

Note de recherche

Where have all the nomads gone?

Mali censuses 1987 and 1998

Sara RANDALL

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Observatoire démographique et statistique de l'espace francophone

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INTRODUCTION

In nineteenth century Africa a substantial proportion of the population was nomadic. Hunter gatherers, fishers and pastoralists all had production systems based on exploitation of seasonally and spatially fluctuating natural resources. Hence people lived in housing that could be packed up and moved in order to follow this seasonal availability across space. Although some forms of agriculture also require mobility (swidden, slash and burn agriculture) such movements are usually every few years compared to the year round mobility practised by hunter-gatherers, fishers and pastoralists. The widespread nomadic lifestyle enabled the exploitation of arid and semi-arid lands that could not easily support a sedentary population.

Throughout the twentieth century the proportions of the population who were nomadic declined, along with a decrease in actual numbers of nomads. In the case of pastoralists this was often the result of catastrophic disease, such as the east African rinderpest epidemic in the late nineteenth century (Homewood 2008) and or drought which caused livestock and human deaths; more general erosion of viable pastoral livelihoods caused individuals and households to drop out of their traditional production system and take up agriculture or urban occupations. Occasionally people managed to acquire enough resources to re-enter pastoralist production but this seems to have been quite rare (Bonfiglioli 1990, Cisse 1981, Little & Leslie 1999). Beyond dramatic catastrophes the rapid population growth of all African populations, the expansion of agriculture into former pastoral zones and increasing restrictions on movement across national boundaries have had a major impact on reducing the viability of mobile extensive livestock raising.

It has frequently been put forward that nomadic pastoralist populations have lower natural population growth rates than sedentary farming populations (Henin 1968, 1969, Swift 1977, Roth 1994). In fact the evidence for this seems to have emerged partly from colonial bias and problems in managing nomadic populations (Randall 2009) and does not take into account the fact that data on pastoralist demographic dynamics are often based on very small samples and data quality is often very poor. A review of all available studies of pastoralist demographic dynamics could not identify any systematic pattern of lower (or higher) fertility or systematic mortality differences between mobile pastoralists and sedentary agriculturalists (Randall 2008). It is true that in the Sahelian belt of West Africa, some of the pastoralist populations, particularly the former slave owning Tuareg and Maures, did have somewhat lower fertility than neighbouring agricultural populations; this is almost entirely due to the monogamous marriage pattern (Randall 1984).

Polygamous east African nomadic pastoralists do not show similarly low fertility, and neither do mobile Fulani in northern Burkina Faso (Hampshire and Randall 2000).

All Sahelian West African populations retain very high natural population growth rates, and expanding agricultural populations seeking land have gradually moved northwards often colonising areas that were previously dry season pasturelands. Former pastoralists have accelerated this land transformation by also taking up cultivation. Coupled with droughts, livestock loss, civil unrest and rural urban migration, these trends have contributed to the perception that mobile pastoralism as a way of life is disappearing fast. There is certainly strong evidence from Mauritania (Traore 1984, Mauritania 1977) that sedentarisation was very rapid in the 1960s and 1970s even in a country where not only were nomads a majority of the population, but were also the ruling elite in the government, and therefore not isolated and marginalised as they are in most other African countries.

Apart from Traoré's work in Mauritania most of the demographic studies of nomadic pastoralist populations in Africa have been small community studies (see Randall 2008 for a review). They analyse population dynamics in relatively small populations and to our knowledge have never attempted to sample the larger nomadic population - the exception being a study in Niger 1966 which focused on using different sampling methods for nomads – all of which were largely unsuccessful (Niger 1966). Thus there is a general belief that nomadic populations are disappearing but we really have no idea of the scale and rate of this disappearance nor how many nomads there have been in Africa at any one time ¹ or how many there are now.

National demographic sample surveys in Africa have tended to omit nomadic and pastoralist populations. The French undertook a series of single round demographic surveys in francophone West Africa in the last 1950s and early 1960s. With the exception of the Niger (1966) study on nomads these surveys excluded the areas with large nomadic populations: the 1961 study in Mali covered only regions 1-5 and excluded the whole of Tombouctou region (covering all the northern part of the country and the current regions of Tombouctou, Gao and Kidal). They also did not sample the nomadic population in Mopti Region. All the DHS surveys in countries with a sizeable nomadic

¹ It should be acknowledged that placing a figure on African nomads would always have been very difficult even if they could have been counted in censuses because defining a nomad is problematic: is someone a nomad who used to be nomadic, recently lost all his livestock in a drought and is now living on the edge of a town in a tent which could be mobile? There are huge difficulties in defining nomads and in defining pastoralists.

population either specifically do not sample the nomadic populations or exclude the areas where a substantial part of the population is nomadic (see DHS reports for Kenya, Ethiopia, Mali, Niger). For example in Mali the 1987 and 1995 DHS only sampled urban areas in Tombouctou, Gao and Kidal regions and the 2001 and 2006 DHS only sampled the sedentary population in these zones.

However there is one source of data on nomadic populations that has been systematically ignored. In the censuses in Mali and Niger all households are classified as either nomadic or sedentary. To our knowledge these data have never been analysed other than very basic tables in the census report of nomadic and sedentary population by age, sex and marital status. ODSEF has the individual census data for Mali 1987 and Mali 1998 and thus it is now possible to analyse the dynamics of the nomadic population and furthermore to examine some of their characteristics and how they have evolved over the 11 year period.

The aim of this report is to analyse the changes in the Malian nomad population over the 1987-1998 period and put these changes in the wider political and environmental context, in particular the conflict which took place between 1990 and 1996 and led to a considerable proportion of the nomadic population fleeing Mali to refugee camps in Mauritania, Burkina Faso, Algeria and Niger.

In order to achieve this aim it is also essential to reflect upon issues of data quality in the Malian censuses with particular reference to the responses of the nomadic population. Furthermore reflections on how census enumerators are trained and the explanations given in the training manuals provide more evidence about how nomads were approached and treated by the National Statistical Office and therefore by the government.

The analyses of the census data are put into the context of long term research on two sub groups of the nomadic Malian population: the Kel Tamasheq from the area to the east, north east and south east of Lere, near the Mauritanian border, and the Kel Tamasheq from the Malian Gourma, in particular the area around Gossi (Randall 1984, 2004, 2005, 2010). Further insights on sedentarisation and urbanisation of Kel Tamasheq following the 1985 drought come from the author's residence from 1987-1991 in a Tamasheq dominated neighbourhood of the small town of Douentza in Mopti region, and a study undertaken in this town in 1987-88 (Randall 1998a, 1998b).

DATA ON NOMADS IN MALIAN CENSUSES

In all four Malian censuses there is a box on the front of the questionnaire where the census enumerator has to indicate whether the household is nomadic or sedentary. The codes in this box provide the basis for the analysis presented below. This box forms part of the household identification and thus one assumes that it is the type of interview that differs between the two groups, rather than a classification defined out of the answer given to a question. In none of the censuses are any definitions or explanations given to the enumerators about how to classify a household as nomad or sedentary and thus complete this section of the form: it seems that it is expected to be completely self evident. This contrasts with the rest of the enumerators' manuals (Manuel d'agent recenseur 1976, 1987, 1998, 2009) in every year where great detail is given to definitions (eg. household, marriage), long explanations are provided about how to ask certain questions (about age, residence etc) and exactly what is meant by different concepts for the census. With each census the enumerator's manual becomes more detailed, more carefully defined and explained and longer. However the section on how to classify someone as nomad or sedentary is never expanded upon. From the descriptions below, and from the lack of explanation in the manuals about how to deal with nomads who appear in already mapped districts, or who disappear, it seems that the exercise of censusing nomads in the Malian census is totally separate from the mapping, numbering and interviewing of the sedentary population and that household are classified as nomad because they were identified in a different way. This conclusion is reinforced by sections in the preface to each of the published census reports as described below.

The introduction to the 1976 census report (Mali 1980) provides a detailed explanation of how the country was divided into DD and SE (section d'énumération). This is followed by:

Signalons que ce découpage a été utilisé seulement pour la partie sédentaire du pays. Pour la partie nomade, il n'est pas possible de constituer les SE selon le principe général retenu. En effet il est difficile de rattacher un foyer de peuplement nomade à un lieu géographique fixe car la position spatiale [sic] de la population nomade est fonction non seulement de la saison, mais aussi de la présence d'eau. Des points de regroupement ont été constitués pour recenser la population nomade. A cet effet, les facteurs suivants ont été retenus : la liste des tribus et des fractions, les noms des chefs traditionnels correspondants, les pistes, circuits ou couloirs de transhumance et les différents points d'eau en activité, avec une mention spéciale portant sur la période de fréquentation.

Although this is clear about how the nomads cannot be organised and mapped in the census the same way as the sedentary population, it remains unclear about how they were censused in these 'points de regroupement'. An interview with a former 1976 census enumerator indicated that in Gao region where he worked, teams of enumerators were based in a large nomad camp and each day they went out in government cars to camps in the region and, having identified camps, went from tent to tent in much the same way that the sedentary population was enumerated (Namou, personal communication)

In 1987 the explanation of the nomad context in the preface is more brief: « Les unités géographiques ainsi définies ne concernent que la partie sédentaire du pays. En zone nomade comme au recensement précédent il a été retenu de faire la liste des tribus et des fractions, des pistes, circuits ou couloirs de transhumance et des différents points d'eau en activité » (Mali 1989, p. viii). In 1987 a definition of nomad is also provided in this preface « Les nomades sont les populations n'ayant pas d'habitat fixe et qui sont en perpétuel déplacement à la recherche des points d'eau. Ils sont souvent organisés en tribus avec des chefs de tribus et ne pratiquent pas d'agriculture. » (Mali 1989, p. xiii)

In 1998 the explanation of the nomad context is identical to 1987 but the definition of nomad has changed: « Les nomades sont les populations n'ayant pas d'habitat fixe et qui sont en perpétuel déplacement lié à la nature de leur activité. » (Mali 2001, p. v)

Thus the reports provide clear evidence that the data collection methods differed for nomads and were adapted to the mobility of the population. In contrast the enumerators' manuals provide little explanation of how enumerators were to identify nomads and what they should do if they encountered them.

