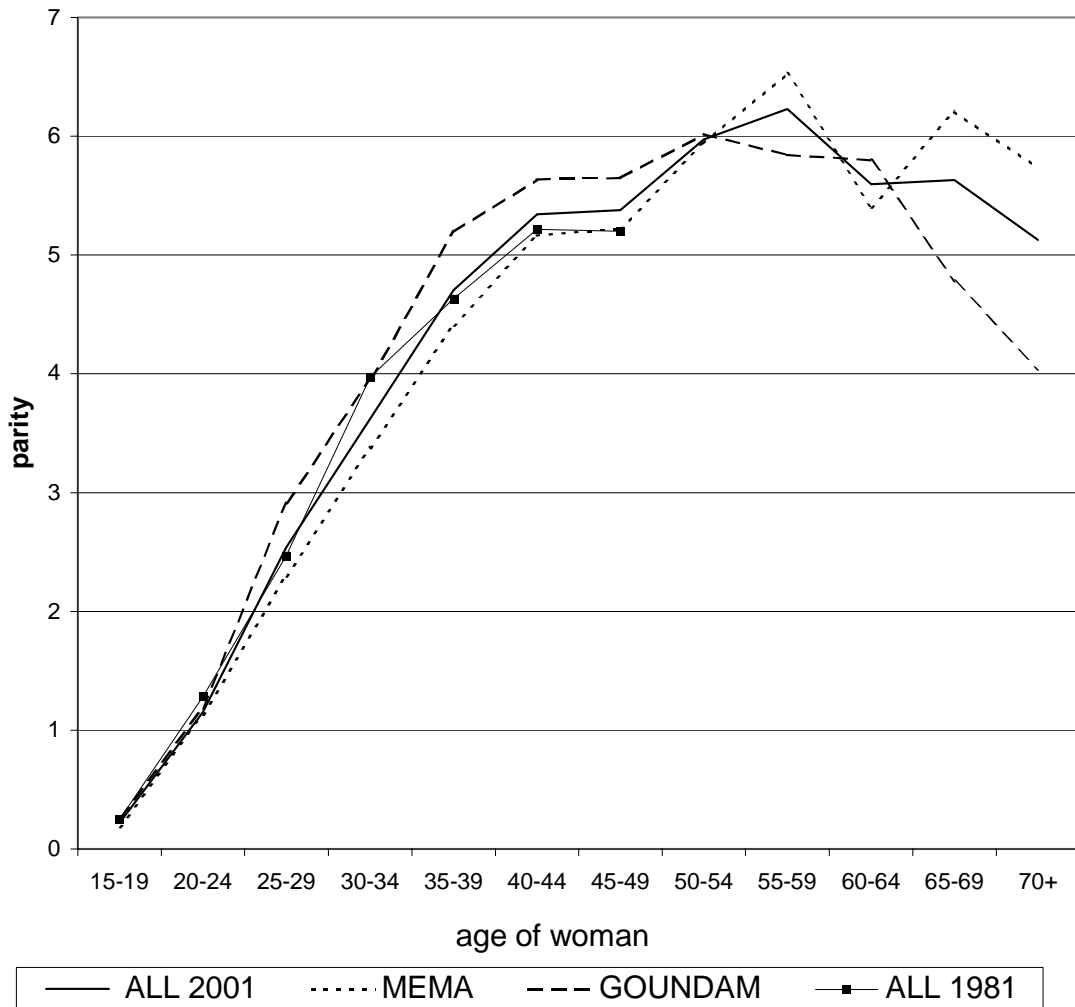
### 2.6 Marriage

Both Kel Tamasheq populations studied in the 1980s were unusual for rural Africa in that there was a high proportion of divorced women at all ages, a wide range of age at first marriage for women and relatively low proportions of women currently married at any one age.



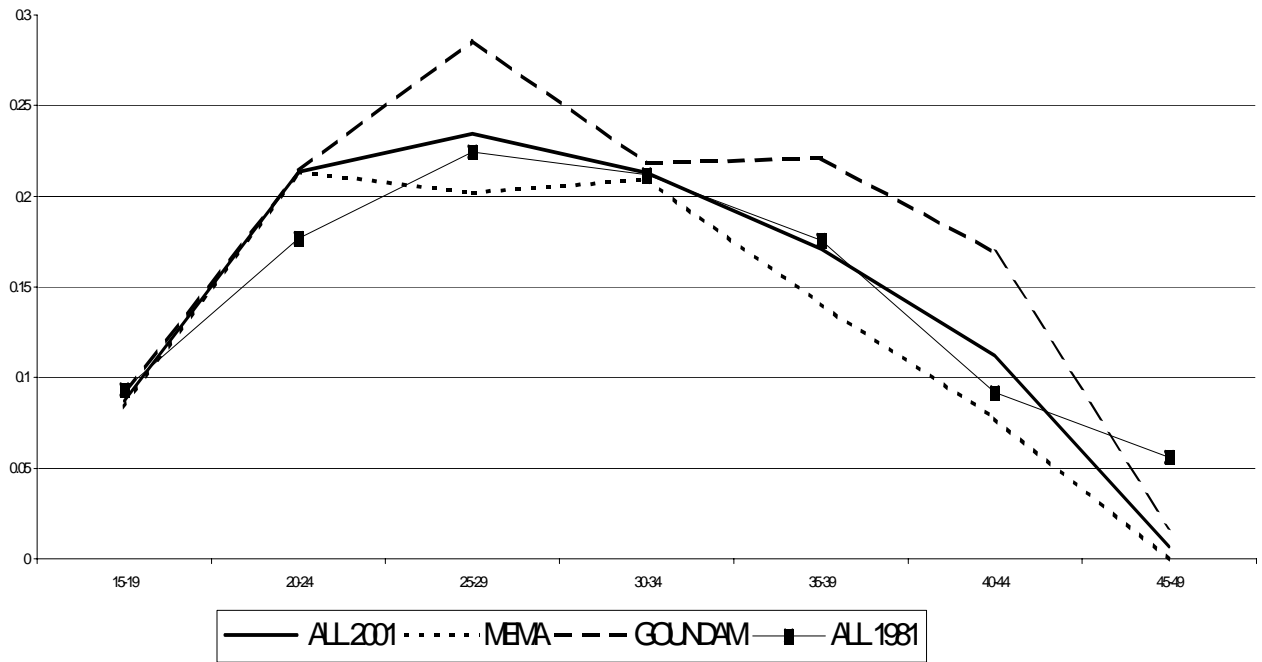
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Figure 5: Reported parity 2001 & 1981



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Figure 6: reported as fr - Kel Tamasheq 1981 & 2001



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There were also substantial spousal age differences. Much of this regime was largely a structural consequence of monogamy although it was also clear that currently unmarried women had a role to play in Tamasheq society and were not seen as anomalous outsiders (Randall & Winter 1985, Fulton & Randall 1986). It was also known that Kel Tamasheq were highly endogamous with a preference for first cousin marriages. Data were collected on kinship distance in 2001 but not in 1981 so we can only establish trends in this through retrospective data.

Comparisons of proportions married and single by age and sex suggests that in 2001 for men there is an increase in age at first marriage and a decrease in the proportions married at any age after 25 compared to 1981 (figure 7). The picture for women is less clear, with indications of an increase in the proportions single at older ages (figure 8) but, on average similar proportions married. In terms of women's divorce and widowhood (figure 9) the decline in widowhood at older ages – is probably because of declining male mortality. At younger ages there is an increase in the proportions of young women currently divorced.