Classification of nomads and nomad related instructions in enumerators' manuals 1976, 1987

1976 nomads

No mention of nomadic population anywhere in the enumerators' manual. I assume that like the subsequent censuses there was a box on the front of the questionnaire.

1987 nomads

For 1987 the instructions to enumerators on how to record nomad / sédentaire were very brief. There is a box on the front of the questionnaire where the enumerator has to indicate whether the household is nomad or sedentary: « *lorsque le ménage et sédentaire portez une croix dans la case sédentaire. Et lorsque le ménage est nomade portez une croix dans la case nomade* ». (p. 20)

However no definitions or instructions are given explaining what criteria should be used to identify a household as 'nomade' or 'sédentaire'.

La collecte des renseignements sur les nomades consiste à regrouper ces derniers à des points déterminés par les tribus et les autorités administratives. Ces points sont fixés sur des cartes selon les indications fournies par les autorités. Au moment du dénombrement le BCR donnera les effectifs approximatifs des différentes fractions à regrouper au même point. (p. 53)

In the habitat section data were also to be collected on 'Type de logement: FIXE ou MOBILE' the only instruction here is « A ce niveau il s'agit de déterminer si l'habitation est un logement FIXE ou un logement MOBILE ». No definitions are given about what constitutes fixe or mobile.

Classification of nomads and nomad related instructions in 1998 and 2009 census

1998

The wording in the enumerators' manual is identical to 1987: Again there is no definition of what is meant by nomad and no indication of when the enumerator should use the box at the front of the questionnaire. The same enigmatic explanation of how to census nomads is repeated. « *La collecte des renseignements sur les nomades consiste à regrouper ces derniers à des points déterminés par les tribus et les autorités administratives. Ces points sont fixés sur des cartes selon les indications fournies par les autorités. Au moment du dénombrement le BCR donnera les effectifs approximatifs des différentes fractions à regrouper au même point.* » (p. 65)

In 1998 (and 1987) the “population flottante” (the homeless) is clearly seen as different from nomad and different instructions are given (although it is not clear whether they would be recorded with nomad/ sédentaire in the box on the front.

2009

On the front of the questionnaire is a box called ‘Type de ménage’ where the enumerator has to fill in 1=sédentaire 2=nomade 3=collectif. The fact that “collective” is here suggests that it is not the ‘sorts’ of people that are important in this classification but the ‘way the household was enumerated’ This is further reinforced by the points below.

In the Manuel du chef d'équipe – there is no mention at all of nomadic households. The implication is that mapping will be already done (and this mapping covers fixed, sedentary housing) and the chef d'équipe needs to recognise districts and sections of dénombrement (p. 6). What to do with nomadic households that appear since the mapping is not stated.

Manuel de l'agent recenseur does not describe how to fill in the box at the front. HOWEVER on p. 49 says « *La collecte des renseignements sur les nomades consiste à faire le ratissage des fractions suivant les points de regroupement fournis par la cartographie. Ces points sont fixes sur des cartes selon les indications fournies par les chefs de fractions et/ou les autorités.* » This is an almost direct copy of the 1987 and 1998 manuels. Yet again it doesn't say how these nomads will be enumerated. I imagine that it is only these special cases that are given the category ‘nomade’ and not any mobile households encountered during the sedentary enumeration.

From these enumerators' manuals it thus remains unclear exactly which sorts of households are identified as nomad and how they were enumerated. Nomadism is clearly not just related to the mobility, or potential mobility of housing, because enumerators were able to classify the 'normal' households as mobile or fixed (table 1).

TABLE 1 North Mali 1998: Relationship between 'fixe/mobile' housing and nomad status amongst three sub populations by region

Région	Population	Nature de l'habitat		Total
		Fixe	Mobile	
Mopti	Sedentary pops (no nomad origins)	266672 97.97%	5528 2.0%	272200 100.00%
	Sedentary Tamasheq, Maure, Arab	4650 80.1%	1157 19.9%	5807 100.0%
	Nomads	445 30.5%	1016 69.5%	1461 100.0%
	Total	271767 97.2%	7701 2.8%	279468 100.0%
Tombouctou	Sedentary pops (no nomad origins)	59402 95.4%	2843 4.6%	62245 100.0%
	Sedentary Tamasheq, Maure, Arab	19505 64.1%	10930 35.9%	30435 100.0%
	Nomads	419 12.6%	2908 87.4%	3327 100.0%
	Total	79326 82.6%	16681 17.4%	96007 100.0%
Gao	Sedentary pops (no nomad origins)	39050 89.6%	4538 10.4%	43588 100.0%
	Sedentary Tamasheq, Maure, Arab	7786 42.2%	10676 57.8%	18462 100.0%
	Nomads	541 11.1%	4314 88.9%	4855 100.0%
	Total	47377 70.8%	19528 29.2%	66905 100.0%
Kidal	Sedentary pops (no nomad origins)	632 91.6%	58 8.4%	690 100.0%
	Sedentary Tamasheq, Maure, Arab	2546 47.0%	2875 53.0%	5421 100.0%
	Nomads	75 4.8%	1498 95.2%	1573 100.0%
	Total	3253 42.3%	4431 57.7%	7684 100.0%

In 1998 (table 1) nearly 90% nomads in Tombouctou, Gao and Kidal regions live in mobile housing, but so do more than 50% of the sedentary Tamasheq / Maure /Arab population in Gao and Kidal and nearly 10% of the sedentary population from other language groups. Such data do not make it easy to establish just who is included in the population classified as 'nomad'.

In 1998 things are made more difficult by the fact that there are clearly a substantial number of households for whom the nomad/ sedentaire classification is wrong – although it is unclear whether this was recorded wrongly on the questionnaire or was a data entry error. One suspects the latter (see below for how these errors were corrected for the analysis).

To those who know the country the distribution of nomads by region in 1987 is more coherent than the data from 1998 and suggests there were less data entry errors or misclassifications (table 2).

TABLE 2 Mali 1987 Distribution of sedentary and nomadic population by region

Région	Type de ménage		Total
	Sédentaire	Nomade	
Kayes	1052571 99.1%	9333 .9%	1061904 100.0%
Koulikoro	1185004 99.2%	9397 .8%	1194401 100.0%
Sikasso	1307820 99.9%	1383 .1%	1309203 100.0%
Ségou	1329292 99.2%	10131 .8%	1339423 100.0%
Mopti	1224087 95.4%	58899 4.6%	1282986 100.0%
Tombouctou	355192 78.1%	99804 21.9%	454996 100.0%
Gao	250069 65.7%	130755 34.3%	380824 100.0%
Bamako	657958 99.9%	589 .1%	658547 100.0%
Total	7361993 95.8%	320291 4.2%	7682284 100.0%

Nomads in the 1998 census

In all Malian censuses “nomad” is a characteristic of a household not of individuals although, as noted above, it is not clear whether it is defined as having mobile housing, as being mobile for a certain proportion of the year or just a self defined characteristic or an administrative label. A child who was brought up a nomad but is currently living in an urban household with an uncle will not be classified nomad. In the colonial period, and up until the reforms in the early 1990s, ‘nomad’ was more of a tax code than a way of life. People who were registered as members of nomadic fractions (rather than villages) paid a different sort of tax which was collected by their ‘chef de fraction’ but this was not necessarily related to their own personal lifestyle.

In order to try and understand who is covered by the ‘nomad’ classification in 1998 a detailed exploration of the data was made (using the de jure file for all Mali having excluded visitors, collective households and duplicates – see appendix A). Building on knowledge about the country and this analysis a group of ‘false’ nomads were identified – whose classification as nomad was probably a consequence of data entry errors.

Which language groups are represented by nomads?

In the census data were collected for all individuals aged 6+ on maternal language and language spoken. Different maternal language groups dominate in each region (table 3) and although this is unsurprising, what is curious is that in each of the regions (particularly the southern regions) there are very substantial numbers of nomads whose first language is not one normally associated with a nomadic way of life or pastoral / fishing production system suggesting there may have been data entry problems.

TABLE 3 Maternal language of recorded nomads (age 6+) by region and way of life & by percentage with maternal language (Mali, 1998)

Region	Urban nomads		Rural nomads		All sedentary	
Kayes	Soninke	44.7	Peul	34.7	Bambara	43.9
	Bambara	24.7	Bambara	27.4	Soninke	30.7
	Peul	15.9	Soninke	17.3	Peul	12.1
	Maure	11.5	Maure	14		
Koulikoro	Bambara	67.0	Peul	53.9	Bambara	79.2
	Peul	17.7	Maure	30.6	Soninke	8.7
			Bambara	12.2	Peul	6.7
Sikasso	Bambara	55.2	Bambara	47.6	Bambara	56.4
	Senoufo	21.1	Minianka	16.7	Minianka	17.1
	Peul	10.6	Peul	15.4	Senoufo	15.0
			Senoufo	11.6		
Segou	Bambara	72.3	Bambara	45.0	Bambara	70.4
	Peul	7.6	Peul	19.8	Bobo	9.5
			Maure	15.1	Minianka	6.7
Mopti	Bozo	33.6	Peul	41.6	Dogon	42.2
	Peul	21.6	Bozo	29.1	Peul	27.3
	Bambara	14.2	Tamacheq	11.3	Bozo	9.1
	Dogon	9.3	Dogon	9.9		
Tombouctou	Tamacheq	58.2	Tamasheq	53.6	Songhay	47.8
	Songhay	28.8	Maure	20.8	Peul	13.2
	Bambara	5.1	Songhay	11.1	Tamasheq	27.4
	Maure	5.0				
Gao	Songha	68.4	Tamasheq	52.0	Songhay	63.6
	Tamasheq	26.7	Other languages	15.0	Tamasheq	22.8
			Maure	15.4		
			Songhay	8.4		
Kidal	Tamasheq	77.0	Tamasheq	88.7	Tamasheq	84.4
	Maure	22.3	Maure	5.6	Maure	6.1
			Arabe	4.6		
Bamako	Bambara	72.4			Bambara	76.0
	Soninke	7.7			Soninke	5.0
	Songhay	5.2			Peul	5.0
	Peul	4.8				

Note: Groups normally associated with nomad lifestyle highlighted in bold.

The distribution by maternal language of urban nomads tends to match the overall distribution of maternal language spoken by sedentary groups in that region. This suggests either that many of these apparent urban nomads were misclassified either on the census forms or during data entry. A data error interpretation is reinforced by the fact that, with the exception of Tamasheq, Maure, a few Fulani and Songhay, very few urban nomads have activities related to mobile production, such as herding or fishing (see below). Even amongst the rural ‘nomads’ whose mother tongue is not usually associated with pastoralism, 52.6% ‘nomadic’ Bambara are recorded as farmers as are 53.1% ‘nomadic’ Soninke and 54.9% ‘nomadic’ Dogon. Farming is not usually compatible with a nomadic lifestyle. It is not clear what groups are covered by ‘other Malian languages’.

TABLE 4 Percentage of maternal language declared nomadic (Mali, 1987 & 1998)

Maternal Language	1987	1998 as recorded	1998 after removing false nomads
	(1)	(2)	(3)
Tamasheq	49.4	11.2	11.2
Arabe	44.5	11.8	11.8
Maure	21.8	10.8	10.8
Other Malian	26.6	8.8	8.8
Bozo	6.1	2.0	2.0
Peul	6.2	1.4	1.4
Songhay	2.0	1.5	1.5
Soninke	0.1	0.2	.0
Kassonke	0.1	0.2	.0
Senoufo	0.1	0.2	.0
Dogon	0.2	0.2	.0
Bambara	0.1	0.2	.0
Minianka	.0	0.2	.0
Bobo	0.1	0.1	.0

Focusing on proportions nomadic within each maternal language allows us to examine whether there are particular language groups which are more nomadic (table 4 – column 2). Prior knowledge would have suggested this distribution – with the exception of ‘other Malian languages’. However as can be seen from the comparison with the 1987 census this language group had a high proportion of nomads then too.

TABLE 5 Nomads by type and maternal language of household head and by region (Mali, 1998)

Region	Type of nomad classed by maternal language			Total
	agricultural language group	pastoral nomads Tuareg, Maure, Arab	Fishers and agropastoralists Bozo, Peul, Songhay	
Kayes	2156 52.3%	587 14.2%	1382 33.5%	4125 100.0%
Koulikoro	943 17.3%	1602 29.4%	2896 53.2%	5441 100.0%
Sikasso	2297 81.5%	0 .0%	521 18.5%	2818 100.0%
Ségou	2169 64.4%	487 14.5%	712 21.1%	3368 100.0%
Mopti	1329 15.7%	984 11.7%	6131 72.6%	8444 100.0%
Tombouctou	1048 6.7%	12064 77.0%	2564 16.4%	15676 100.0%
Gao	313 1.3%	18787 80.1%	4366 18.6%	23466 100.0%
Kidal	59 .9%	6739 98.9%	13 .2%	6811 100.0%
Bamako	1846 89.0%	9 .4%	220 10.6%	2075 100.0%
Total	12160 16.8%	41259 57.1%	18805 26.0%	72224 100.0%

We can classify maternal languages into three groups: (1) around 10% the population is nomadic in 1998 (Tamasheq, Maure, Arab and other Malian languages) and over 20% were nomadic in 1987; (2) 1-2% population is nomadic in 1998 and other sources suggest that a mobile lifestyle associated with either fishing or pastoralism is practiced by a minority of the population (Bozo, Peul, Songhay); (3) languages not normally associated with mobile lifestyles or the associated production systems. Table 5 indicates the distribution of the three groups by regions.

In Sikasso, Segou, Bamako, and, to a lesser extent Kayes, the majority of those recorded as nomadic in the census speak group 3 languages. Mopti – the region containing the Inner Niger delta – has a considerable proportion of Bozo and Peul. As expected, nomadic Peul, and some Bozo (fishers) are found over the whole country. Evidently some people from agricultural language backgrounds may have married into pastoral

populations or even have adopted a pastoral production system, but the combination of large numbers of non-pastoral languages in non-pastoral zones suggests some data entry / classification problems

What are the main economic activities of those recorded as nomads in 1998

The main question in relation to understanding who the category 'nomads' represents in the 1998 Malian census is whether the majority of those recorded as nomads are pastoralists or fishers? A simple examination of the frequencies shows that 60% nomadic individuals were recorded as having no activity², 13.5% work in agriculture or gardening, 20.2% in livestock husbandry and 1.7% in fishing. For all those for whom an economic activity was recorded, the activities were classified into 7 groups as specified in table 6 (some labels missing from the file were obtained from the published census report).

These were defined as:

- Agriculture and everything else: all agricultural activities + all other activities which were unlikely to be associated with pastoralism or fishing
- Pastoral activities = animal livestock husbandry, herder, shepherd, manager of livestock
- Fishing
- Forgeron & crafts: includes all blacksmiths, leather workers, jewelers
- Religious: imam, marabout
- Manual activities possibly associated with pastoralism: petty commerce, mat / basket making (vannerie)
- Professional possibly associated with pastoralism: teacher, nurse, health worker traditional healer. These were all activities that, especially since repatriation from refugee camps in the mid 1990s, might be undertaken whilst maintaining a nomadic lifestyle – at least for part of the year

One needs to recognize that there is a division of labour within households which is particularly marked by gender and thus one might only expect there to be one or two

² Both housework and being a school pupil /student were classified as inactive in Malian censuses. We recognise that many women work extremely hard in housework – and probably do many other small productive activities within the household that are ignored by the census classifications. The very low number of maids recorded in the census also suggests that a considerable proportion of the many domestic workers were recorded as doing housework and thus appear inactive. Because a great many of these domestic workers are in fact young girls working for family (or in the case of Tamasheq, Bella working for their 'owners') there is a very serious underestimation of women's work.

people in any one household who is actively engaged with animal husbandry. Hence we need to examine economic activities at household rather than individual level to establish whether they are compatible with a nomadic lifestyle.

TABLE 6 Economic activities of population (aged 6+) defined as nomad (Mali, 1998)

Region	Pastoral or pastoral related economic activities						
	agricul- ture and everything else	pastoral activities	fishing	forgeron and crafts	religious	manual poss assoc pastoralism	profess- sional poss assoc pastoralism
Kayes	1752 68.1%	671 26.1%	59 2.3%	18 .7%	1 .0%	67 2.6%	3 .1%
Koulikoro	1169 37.6%	1875 60.2%	6 .2%	7 .2%	5 .2%	48 1.5%	3 .1%
Sikasso	1385 80.4%	184 10.7%	79 4.6%	11 .6%	4 .2%	57 3.3%	3 .2%
Ségou	1438 72.8%	290 14.7%	93 4.7%	20 1.0%	5 .3%	125 6.3%	3 .2%
Mopti	1725 34.5%	1726 34.6%	1100 22.0%	225 4.5%	6 .1%	212 4.2%	1 .0%
Tombouctou	2317 31.9%	3991 54.9%	153 2.1%	570 7.8%	21 .3%	212 2.9%	3 .0%
Gao	3597 30.8%	7263 62.1%	104 .9%	443 3.8%	3 .0%	279 2.4%	7 .1%
Kidal	202 6.6%	2710 88.9%	9 .3%	43 1.4%	1 .0%	82 2.7%	2 .1%
Bamako	369 56.0%	5 .8%	12 1.8%	19 2.9%	4 .6%	238 36.1%	12 1.8%
Total	13954 37.7%	18715 50.5%	1615 4.4%	1356 3.7%	50 .1%	1320 3.6%	37 .1%

In attempting to address the question of whether there is at least one person in every household who is a pastoralist or fisher or possible associated activity the following approach was taken. For every household which was declared to be nomadic, the number of people working in each of the different categories outlined in the table above was calculated, in order to see whether there was evidence that households were combining pastoralism with these activities.

With few exceptions there is little overlap between households with pastoral activities and those who fish (with the exception of Mopti region). Similarly there is little overlap between blacksmith and leatherworking households and pastoralists, with the exception

of Mopti, Tombouctou and Gao. Throughout the country there is no overlap between nomadic households recorded as containing a marabout, imam, muezzin and people working in pastoralist occupations. Throughout the country, but more marked in the south (although never very many) there are nomadic households containing people working in pastoralism and others working as labourers or servants. With only a couple of exceptions all households which contain people of professional activities which could be associated with pastoralism (eg primary school teachers or health workers) actually have no-one in the household with any pastoral related activity.

Households recorded as nomadic in the census were classified by maternal language of the head of household (as above: agricultural language group, pastoral group (Tamasheq, Arab, Maure) and agropastoral/fisher group (Bozo, Peul, Songhay) and by whether any individual in the household declared a pastoral or fishing activity, or declared to be a blacksmith or working with leather. Over the whole country the distribution of reported nomadic households can be seen in table 7.

TABLE 7 Distribution of nomadic households by maternal language of household head and by economic activities within the household (Mali, 1998)

Language group of hh head	No pastoral / fishing production	At least one person with pastoral, fishing or blacksmith production	Total households
Agricultural languages	(1) 2276 (92.0%)	(4) 181 (8.0%)	2457
Pastoralist populations: Tuareg/Arab/Maure	(2) 3135 (28.3%)	(5) 7260 (71.7%)	10295
Agropastoralist / fisher (Peul, Songhay, Bozo)	(3) 1908 (39.3%)	(6) 2694 (60.7%)	4602
Total households	7319	10135	17454

Given the problems identified with the data and the strong evidence that there are substantial errors we are forced to make assumptions about the extent to which those declared as nomadic actually are nomads. From the above table we divide the declared nomads into 3 groups:

1. Not nomads (probably data error): cell 1 (ie speak agricultural languages and have no pastoral / fishing activity)
2. linguistic nomads (but with no pastoral / fishing production) cells 2 & 3
3. production nomads – pastoralists / fishers / blacksmiths (cells 4,5,6)

Excluding column 1 from all subsequent analysis excludes around 70% of the anomalous urban nomads in the South of the country and 83% nomads recorded in Bamako (table 8).