The changing pattern of male marriage could be associated with three factors:

1. Increasing spousal age differences – (not yet tested)
2. Increased numbers of men of marriageable age and therefore changing sex ratios (in fact ratios of women 15-49: men 20-59 increase from 1.09 to 1.12 between the two surveys rather than decrease)
3. parallel changes in women's marriage (which doesn't seem to be the case)

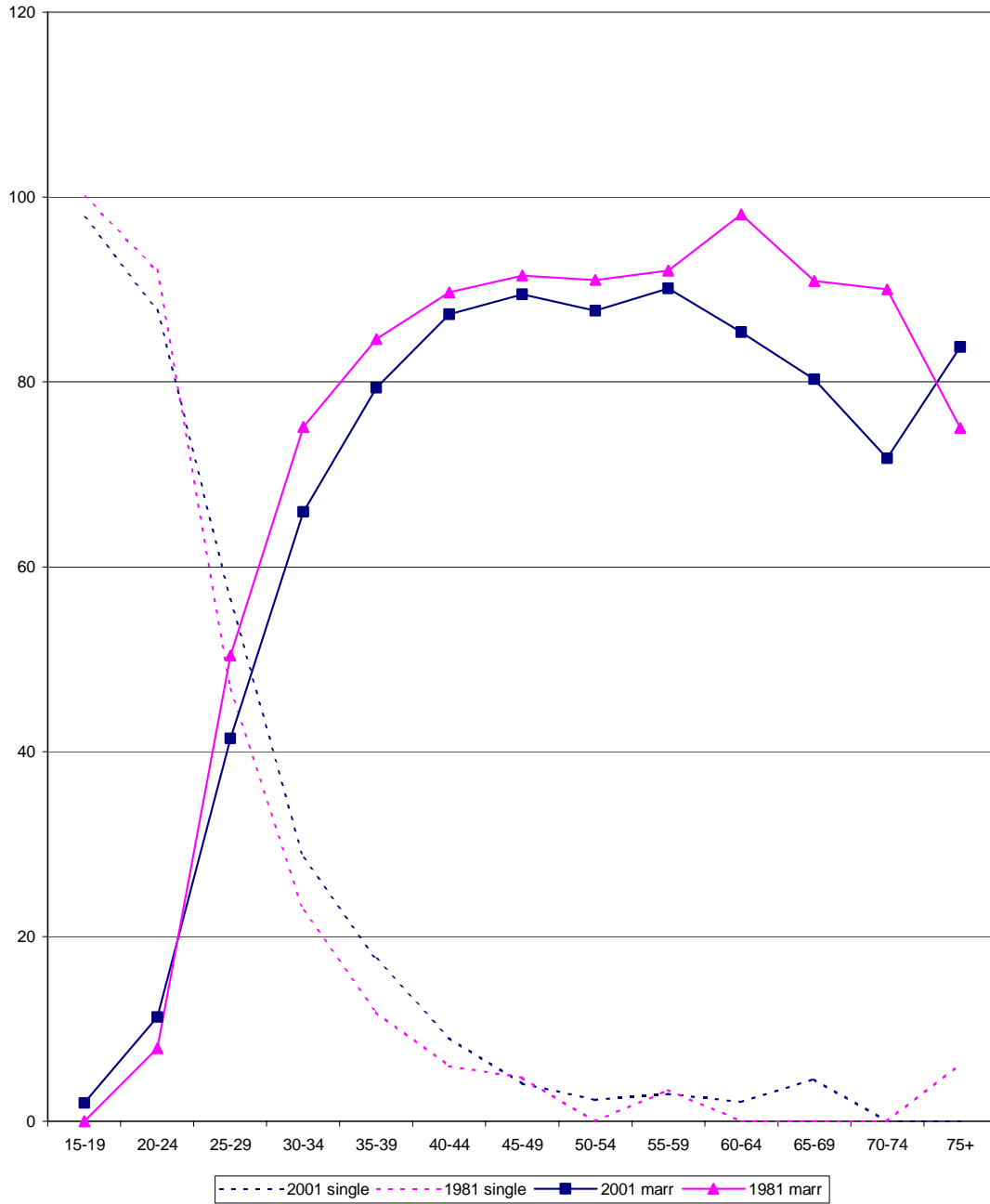
### **2.6.1 Endogamy**

In terms of changing patterns of kin marriage it was thought that the period in the refugee camps could have had an impact in different directions. The large numbers of people and relatively unrestricted opportunities for young people to meet each other could have meant a substantial increase in marriages between unrelated individuals. On the other hand, the refugee camp environment allowed long-separated families to reunite and this could have been the occasion for marriages to cement new found relationships.

All evermarried women aged 12-55 were interviewed about all their marriages, the kinship relationship between them and their husband, children and the outcome of the marriage (death,

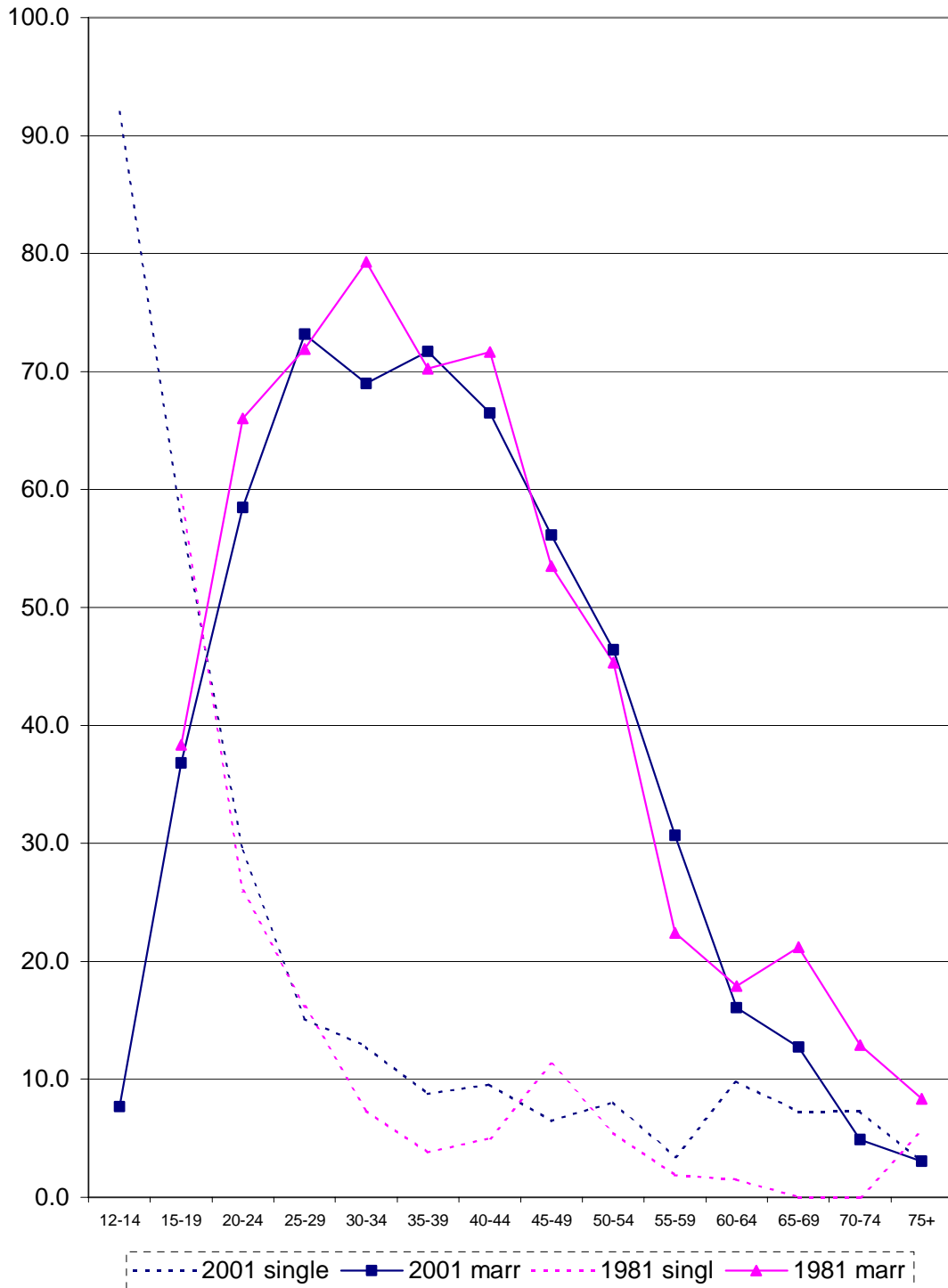
## Demographic consequences of being refugees: Malian Kel Tamasheq