TABLE 8 Characteristics and distribution of nomad types by region (Mali, 1998)

Région		Characteristics of nomad household head			Total
		neither linguistic nor pastoral prod	linguistic but not production	pastoralist fisher or blacksmith	
Kayes	Count	362	195	259	816
	% within Région	44.4%	23.9%	31.7%	100.0%
Koulikoro	Count	162	300	778	1240
	% within Région	13.1%	24.2%	62.7%	100.0%
Sikasso	Count	424	32	115	571
	% within Région	74.3%	5.6%	20.1%	100.0%
Ségou	Count	407	171	176	754
	% within Région	54.0%	22.7%	23.3%	100.0%
Mopti	Count	318	506	1294	2118
	% within Région	15.0%	23.9%	61.1%	100.0%
Tombouctou	Count	261	1641	2381	4283
	% within Région	6.1%	38.3%	55.6%	100.0%
Gao	Count	19	1976	3706	5701
	% within Région	.3%	34.7%	65.0%	100.0%
Kidal	Count	1	177	1407	1585
	% within Région	.1%	11.2%	88.8%	100.0%
Bamako	Count	339	45	22	406
	% within Région	83.5%	11.1%	5.4%	100.0%
Total	Count	2293	5043	10138	17474
	% within Région	13.1%	28.9%	58.0%	100.0%

Hence for all the analysis below for 1998 we only include the nomads who live in households EITHER headed by an individual who originates from a language group traditionally associated with a nomadic lifestyle – but with no economic activities associated with nomadic lifestyle in the household (referred to as “linguistic nomads”) OR those who have at least one person in the household who is a fisher, herder or blacksmith/ leather worker (referred to as “productive nomads”). In all that follows it is these two categories combined who are referred to by ‘nomads’ for 1998. The others (referred to as false nomads) are added to the sedentary populations.

Quality of data on nomads in Mali

Reflections on the quality of census data can approach this issue from four directions

- bias or lack of clarity in the concepts and definitions
- particular sub-populations who are likely to be omitted and underrepresented
- populations who are enumerated but for whom the data are of poorer quality than for other groups
- general quality of census data in terms of coding, data entry and cleaning

Thus there are many levels at which bias and errors can arise. The highest level is via the politicians, statisticians, demographers in the national statistics office and external advisers. These people design the structure of the census, designate the concepts and definitions and also elaborate the strategies necessary for maximising census coverage. Politicians (or even international organisations) determine what topics are of interest and on which data should be collected. The second level is within the National Statistical Office and covers the recruitment and training of enumerators, their competencies and their ability to collect good quality data from the population. The quality of the census cartography is another essential element of this level. This level influences considerable extent to which the population is fully enumerated. The third level depends on the willingness and the ability of particular individuals or subgroups of the population to reply to the questions on the census schedule. The fourth level depends largely on the resources and technologies available.

We will consider each of these from the perspective of the representation on the Malian nomadic population in the census, compared to that of sedentary rural populations in the country.

The fact that the Malian population is classified into nomads and sedentary and that there have evidently been specific strategies drawn up to enable the nomadic population to be enumerated is a very positive sign in terms of high level recognition that a different approach to the classic mapping and household numbering is needed, and that nomads need to be included in the census. However there is evidence that, although it is recognised that the nomads need different strategies, the political and statistical interest in this subpopulation is minimal. The lack of definitions and specificity about who or what is considered to be a nomad in any of the 4 censuses suggests that there is no high level

interest in analysing the data on nomads and understanding the dynamics of this section of the population.

This general lack of interest is evident from the published tables which are classified by nomad status (table 9). Very few published tables are disaggregated by 'mode de vie' and the analytic volumes never undertake any analysis which separate out the nomadic population.

TABLE 9 Census reports tabulations on the nomadic population

Year	Number of nomad tables	Content of tables
1976	3	<ul style="list-style-type: none"> • Population résidente par sexe/âge/mode de vie : (pays, régions et cercles pour lesquels la population nomade est significative) • Population nomade par groupe d'âge et statut matrimonial (pays, régions à population nomade significative) • Population nomade par groupe d'âge et type d'activité (pays, régions à population nomade significative)
1987	4	<ul style="list-style-type: none"> • Population résidente par sexe/âge/mode de vie : (Régions T/U/R) • Population de 6 ans + selon la mode de vie, l'âge et type d'activité (Régions T/U/R) • Population de 12 ans + selon la mode de vie, l'âge et le statut matrimonial (Régions T/U/R) • Population 12+ selon le nombre d'épouse ou de mariage, mode de vie, âge et sexe (Régions T/U/R)
1998	4	<ul style="list-style-type: none"> • Population résidente par sexe/âge/mode de vie : (Régions T/U/R) • Population de 6 ans + selon la mode de vie, l'âge et type d'activité (Régions T/U/R) • Population de 12 ans + selon la mode de vie, l'âge et le statut matrimonial (Régions T/U/R) • Population 12+ selon le nombre d'épouses ou de mariages, mode de vie, âge et sexe (Régions T/U/R)

If a conceptual category is considered important by decision makers then it tends to be clearly defined and explained for the enumerators. There are pages devoted to age and to household definition in the census enumerator's manuals as well as detailed descriptions of the different schooling levels and types of housing and water supply. Concepts and distinctions which are less important at a national level may be left ill defined and explained. Such is the case for nomad/sédentaire and mobile/fixe in all the Malian censuses.

Under-enumeration of nomads.

In all censuses certain populations are under-enumerated. The risk of being missed by the census is generally much higher for mobile individuals or groups, for those who are politically and economically marginalised and those who live in sparsely populated areas. Malian nomads fall into all of these categories, and furthermore, in 1998 many had only just returned from 5 years exiled in refugee camps in neighbouring countries. Both the repatriated refugees and those nomads who remained hidden in the dunes in Mali during the rebellion are likely to have been very reluctant to be enumerated by the Malian state who had only just ceased to be the enemy. It is certain that every census has undercounted the true number of nomads in the country and this undercounting is probably much greater than amongst the sedentary population. Because the instructions for mapping and enumerating nomads are not in the census documentation, it is somewhat difficult to evaluate the different ways in which this undercounting has occurred and its potential extent.

Quality of data for enumerated nomads

Demographic data are highly dependent on age and the quality of age reporting. In rural Mali age reporting has always been poor: educational levels are low and people have little need for knowing their age. Event calendars were provided to census enumerators but these are oriented largely around political and economic events in the south of the country. Northern nomadic populations, especially the women, may be totally unaware of many political events. In the surveys undertaken with Tamasheq nomads in 1981 and 1982 we tried to develop local event calendars but there were very few events which many people knew: these tended to be natural events like 1932 (many comets in the sky) 1945 (eclipse in the cold season) 1959 (eclipse in October) and droughts. Age data are much poorer for nomadic populations, and for adults there is very considerable heaping on digits ending in 0.

The unit of enumeration in the census is the household which for nomads is the tent. However the tent is not really an economic unit – it is more of a woman-centred sleeping unit. Young adolescent or adult men do not necessarily sleep regularly in their parents' tent and often do not sleep regularly in any tent. Young men are very mobile in general and pastoralist young men in particular: Many are off herding animals at the time of the census and may not be reported as members of any household.

A further issue is that of language. This is most likely to affect sedentarised former nomads in settlements and towns. Census enumerators are largely recruited from teachers and students. In 1976 and 1987 the majority of teachers in the northern areas did not necessarily come from those zones and a great many teachers only spoke Bambara and French. This meant that they had difficulty communicating with local populations who spoke different languages. They will often have had to work through informal interpreters which is likely to reduce the quality of the data further³.

In general then the quality of data for nomads is likely to be less good than for the sedentary population. If, as seems probable from the descriptions in the reports, the nomadic populations were asked to group around water points to be censused, then this will have further reduced data quality. The enumerator will have been unable to observe the materials of the house, the respondent will have been unable to check details with other members of his household (for example on the total number of dead children his wife has had) and data quality will decline accordingly.

Not only are nomads more likely to have difficulties in answering the questions accurately even if they wanted to, their political marginalisation, their mistrust of the authorities and the fact that in 1976 and 1987 it was probably very difficult for an illiterate nomad to distinguish between the administrative census for fiscal purposes and the general demographic census will have increased their reluctance to answer honestly. Nomads were also wary of talking about their children for fear they would be forcibly removed to school. It is highly likely that even within households that were interviewed respondents may have omitted some individuals. In the experience of the Tamasheq surveys undertaken in 1981-82 where we were able to crosscheck responses from husbands and wives, despite our attempts to distance ourselves from the authorities, there was clear evidence of underreporting of children. Interestingly the survey in 2001 had the opposite problem. Amongst those who had been in refugee camps there was a tendency to invent extra children because people had got used to receiving per capita rations and resources and adapted their responses accordingly.

³ In the 1987 census the enumerator was overjoyed when he encountered me and my household. A Bambara speaking teacher, he had already been to 10 households that morning and had been unable to fill in a single questionnaire because he couldn't communicate with the Tamasheq residents.

General quality of data

The data files received by ODSEF appear to contain a considerable number of errors. Most of these are equally applicable to the sedentary population (see Appendix A), but it is quite clear that either there was wrong coding or a considerable amount of data entry errors for the classification of nomads in 1998 (see above). Many fairly simple data entry errors remained; this is probably a consequence of limited resources and time available for data cleaning and apart from the 1998 classification of nomads there is no evidence that it affects the nomadic population more than the sedentary. However it does mean that in some of the analyses there is a considerable amount of missing data.