Figure 7: Percentage men single and married: 1981 & 2001



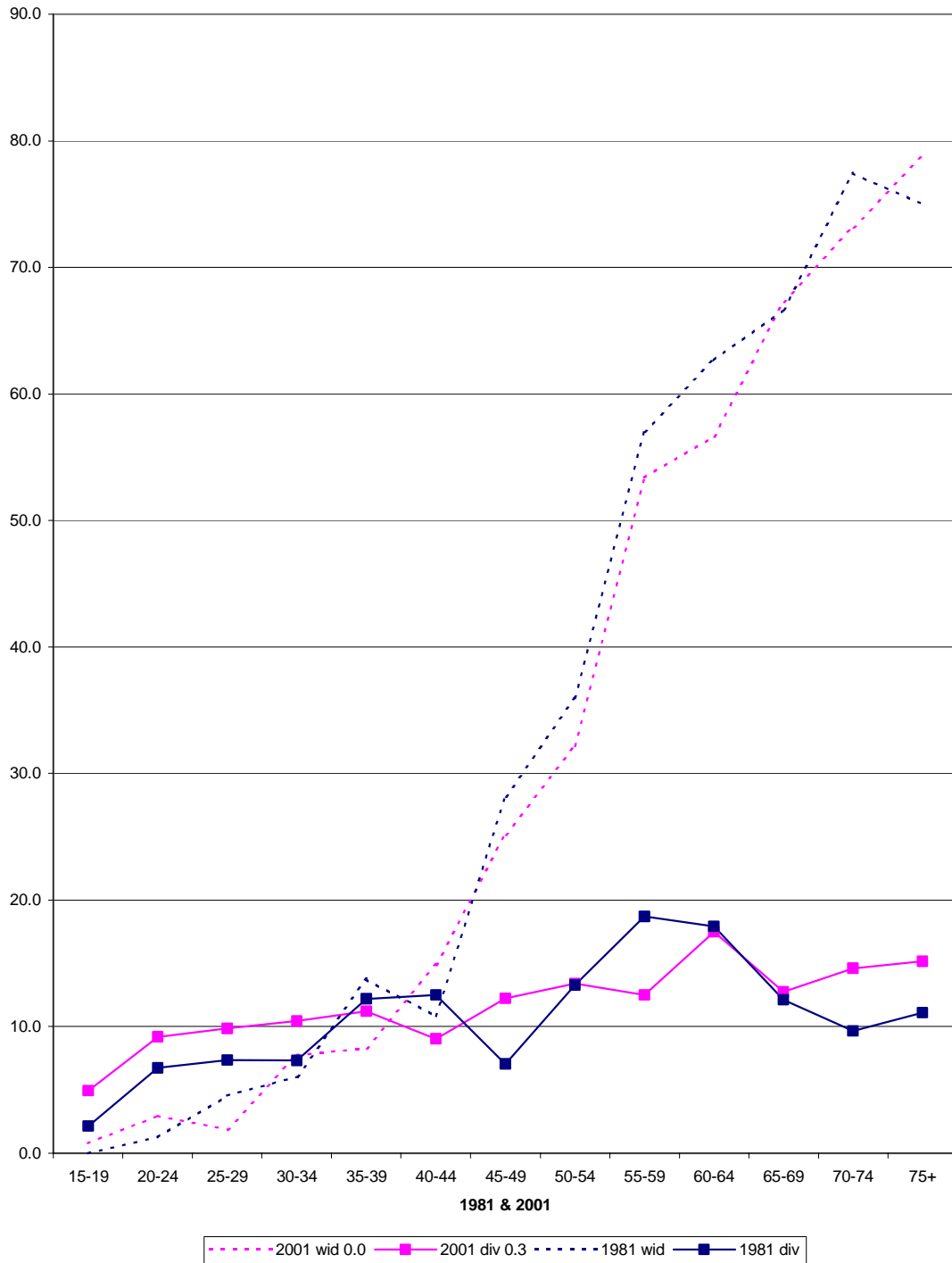
## Demographic consequences of being refugees: Malian Kel Tamasheq

Figure 8: percentages women single and married: 1981 & 2001



## Demographic consequences of being refugees: Malian Kel Tamasheq

**Figure 9: percentage women widowed & divorced  
1981 & 2001**



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divorce, continues). Age at marriage and the periods of time between consecutive marriages were recorded, from which it was possible to calculate an approximate year of marriage.

**Table 5: Percentage of marriages in each period according to kinship relationship between white<sup>8</sup> Tamasheq spouses: women's data**

period	1 <sup>st</sup> gen. cousins + once removed	2 <sup>nd</sup> gen. cousins + once removed	3 <sup>rd</sup> gen. cousin & traceable kin	non traceable kin	not kin	Total marriages
<b>before 1985</b>	42.9	20.1	9.6	13.7	13.7	<b>562</b>
<b>1985-91</b>	39.9	20.8	11.6	9.6	18.1	<b>293</b>
<b>1992-4</b>	41.7	21.5	7.6	10.4	18.8	<b>144</b>
<b>1995+</b>	51.1	17.4	7.8	9.9	13.8	<b>282</b>
<b>mean</b>	<b>43.9</b>	<b>19.8</b>	<b>9.4</b>	<b>11.6</b>	<b>15.3</b>	<b>1281</b>

These time periods were chosen to reflect the most intensive period in the refugee camps

**Table 6 : Percentage of marriages in each period by relationship between white Tamasheq spouses: first and subsequent marriages**

marriage number	1st gen cousins +		2 gen cousins +		other kin		not kin		N	
	1 <sup>st</sup>	2 <sup>nd</sup> +	1 <sup>st</sup>	2 <sup>nd</sup> +	1 <sup>st</sup>	2 <sup>nd</sup> +	1 <sup>st</sup>	2 <sup>nd</sup> +	1 <sup>st</sup>	2 <sup>nd</sup> +
<b>&lt;1985</b>	45	34	19	24	22	28	14	14	<b>444</b>	<b>118</b>
<b>1985-91</b>	45	24	18	28	20	24	16	24	<b>218</b>	<b>75</b>
<b>1992-4</b>	51	18	18	30	14	30	17	23	<b>104</b>	<b>40</b>
<b>1995 +</b>	50	55	18	16	19	15	14	14	<b>208</b>	<b>74</b>
<b>Total</b>	<b>47</b>	<b>35</b>	<b>19</b>	<b>24</b>	<b>20</b>	<b>24</b>	<b>15</b>	<b>18</b>	<b>974</b>	<b>307</b>

During the rebellion choice of spouse patterns did not apparently alter (table 5) but since repatriation the white Tamasheq population has moved in upon itself with a decrease in marriages between non-kin and an increase in those between very close kin. This is most marked in second marriages (table 6). Whereas throughout the time period the proportions of first marriages within kin groups remains relatively stable, those of second marriages fluctuates

<sup>8</sup> White Tamasheq were selected here because with respect to marriage black Tamasheq are very heterogeneous, with the blacksmiths being highly endogamous and the *iklan* less so. The white Tamasheq had most motivation for changing marital behaviour

## **Demographic consequences of being refugees: Malian Kel Tamasheq**

considerably. Women have much more say in their choice of spouse second time around and therefore one would expect less close kin marriages. What was totally unexpected was the very high percentage of close kin second marriages after repatriation and a substantial drop in non-kin second marriages. This may well be part of people reaffirming identity and trying to consolidate resources and power within families and lineages.