EVOLUTION OF THE MALIAN NOMADIC POPULATION AND THE EX-NOMADIC POPULATION

Age sex structures of sedentary and nomadic populations 1976, 1987 and 1998

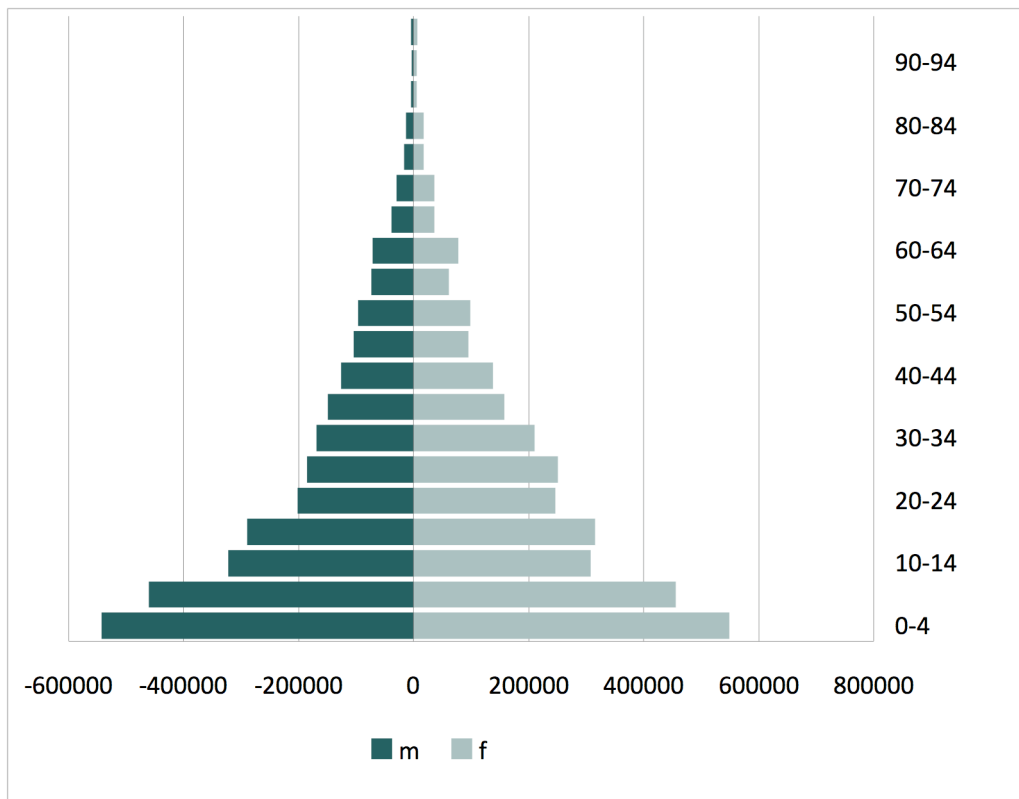
For all three censuses it is clear that the data quality are much better for the sedentary population compared to the nomads. In every year at older ages there is substantial heaping on digits ending in 0 and at younger ages for the nomads there are substantial deficits of girls aged 10-14 and an absence of young men (which is also present in the sedentary population but less marked)

The 1976 and 1987 nomadic populations, despite their considerable size show much stronger evidence of omission and age misreporting; unlike other irregular age sex structures for nomads this is not because of small sample sizes. Despite the smaller population size in 1998 the reporting seems to be improved.

The deficit of girls aged 10-14 seems to be a particular feature of nomadic populations. A similar deficit is present in the Mauritanian census, in the Niger studies on nomads (1966) and the 1981 and 1982 demographic studies of Tamasheq nomads (Randall 1984). It is probably related to a combination of age misreporting and marital status. Early marriage is common amongst the Tamasheq and Maures, and it is quite possible that when a girl's age is unknown and she is married that her age is increased to over 15. A further contribution to this effect might be the omission of dependent bella girls who are co-residing with their 'owners' who might not consider them important enough to report on.

FIGURE 1 Age sex structure, sedentary and nomads (Mali, 1976)

a) Sedentary population



b) Nomads

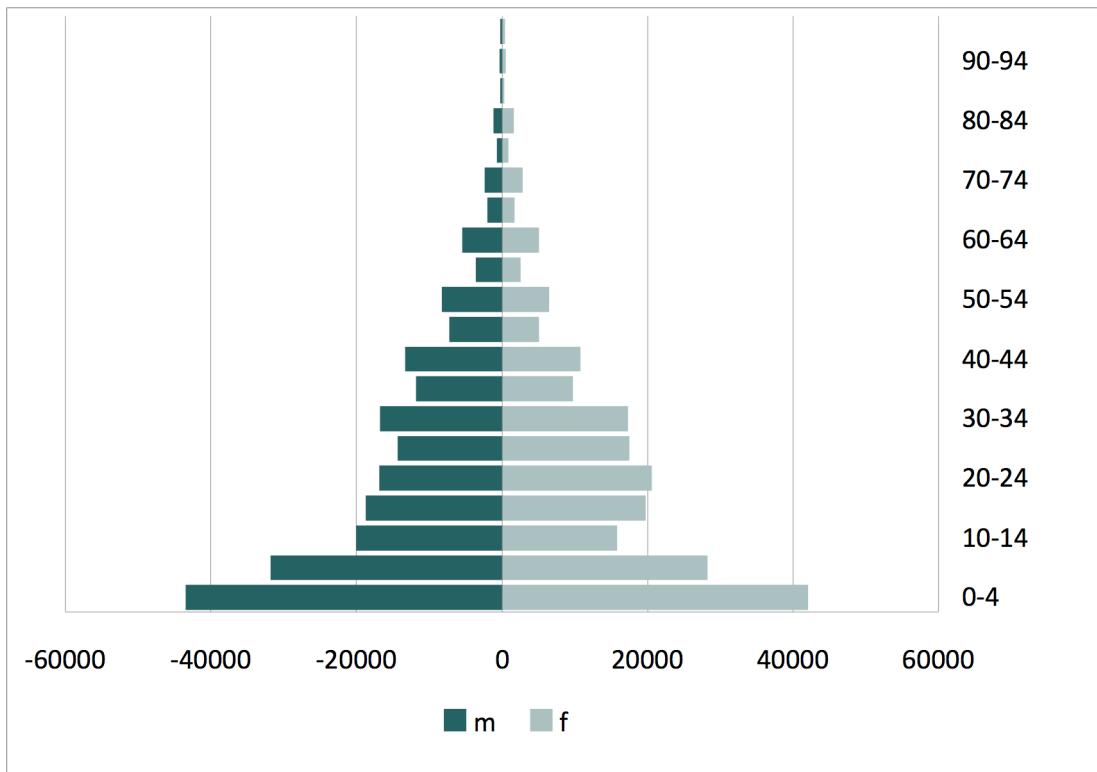
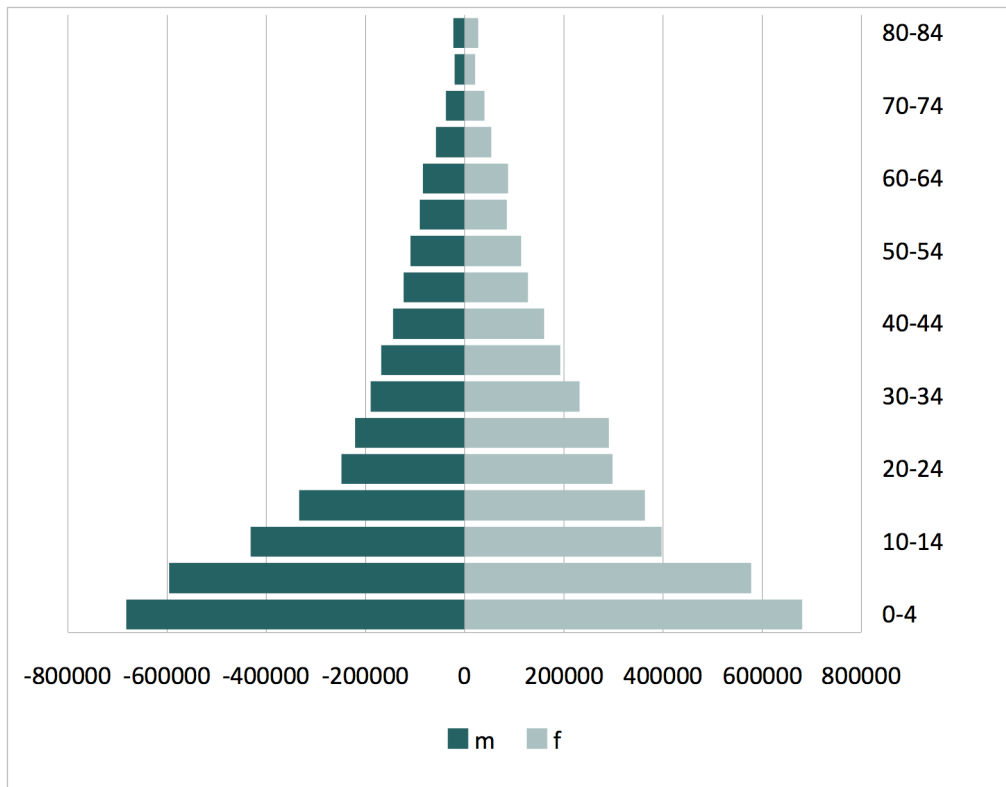


FIGURE 2 Age sex structure, sedentary and nomads (Mali, 1987)