Thus there clearly have been some changes in marital behaviour during and since the rebellion, but as yet there is little indication that these are having much impact on fertility, although further analysis is required.

### **2.7 Mortality**

The idiosyncracies of the Tamasheq mortality regime were outlined above and have been covered in detail elsewhere (Randall 1984, Hill & Randall 1984, Hilderbrand et al 1985). It was hoped that collecting more detailed data this time round we may be able to understand more of the determinants of mortality differentials – for example the role of high levels of consanguinity.

In most populations who become refugees either for environmental or politico-military reasons, one expects an increase in mortality as a consequence of poor conditions in refugee camps, and also as a consequence of impoverishment and direct death in the conflict. Here though, in terms of access to water and health services, the majority of previously nomadic Kel Tamasheq were probably physically much better off in the refugee camps than before they left Mali. Although they have a rich pharmacopoeia and elaborate traditional medicine (ag Hamady 1988, Randall et al 1989) past high levels of mortality suggest that these were never particularly effective in stopping death. In the refugee camps there were immunisation campaigns, free health care and relatively efficient drug provision. By virtue of being in the refugee camps people were close to the health centres and perceived them as accessible (contrast with Tamasheq in 1988, Randall 1991, 1993).

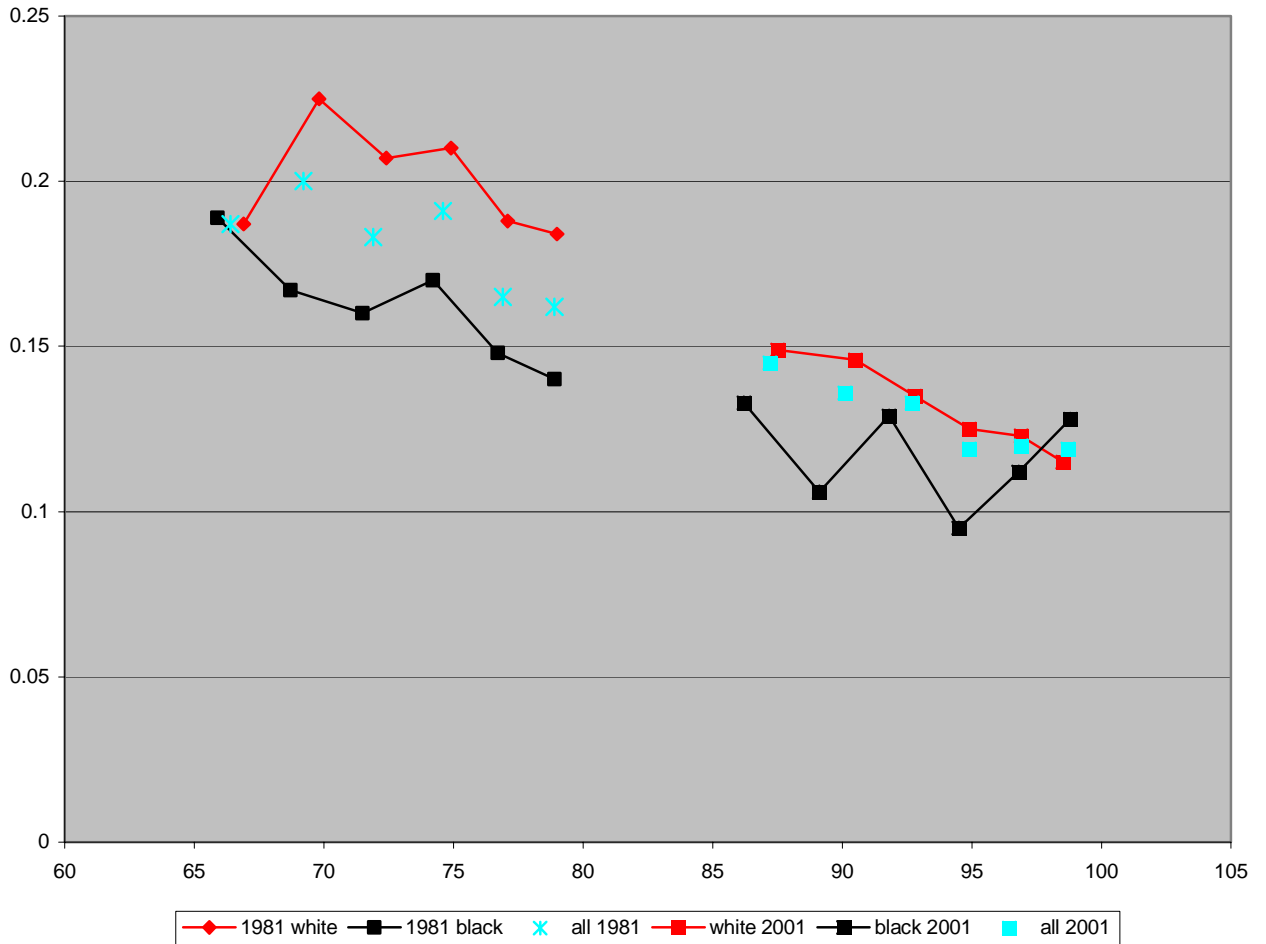
#### **2.7.1 Childhood mortality**

It is hardly surprising then the decline in mortality observed in 1981 has continued (figure 10), although the decline may have slowed down in recent years.



## Demographic consequences of being refugees: Malian Kel Tamasheq

Figure 10: 1q0 estimates using proportions dead of CEB  
(estimated using mortpak and South MLT)

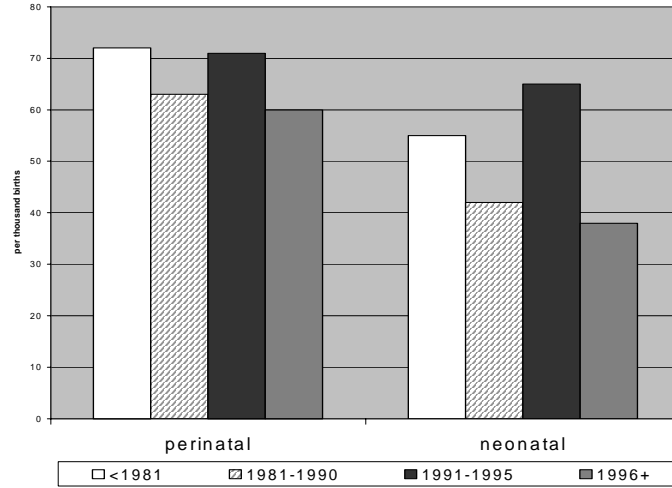


The marked social class differences observed in 1981 have diminished although, on average the black population appears still to have slightly lower mortality than the whites. The black population covered in this survey is a small and rather select sub-group compared to 1981. *Iklan* who have remained living with their masters, whether paid or unpaid, may well be the less dynamic individuals.<sup>9</sup> Those *iklan* who remained in Mali during the whole rebellion and continued herding their animals and those of their masters are still extremely isolated and not integrated into modern Mali; their camps were the most similar to the ones visited in 1981, most have never used a health centre, they live in tiny and very mobile groups and a much more

<sup>9</sup> We heard rumours that *iklan* who continued to live with white Tamasheq were publicly mocked in the market.