a) Sedentary population



b) Nomads

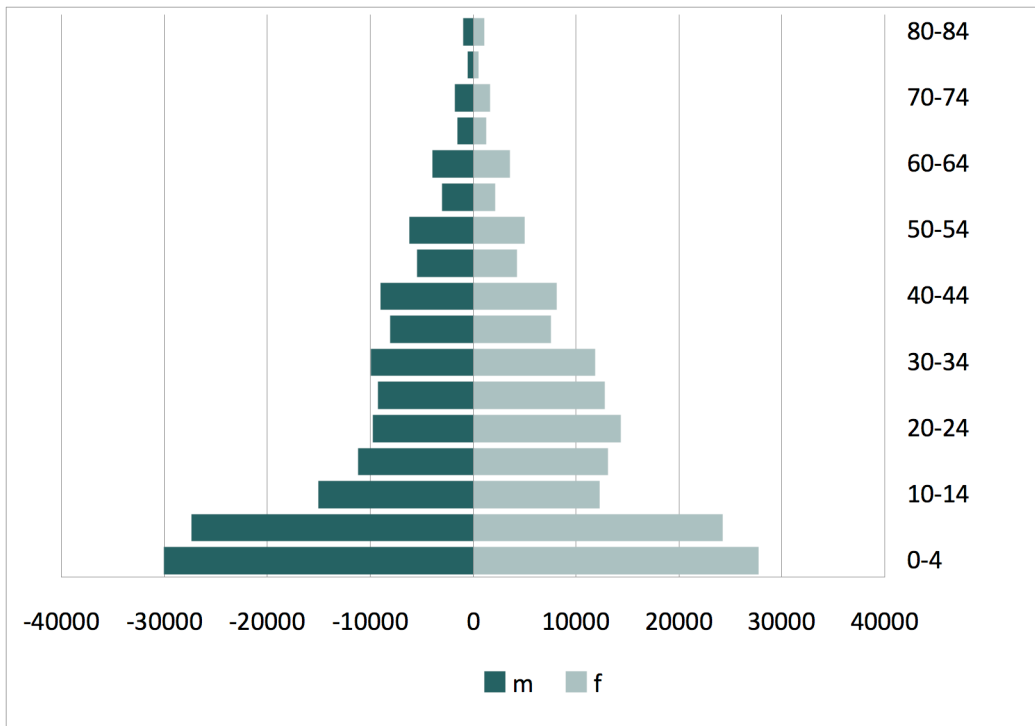
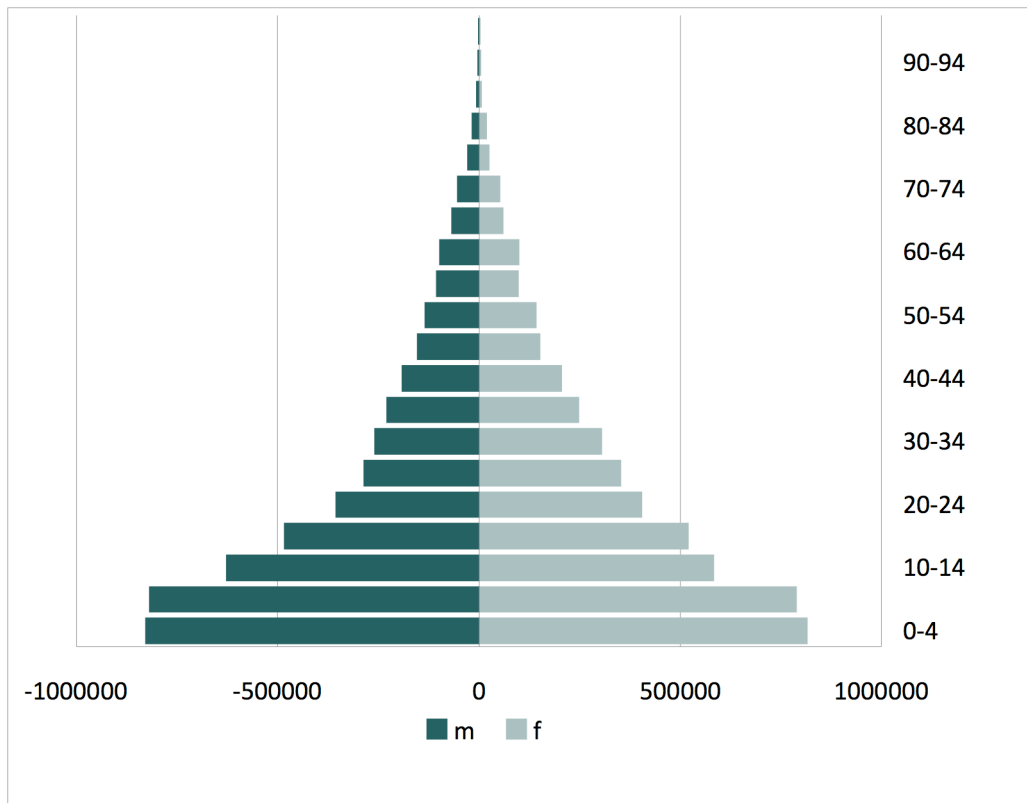
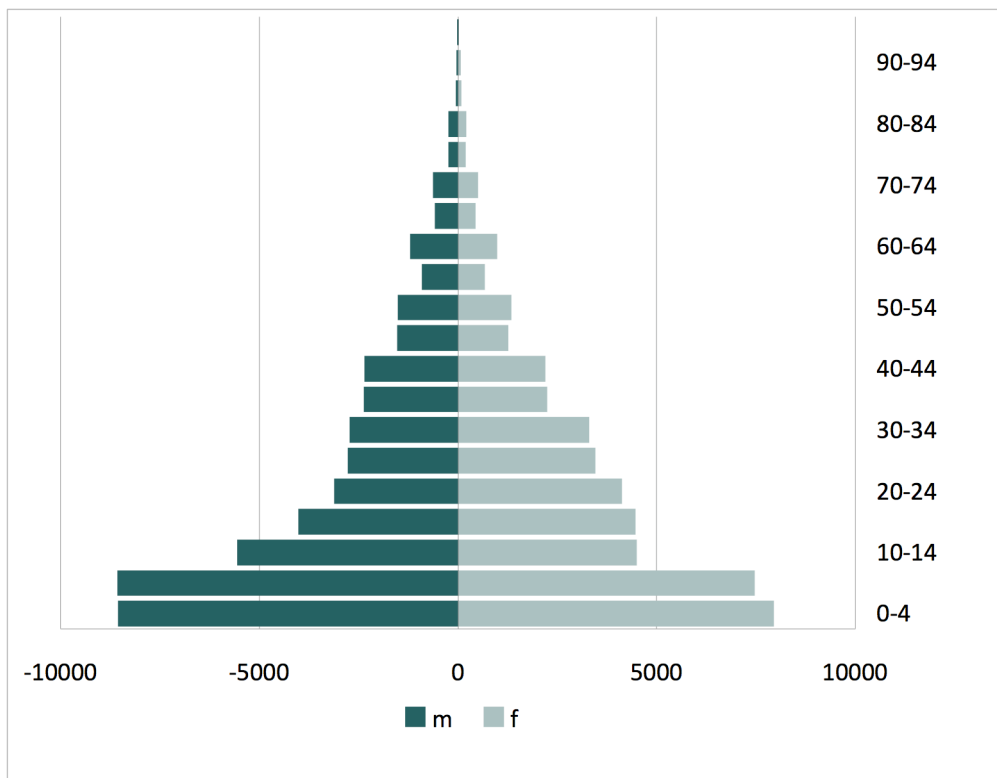


FIGURE 3 Age sex structure, sedentary and nomads (Mali, 1998)

a) Sedentary population



b) Nomads



If we assume that at least some of the irregularities in the age-sex structure, particularly those of young adults, are because of underreporting, then in the early years the nomad population may have been considerably larger than it appeared. There also appears to be underreporting of young nomad girls in every census

Declining numbers and changing composition of nomads

In 1987 for two populations (table 4), the Tamasheq and the Arabs, nearly half the population was nomadic, in two other groups, the Maures and those coded as 'other Malian languages' around 25% of the population were nomadic. The Peul and the Bozo had around 6% of their population nomadic (the Peul as cattle herders and the Bozo as nomadic fishermen) and around 2% Songhay were nomadic. Looking at the overall distribution of the nomadic population in 1987 (table 10) the majority (53.1 %) were Tamasheq speakers with 17.7% Peul speakers. Although both Maures and Arabs were very nomadic populations, both were rather small minorities in Mali, originating largely from Mauritania and other neighbouring countries. It is thus fair to categorise the Tamasheq as the main Malian nomadic population

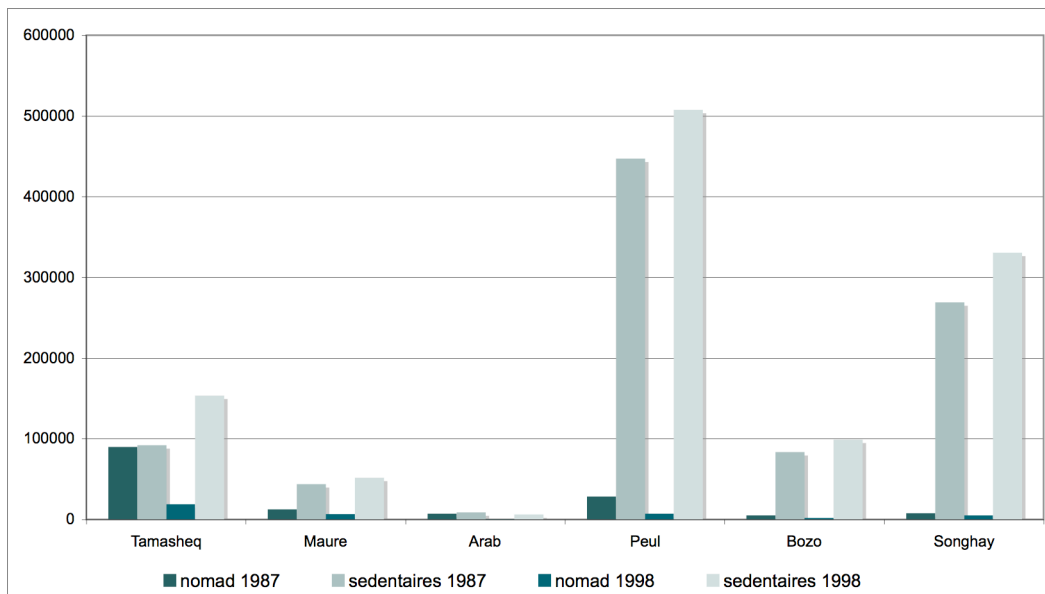
TABLE 10 Percentage distribution of sedentary and nomadic population (age 6+) by maternal language (Mali, 1987 & 1998)

Maternal Language	sedentary		nomad	
	1987	1998	1987	1998
Tamasheq	2.2	2.8	53.1	43.3
Peul	10.9	9.5	17.7	16.8
Maure	1.1	1.1	7.8	15.5
Songhay	6.6	6.2	4.8	11.2
Arabe	0.2	0.1	4.4	1.9
Other Malian languages	0.5	0.4	4.0	5.2
Bozo	2.0	1.9	3.3	4.5
Other African languages	0.4	0.3	2.4	.0
Bambara	49.9	51.7	1.8	1.2
Dogon	7.5	7.3	0.3	0.1
Total	100	100	100	100

Between 1987 and 1998 absolute numbers of Malian nomads had decreased significantly (figure 4) and nomadism was no longer a frequent way of life even for traditionally nomadic groups such as the Tamasheq, Maures and Arabs. This rapid decline in nomadic lifestyle continued a pattern that could already be observed between 1976 and 1987 – but accelerated considerably in the decade between 1987 and 1998. However the

decline was by far the most marked amongst the Tamasheq: having constituted 53.1% of the nomadic population in 1987, only 11 years later they made up only 43%. This alongside the quasi disappearance from Mali of the Arab population means that the composition of nomads in Mali has changed substantially.

FIGURE 4 Number of nomads and sedentaires (aged 15+) by language group (Mali, 1987 & 1998)



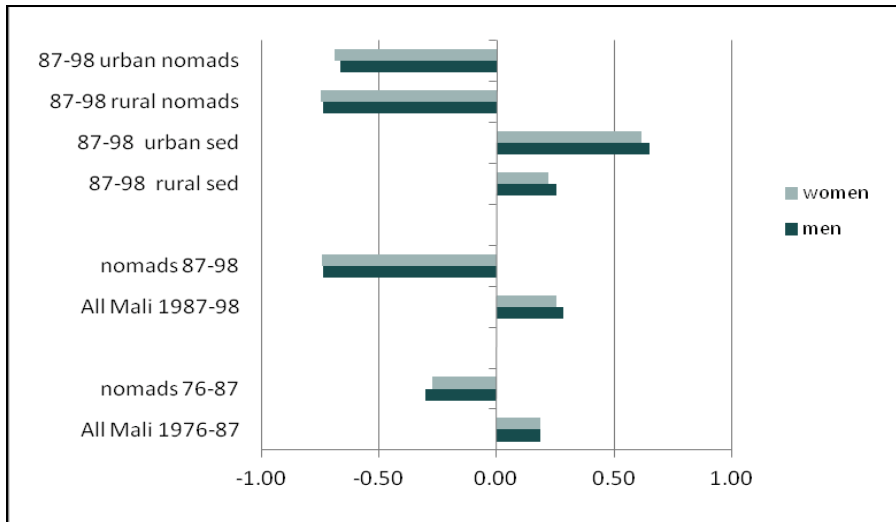
Population change 1976-1998

Figure 5 shows the percentage increase or decrease in the total population and the nomadic population from 1976-87 and from 1987-98. Between 1976-87 the overall Malian population increased by nearly 20% whereas the nomadic population decreased by around 30%. The same pattern was repeated in the next decade but was more marked: overall population growth was more rapid (probably because of mortality declines) whereas the nomadic population decreased by over 70%. Although the ethnic groups which comprise the nomadic population may have slightly different natural population dynamics to the sedentary populations (Randall 1984, 2004) they are still pre-transitional populations with relatively rapid natural population growth. The changes need to be explained by lifestyle transformations rather than different intrinsic population dynamics.

One could be tempted to ascribe this transformation of lifestyle to the rebellion which took place in northern Mali from 1991 onwards and which forced many Tamasheq, Maures and Arabs to flee to refugee camps in neighbouring countries. By 1998 many of these refugees had been repatriated and most had sedentarised (Randall & Giuffrida 2006).

However, as shown in figure 6, nomadic Peul, Bozo and Songhay also decreased in the same period and they were not persecuted during the rebellion. With the exception of the Songhay (already a population with very few nomads) the decline in nomadic lifestyle was almost as marked for these populations who were relatively unaffected by the conflict.

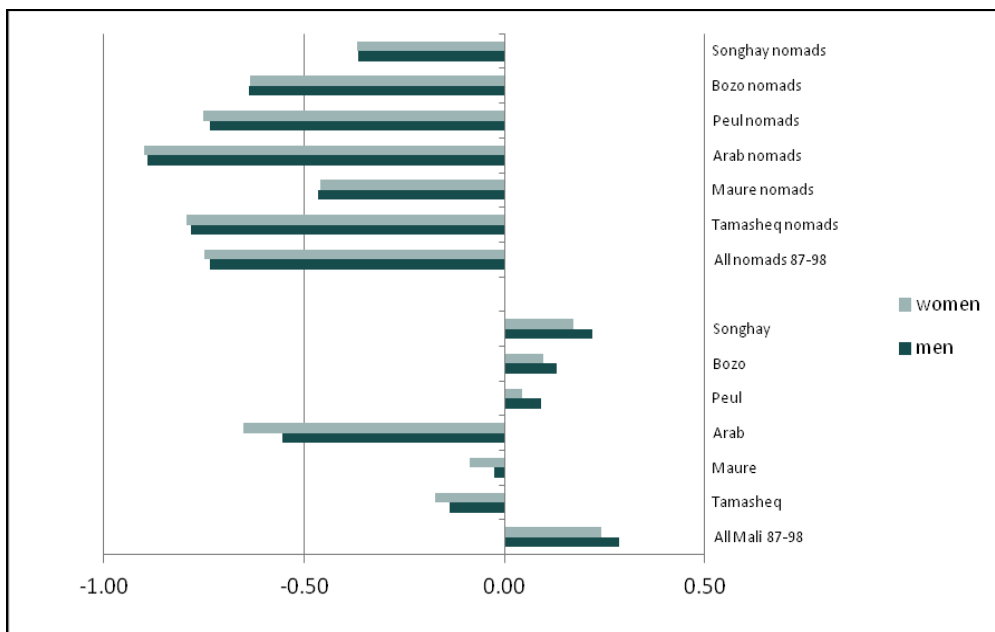
FIGURE 5 Population change (Mali, 1976-1987 & 1987-1998)



Note: Figure 5 uses the total population including children.

Source data for 1976 : République du Mali 1980: Tableau N-1-1 p231

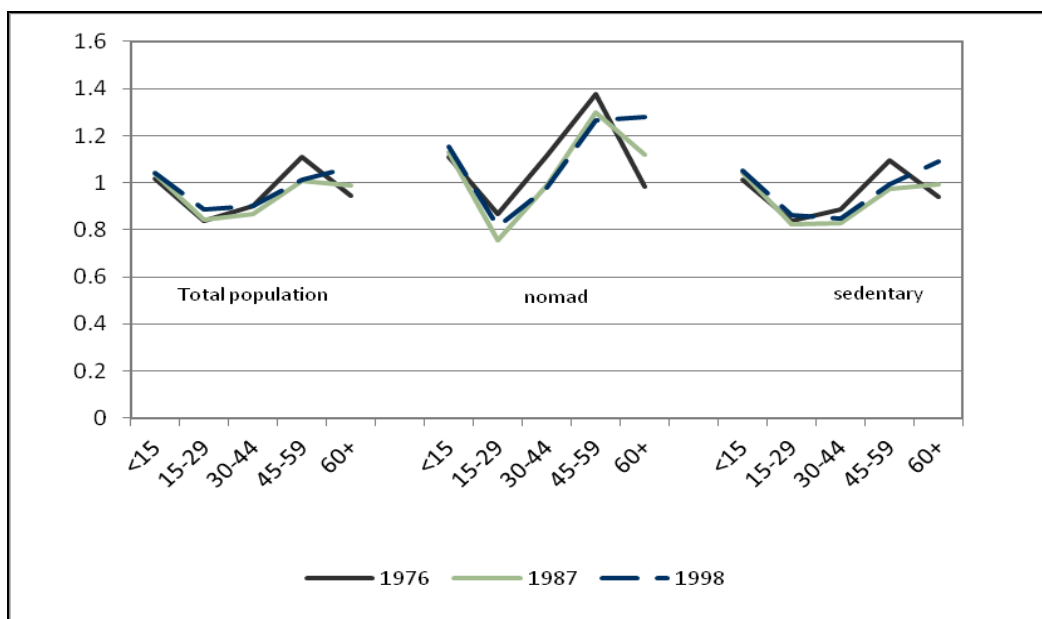
FIGURE 6 Percentage change in population (aged 15+) by maternal language (Mali, 1987-1998)



In each census year the Malian census shows a deficit of young men aged 15-39 (figure 7) which is more marked for the younger part of this age group. Some of this is

probably real: in the 1980s and 1990s a considerable number of young Malian men left the country to go and work in neighbouring countries, especially Ivory Coast. Often they would leave for the dry season and then return in the wet season (the 1987 and 1998 censuses were undertaken in the peak of the hot dry season; 1976 was undertaken in the cold season just after the harvest). A further seasonal mass migration of young men left rural areas in the dry season to go and find temporary manual labour in urban areas. Those who left the country obviously should not be recorded in the census; those who moved to urban areas were very likely to be missed. They lived in very poor conditions in urban areas, many sharing a room and probably a considerable number sleeping on building sites or just outside on the streets. Many of these young men may have been absent for more than 6 months and are therefore likely to be excluded from their household of origin.

FIGURE 7 Sex ratios by age group and nomadic/sedentary lifestyle (Mali, 1976, 1987 & 1998)



Amongst the pastoralist populations young men are the herders and they are often far from the camps with the animals. If they are unmarried then they do not necessarily have a particular tent that they would call home: amongst the Tamasheq the residential unit – the tent – belongs to a married woman and young unmarried men are not attached to any particular residence or household often moving from one relative to another. Pastoralist young men from families with few or no animals also participated in labour migration to Ivory Coast and the cities. Thus it is unsurprising that the sex ratios for young adult nomads show an even greater deficit than the sedentary population. It is unclear why the nomadic population should have such an excess of older male adults. This may be partly

related to patterns of age misreporting compounded by the fact that in some nomadic populations, especially high status Tamasheq, adult female mortality is higher than that of men (Randall 1984, 2010).

Nomad population change 1987-1998

In both censuses data were not collected on ethnicity, but were collected on maternal language and spoken language for all individuals over the age of 6. We treat the maternal language data as representing ethnicity and examine population change 1987-98 for 6 main ethnic groups: Tamasheq, Arab, Maure (the principal nomadic groups⁴) and the Peul, Bozo and Songhay for whom a reasonable minority are nomadic. All these groups except the Bozo have a nomadic lifestyle in order to exploit the scarce and patchy resources required by livestock. The Bozo have a nomadic lifestyle because fish availability in different regions is seasonal and they either follow the movements of fish into different part of the aquatic environment or they actually pack up their boats and gear and move to other water sources such as reservoirs at particular times of year (Jul-Larsen & Kassibo 2001, Kassibo 2000).

Because language is only recorded for those aged 6+ and because population change at younger ages is more likely to reflect differences in fertility regime rather than transformations of lifestyle, in order to look at population change for ethnic subgroups over the decade 1987-1998 we use the population aged 15+⁵⁶. The three populations affected by the rebellion (Arab, Maure and Tamasheq) have all decreased in size in the period 1987-98 (figure 4) whereas the Songhay, Bozo and Peul have all increased although none have increased as rapidly as the overall Malian population. The Arab population experienced the most dramatic decrease moving from 16412 adults in 1987 to only 6466 in 1998. This is almost certainly because they have not returned to Mali from the host countries after the end of the rebellion. To an extent the same is true for the Tamasheq and the Maures – but their overall population decline is much less.