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Figure 11: Perinatal and neonatal mortality by period:  
from birth histories 2001



traditional pastoralist lifestyle. They also had no idea of ages. Many *iklan* included here still spend much of the year in the inner Niger Delta which involves exposure to constant malaria and very poor water. Thus the reduction in mortality differentials is unsurprising but may be largely a function of the characteristics of the black population studied.

The indirect estimates suggest that infant and child mortality has been steadily falling over recent decades. However there are problems in applying any of the model lifetables to this population which has a very different pattern of infant and childhood mortality from all the models, and the indirect estimates do not allow for the identification of particular events and effects on age-specific mortality. Preliminary work has been done using birth histories to examine particular time periods and age specific patterns, although relatively small numbers along with inaccuracies in dating<sup>10</sup> limit the analyses. Period mortality rates have been calculated for 4 different periods: before 1981, 1981-90, 1991-95 (the rebellion), 1996+ (after repatriation).

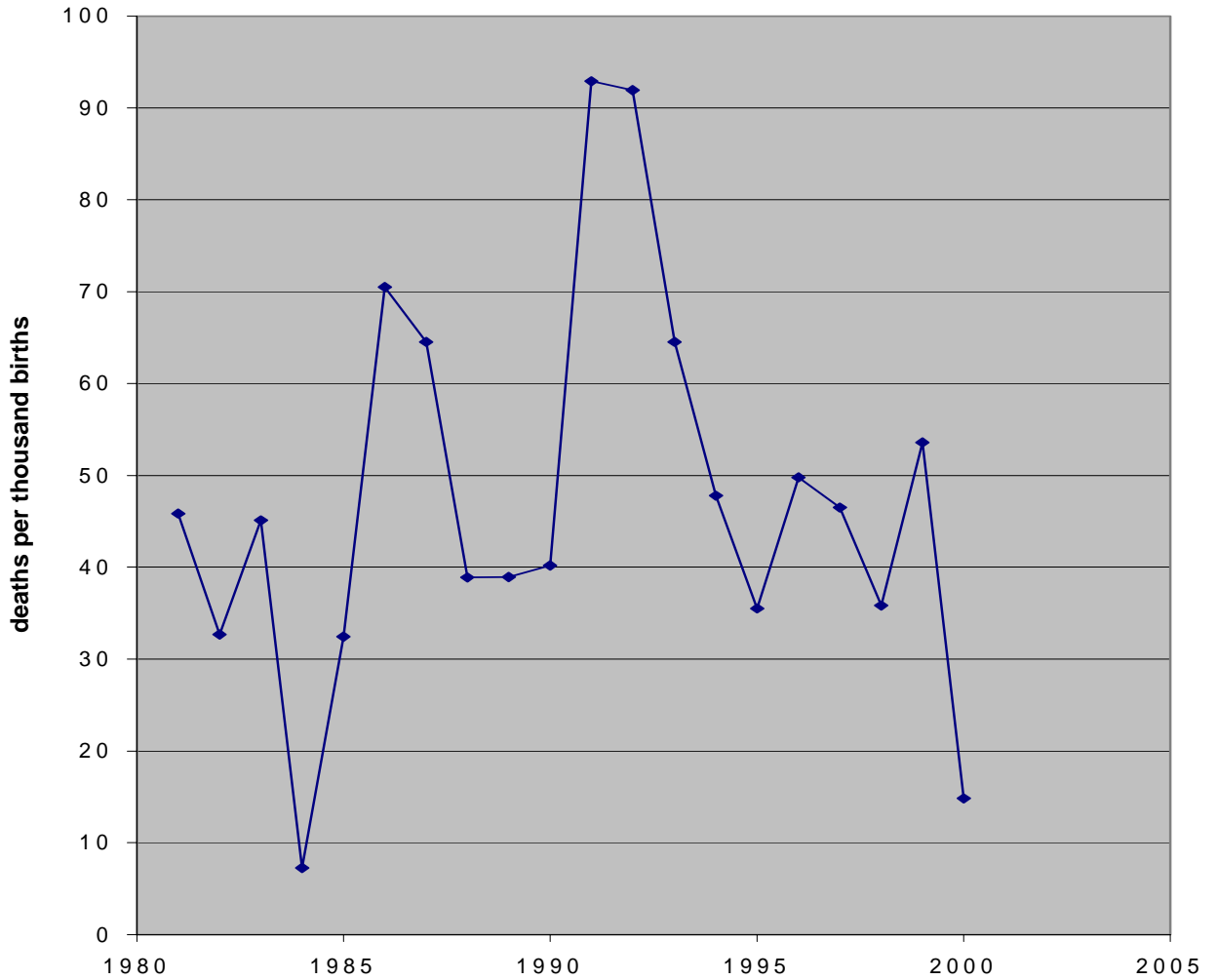
Figure 11 suggests that although both perinatal and neonatal mortality had been declining, the rebellion and refugee period had a deleterious effect – especially in neo-natal mortality (figure

<sup>10</sup> Data were not collected on date or month of birth. Few women knew the date of birth of their child, but they had no problems in remembering birth season. This is probably related to being nomadic. If they could picture *where* they were when a child was born then they had a very good idea of the season of birth. It is quite likely that with sedentarisation this ability to recall birth season will diminish.

## Demographic consequences of being refugees: Malian Kel Tamasheq

12). In 1991-2 neonatal mortality was nearly double the level of the long term trend but the decline has been resumed since repatriation.

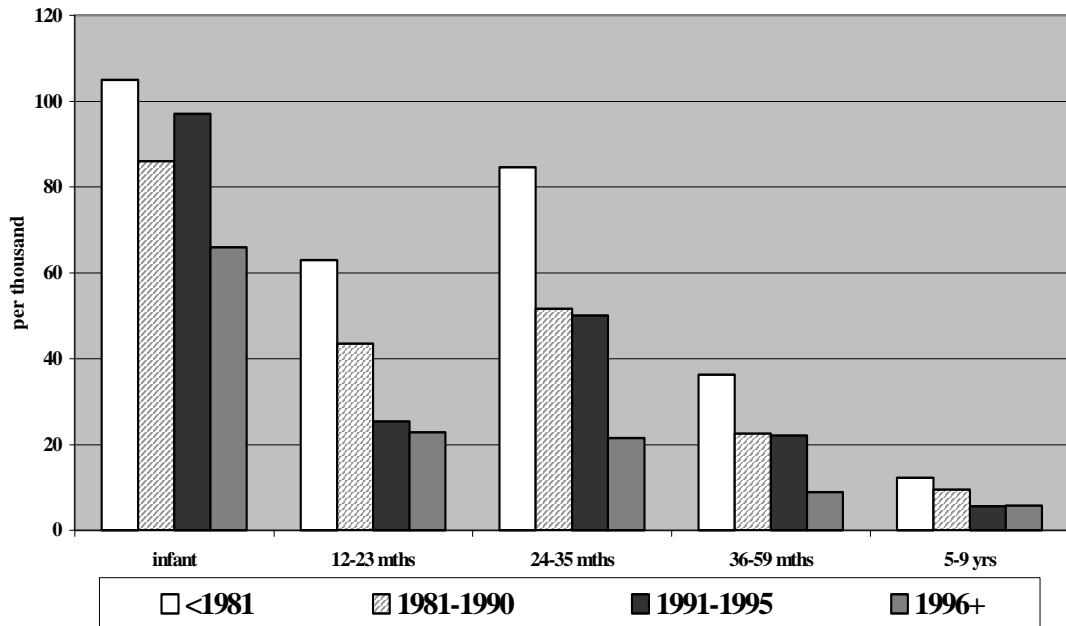
**Figure 12 : Neonatal mortality 1981-2000: from birth histories**



Overall two major features emerge from examining trends infant and childhood mortality over time (figure 13). For all age groups mortality has declined over the last twenty years although for infants and those aged 2-4 the rebellion period arrested this decline and in the case of infant mortality was associated with an increased risk. In all periods, except recently, third year mortality is higher than second year mortality. This is a pattern that has been observed elsewhere in West Africa (Gambia and Senegal, Garenne 1980) and here there is no reason to think that

## Demographic consequences of being refugees: Malian Kel Tamasheq

Figure 13: Infant and child mortality by period: from birth histories 2001



this is due to misreporting. Traditionally Kel Tamasheq children breastfed for two years and they are weaned in the season they are born in. If the mother falls pregnant then she weans the child immediately. However in that case it will be said that 'the child hadn't finished his milk'. One of the ways of establishing a child's age at death if the mother was unsure, was to ask whether he has finished his milk before dying.

Thus the rebellion and the refugee camps did have an adverse effect on child survival but a closer look (figure 14) suggests it was entirely during 1991-2 which was the period of major crisis, when people were fleeing rapidly across borders, when the refugee camps were first set up and were in disarray, when people talk about epidemics. However it seems that after this initial crisis period things calmed down and mortality declined even though people remained in the refugee camps. There is no evidence of an increase in mortality after repatriation and it seems that childhood mortality is now lower than before the rebellion.

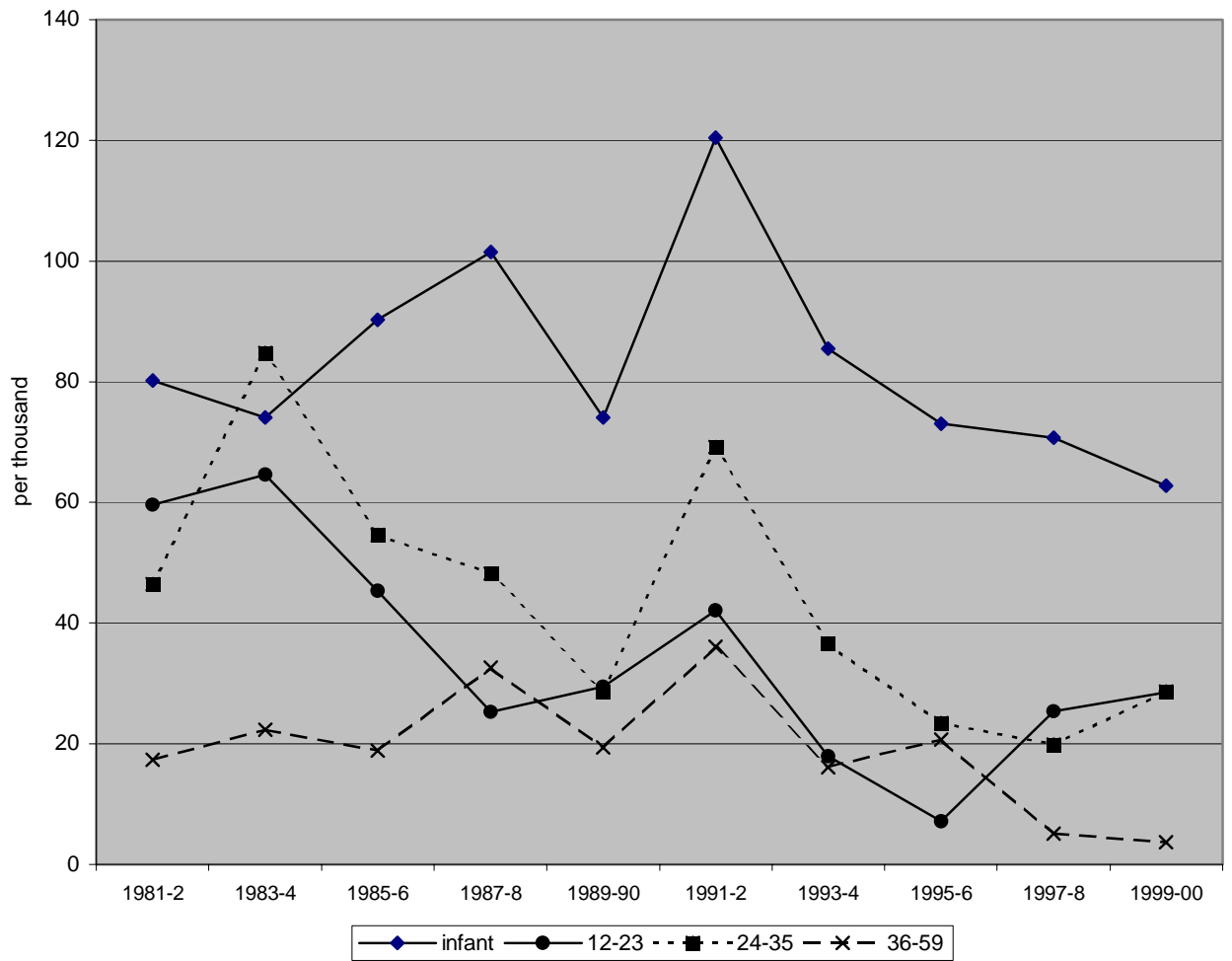
### 2.7.2 Adult mortality:

It was expected that adult mortality for white Tamasheq women would decline because of the decline in force feeding and obesity. However Mortpak-Lite (United Nations 1990 – used to make the estimates) does not use the proportions orphaned for younger women and the estimates (figure 15) are based on reports of children aged 15+ who were born well before the period of

## Demographic consequences of being refugees: Malian Kel Tamasheq

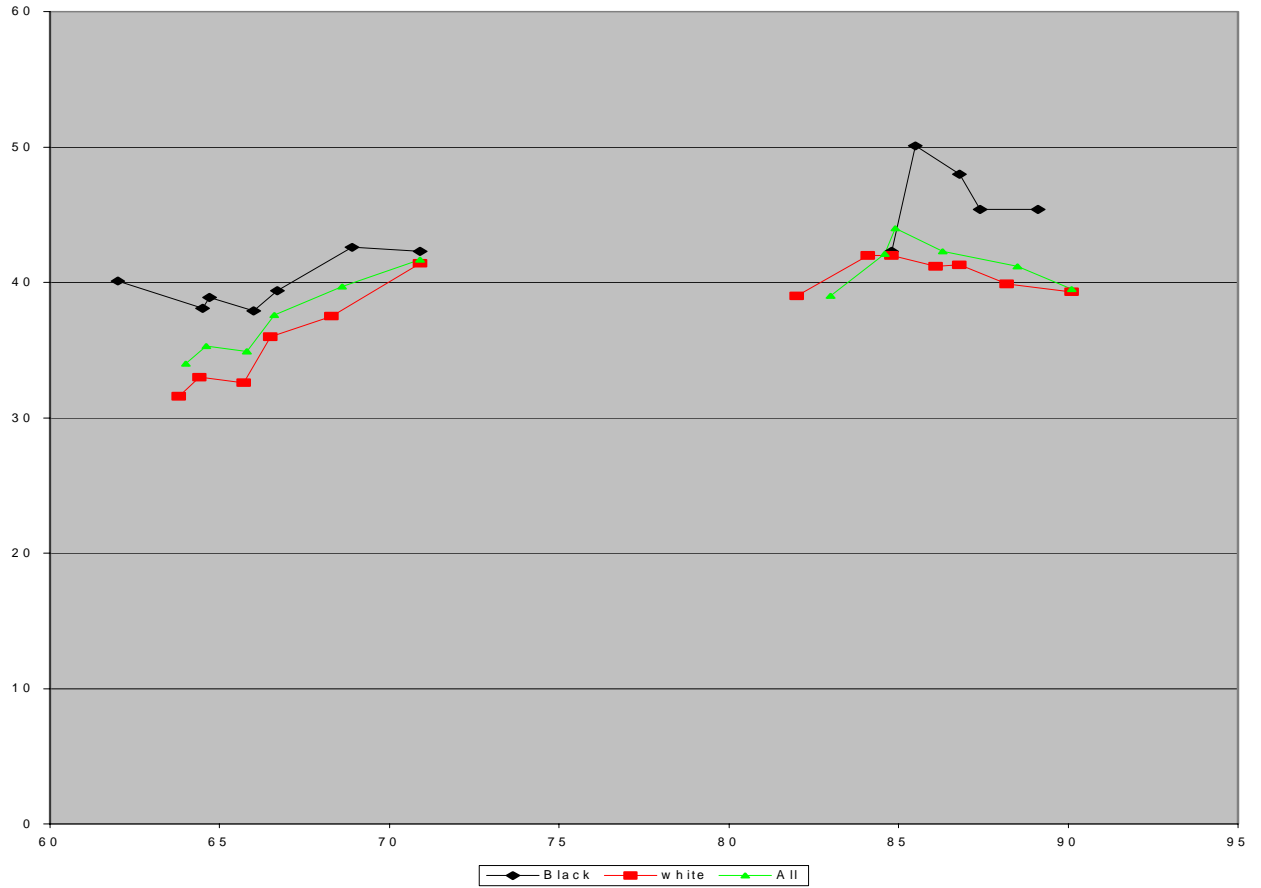
social turmoil. The improvement in mortality which was apparent in the 1980s appears to have stagnated (figure 15) and it is likely that the social class mortality differentials remain.

Figure 14: Kel Tamasheq infant and child mortality for 2 year periods: birth histories 2001



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Figure 15 : Female adult mortality:  
e20 estimated using maternal orphanhood and mortpak



In order to look at more recent risks of adults mortality table 7 shows a comparison of crude proportions of younger children orphaned by age for 1981 and 2001. Surprisingly, there is little suggestion here that maternal survivorship has improved recently. This might be expected if the population were affected by HIV and AIDS, but there is no evidence that this is so.

Table 7 : Proportions of children who are maternal orphans 1981, 2001

age of child	Delta 1981	2001
0-4	.042	.030
5-9	.093	.082
10-14	.129	.154
15-19	.175	.206

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### 3 Discussion

Given the major social changes which have occurred in Kel Tamasheq society over the last two decades their demographic behaviour seems to be remarkably resilient and unchanging. At present there seem to be few manifestations of either **direct** or **indirect** consequences of the whole process of becoming refugees and then being repatriated, despite the substantial changes in economic organisation and way of life.

#### 3.1 Mortality

The increase in childhood mortality during the first two years of the rebellion is entirely unsurprising. By all accounts this was a chaotic period when people were under substantial stress and the conditions in the refugee camps had not stabilised. What is possibly more surprising is the rapid resumption of lower mortality after repatriation. Outside the largest sites where there are trained primary health care workers and a basic supply of simple drugs, access to modern health care is not much improved. On the other hand, knowledge about modern medicine and attitudes towards it have changed – probably as a result of exposure to effective health care in the refugee camps - and people are more sophisticated in their demands for drugs compared to 1981. Transport has also improved considerably with better access to the sites (there is now a network of dirt tracks), many more cars and trucks moving between places and this may affect the ability of people to react in an emergency. People's social networks in towns and villages are probably more extensive as a result of both sedentarisation and contacts made in the refugee camps. This may resolve some of the cash flow problems which prevented people using dispensaries in the past.

Environmental conditions have also changed. In 1981 most of the surveyed population drank very contaminated standing water or river water for most of the year. At certain times of year access to plentiful water was a major problem. Children were often very dirty because there was no available water for washing and people did not see soap as an essential item. Now most sites have wells or boreholes with pumps and many have small shops selling soap. Neighbouring nomadic camps tend to obtain their water from these wells, except in the wet season when they are further afield. Although some of the Mema communities are close to the fringes of the delta, many are in much drier areas where malaria transmission is likely to be seasonal rather than continuous and the mosquito density much lower. This too will contribute to lower mortality.

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Most people still do not seek immunisation for their children. Children were immunised in the refugee camps and during the demographic survey an NGO was running a mobile campaign as part of the polio eradication programme. This was the first immunisation campaign since repatriation in the Mema.

Observations suggest that childcare patterns have changed. There are few young *iklan* nursemaids any more and mothers spend much more time with their young children. This means they are more likely to notice behavioural changes signifying illness. Children seem to be cleaner – especially young babies. There are far fewer very fat women and although these preliminary analyses do not suggest that adult female mortality has declined, the reasons for high mortality may have changed with changing implications for child health.

### **3.2 Marriage and fertility**

The continuation of the marriage and fertility regime is probably one of the most surprising finding. Marriage regimes in urban Mali (Antoine et al. 1998) have evolved very rapidly over recent years and this has been interpreted in terms of economic crisis and changing education and women's labour force participation. The Kel Tamasheq have certainly encountered economic crises and although women still do not participate in the formal labour force, for many, their domestic roles have changed considerably. This appears to have had surprisingly little effect on marriage dynamics. They have not become more polygamous, despite developments of agriculture, the disappearance of domestic *iklan*, changing women's domestic roles and all the training in income generating activities. Discussions suggest that although some men believe polygamy would be a good idea, particularly for older men whose wives are reaching menopause, many men and almost all women are totally averse to the idea. Being Tamasheq seems to be grounded in monogamy, and in the present mental insecurity where Kel Tamasheq no longer have a unique production system and lifestyle, it may be that monogamy along with language is a trait that helps reinforce their sense of identity.

Divorce remains relatively frequent and from a man's perspective, divorce is almost as effective as polygamy in enabling a man to have multiple marital partners, whereas divorce for women often leads to a prolonged period of being unmarried. The acceptability of divorce is unchanged but although in general both divorced and widowed women are cared for by male kin there does



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seem to be an increase in female headed households. 7.1% white households were female headed and 11% black households. Unfortunately it is impossible to compare this with 1981 because data were not collected for households then but I believe it is higher now.<sup>11</sup>

#### 3.3 Social change and sedentarisation

The Kel Tamasheq population of this zone had already started to sedentarise before the rebellion and refugee crisis. A few men from powerful families had started to build houses and dig wells before the 1985 drought. In retrospect, these men claim to have been visionaries for the future of the Kel Tamasheq. At the time most people thought they were mad. One man describing his attitude when his brother sold cows to build a house and finance a well was:

*‘I couldn’t understand why anyone would want to sell cows and waste money by investing in banco [the material used for house building]. We had lots of discussions and always I told him he was mad. He tried to convince me that this was the future. Eventually after several years I joined him’.*

Now most people believe that the future is sedentarised. Part of this is through necessity; without animals there is little point in being nomadic: without iklan labour Tamasheq women would have to do the heavy work of camp moving themselves – and they clearly prefer being fixed in one place. However positive attitudes to sedentarisation are partly a consequence of their refugee experience. Several people used this image

*‘Before we were like birds – we moved over the landscape and when we moved on no-one knew we had been there; this was why it was so easy to turn us into refugees – nobody missed us because we left no traces behind. Now we must build houses of banco – then if the same thing happens there will be empty villages – people will see that we are not there and they will have to do something’ .*

The perceptions are probably also related to current decentralisation in Mali. It may become more difficult for people to claim access to land if there are not physical manifestations of occupation: houses, fields, gardens. The Tamasheq have a fear of being dispossessed and becoming refugees again and sedentarising is one way of becoming less invisible.

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<sup>11</sup> People are very aware of and responsive to NGO interests and their willingness to provide funds for specific activities. They know that the NGOs are interested in women and particularly in vulnerable female headed households. Despite our efforts to disassociate ourselves from NGOs it may be that these female headed households were in fact part of larger male headed households.

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But sedentarisation is likely to have demographic consequences. In the 1960s Henin suggested that in Sudan, the more nomadic the population the lower their fertility. Here the raw measure of total fertility for the last year is 5.1 for sedentary Tamasheq and 5.3 for the mobile groups – as yet no evidence of increasing fertility. But sedentarisation is more likely to have other consequences. Fratkin et al’s examination of sedentarised Ariaal and Rendille pastoralists in Kenya suggests that sedentarisation does not necessarily improve welfare: livestock marketing is easier and more efficient for more nomadic groups, that childhood nutritional status is much better amongst nomadic communities – largely through access to milk products. However in the sedentarised Kenyan nomadic communities education levels are rising – there boys also benefit far more than girls from schooling. That is not the case here (table 8) where both sexes appear to benefit equally. The refugee camps convinced many people that education was the way forward – they saw how the educated people obtained employment in the camps, how they could mediate between different groups and how they were more independent.

**Table 8 : Kel Tamasheq indices of modern education 2001**

Age	1981: percent literate in French		2001 percent literate in French		2001 percent currently attending school	
	girls	boys	girls	boys	girls	boys
6-9	0.3	0	14.1	14.8	12.5	13.7
10-14	0.3	0.3	15.3	15.3	10.9	11.4
15-19	0	0	7.5	11.5	1.8	5.8

Interviews with women about knowledge and attitudes to contraception indicated that the few women who had been to school behaved very differently. Only 25 women over twenty claimed to be literate in French and many of them had used modern contraception. Few other women had. It may be that increased acceptability and availability of Francophone schooling is the major catalyst for demographic change.

### **3.4 Conclusion**

At present our interpretations of the reasons behind the lack of demographic change are rather speculative – not least because more change was expected. However these analyses are fairly crude and more sophisticated and detailed analysis may identify areas of change that haven’t yet emerged. Also another phase of this study currently underway is an anthropological study of

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three communities which include both refugees and those who stayed; nomads and sedentary people, educated intellectuals along with illiterate pastoralists. Analysis of the material emerging from this anthropological study should help us to understand why such a major event such as becoming refugees, has left so few marks on the basic patterns of producing and reproducing Tamasheq society in this part of Mali – a society which a decade ago looked like it might disappear for ever.

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### **References**

Ag Hamahady ElMehdi *Nosographie Tamacheque des gastro-enterites dans la region de Tombouctou* Thèse, Ecole de Medecine et de Pharmacie du Mali, 1988

Allen Tim (ed) In search of cool ground UNRISD, 1996

Antoine Philippe, Dieudonné Ouédraogo, Victor Piché (eds) Trois générations de citoyens au Sahel: trente ans d'histoire sociale à Dakar et à Bamako. Harmattan 1998

Bonfiglioli Angelo Maliki *Pastoralisme, agropastoralisme et retour: itinéraires sahéliens* Cahiers des sciences humaines 26 (1-2) 255-66, 1990

Fratkin Elliot M., Eric Abella Roth, Martha A. Nathan *When nomads settle: The Effects of Commoditization, Nutritional Change and Formal Education on Ariaal and Rendille Pastoralists* Current Anthropology, 40, 1, pp729-735 1999

## Demographic consequences of being refugees: Malian Kel Tamasheq

Fulton DJR, Randall Sara, *Households, women's roles and prestige as factors determining nuptiality and fertility differentials in Mali*. In Micro Approaches to Demographic Research (eds) J.Caldwell, A.Hill, V.Hull. Kegan Paul International, London. pp 191-211, 1988

Gallais Jean Pasteurs et paysans du Gourma CNRS Paris 1975

Garenne Michel *Problems in applying the Brass method in Tropical Africa. A case study in rural Senegal*. Paper presented at IUSSP seminar on Methodology and data collection in Mortality studies, Dakar , Senegal 1981

Henin R.A. *The patterns and causes of fertility differences in the Sudan* Population Studies 22 (1) 171-198, 1969

Hilderbrand K., Hill AG, Randall Sara, van den Eerenbeemt M-L, *Child mortality and the care of children in rural Mali* In: Hill AG. (ed), Population Health and Nutrition in the Sahel Kegan Paul International London. 1985

Hill, AG. Randall S., *Différences géographiques et sociales dans la mortalité infantile et juvenile au Mali*. Population 39(6), 1984

Hill AG. (ed), Population Health and Nutrition in the Sahel Kegan Paul international London. 1985

Pedersen Jon, Sara Randall, Marwan Khawaja (eds) Growing Fast: The Palestinian Population in the West Bank and Gaza Strip Fafo, Oslo, 2001

Randall Sara, Winter MM, *The reluctant spouse and the illegitimate slave: marriage, household formation and demographic behaviour among Malian Kel Tamasheq*. In: Hill AG. (editor), Population Health and Nutrition in the Sahel Kegan Paul International London, 1985

Randall Sara, BD Diakite, C.Pairault *Une enquête socio-sanitaire du Gourma*. INRSP, BP 1771, Bamako, Mali, 1989

Randall Sara. *Enquête au Gourma en vue d'une intervention sanitaire appropriée*. In (ed) J.Brunet-Jailly Se soigner au Mali Editions Karthala et ORSTOM, Paris, pp127-149, 1993

Randall SC. *Multi-method perspectives of Tamasheq illness: care, action and outcome*. In The Health Transition: Methods and measures (eds) Cleland J, Hill AG. The Health Transition Centre, ANU, 1991

Randall SC. *Are pastoralists demographically different from sedentary agriculturalists?* In (eds) B.Zaba & J.Clarke Environment and Population Change, ORDINA editions IUSSP, pp325-348, 1994

Swift JJ *Sahelian pastoralists: underdevelopment, desertification and famine* Ann. Rev Anthropology 6, 457-78, 1977

United Nations Mortpak-Lite Version 3 of software package for mortality measurement. United Nations, New York 1990

Wilson C *On the scale of Global Demographic Convergence 1950-2000* PDR 27, 1, 2001