It is also likely that there is extra under-enumeration of nomadic Tamasheq and Maure in 1998. Nomads will always be under-enumerated in censuses: they are difficult to locate and although the Malian government makes special provision for nomads in the census –

⁴ Another language group with a significant proportion of nomads is 'other Malian language'. Since it is unclear what populations this rubric encompasses we do not examine it in detail

⁵ Including the total population for all Mali and all nomads gives almost identical results.

⁶ For the rest of this section, in referring to total populations, sex ratios etc by language group we are always using the population aged 15+.

generally it seems these provisions require action on the part of nomads – to go and gather at specific points to be enumerated. At the best of times this is likely to generate an undercount. However, in 1998, only a year or so after the cessation of conflict and repatriation there remained an unknown number of Tamasheq who had actually spent the entire rebellion period hiding in the dunes and mountains of the north where the army and militias could not find them. It is highly unlikely that these groups, who had been hiding from the state authorities for about 7 years would suddenly present themselves to be censused. We must therefore accept that the underenumeration of nomads in 1998 is likely to be greater than in previous censuses, particularly for the Tamasheq.

In both 1987 and 1998 actually on the ground there were both urban and rural nomads. There were three types of urban nomads: some nomads move regularly between rural and urban areas with their livestock in order to exploit the urban markets and also to work as herders for urban populations who want to keep their animals close to them. Another group, particularly evident in 1987, were nomadic populations who, having lost most or all of their livestock, moved to urban areas in order to receive food aid and other support. The major drought of 1984-5 generated many such destitute former nomads around the big northern towns such as Mopti, Gao and Tombouctou but also around smaller towns such as Douentza (Randall 1998a and b) A third group is mainly made up of the former slave classes, the Bella (Tamasheq) and the Harratin (Maure). These groups, who frequently owned little livestock and undertook small scale wet season cultivation, would often send all or some of the family to urban areas in the dry season to work as manual labourers (men) or as domestic workers (women and girls) in order to earn cash in order to buy food to keep them going through the dry season. Once the rains came they would move back to the areas where they had fields and some would cultivate and others herd their few animals. Because both the 1987 and 1998 censuses were undertaken in April – in the peak of the dry season – some of the urban nomads are likely to include these groups.

In 1987 I was living in Douentza and was included in the census. In the area around our house there were considerable numbers of the second type of urban nomads described above. On examining the census enumeration district in which I was enumerated (my family can be identified because we were the only English speakers), although a considerable number of Tamasheq and Maures are enumerated in the district they are all classified as 'sedentaires'. This is evidence that the 'nomad' category in 1987 does not include people of nomad origin, living in housing that could be identified as either fixed or mobile (see figure 8).

FIGURE 8 Tamasheq (population deplacée) housing in Douentza identified in the 1987 census as 'sedentaire'



Tamasheq

Overall the Tamasheq population in Mali decreased by about 15% in the decade (figure 8) – although there is good evidence that fertility remained high and infant and child mortality were decreasing rapidly (Randall 2004). The decrease was slightly greater amongst women (17%) than men (14%) although in both census years more women than men were recorded with the sex ratio of those aged age 15+ being 0.865 in 1987 increasing to 0.901 in 1998. The proportion of urban nomads was quite high and barely changed over the decade: 7.7% nomads in 1987 were urban and 7.2% in 1998. The nomadic population decreased by nearly 80% over the decade than the overall population. Those nomads who remained in Mali settled in both rural and urban areas but the population increase was greatest in rural areas. This is likely to be a consequence of the repatriation policies of UNHCR which repatriated people to rural sites where a certain amount of infrastructure (proportional to the population) was provided (Randall & Giuffrida 2006). In both rural and urban sedentary sites the male population increased more than the female but this may just be a function of under-enumeration of young men in 1987 (see above).

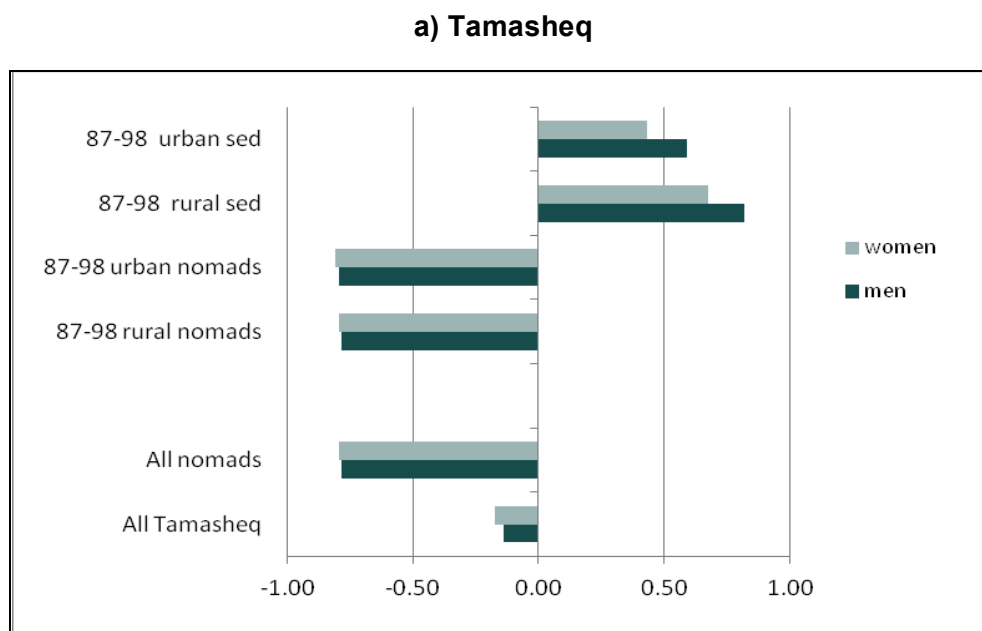
In 1987 a considerable number of Tamasheq lived on the fringes of urban areas having been forced there by destitution during the 1985 drought. During the rebellion some of these fled the country partly because of fear of persecution but also because they heard that there were resources and support for Tamasheq in the refugee camps in neighbouring countries. On repatriation these Tamasheq used the repatriation package

offered by UNHCR to relocate to Tamasheq communities in rural areas. Such responses to both poverty and the security crisis demonstrate some of the complexities in interpreting the population changes, but also typify part of the long ingrained mentality of a mobile population: it is always possible to move to where resources are better and more plentiful and these resources may not necessarily be just pastures and water.

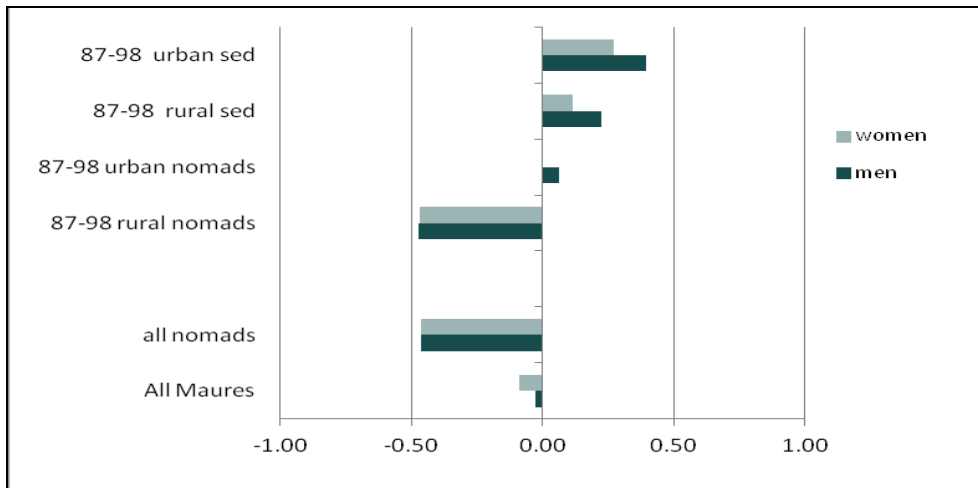
Maure

Overall the Maure population declined somewhat less than the Tamasheq despite playing a similar role in the rebellion. The Maures had virtually no urban nomads in either census year so the principal transformation was of rural nomads. Whereas for the Tamasheq before the rebellion (1987) 32% of the sedentary population had been urban, declining to 28% in 1998, the opposite pattern was seen for the Maures with the proportion urban of the sedentary population increasing from 15 to 17%.

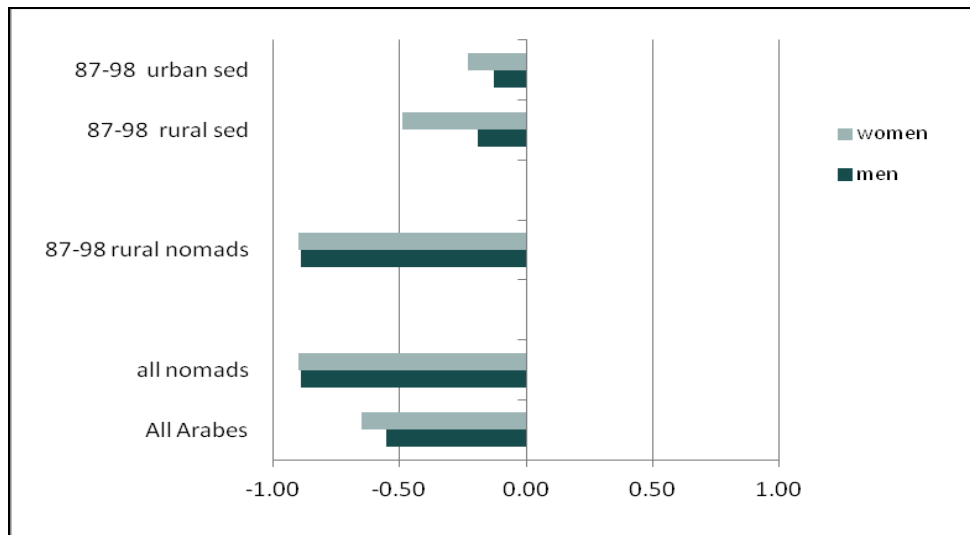
FIGURE 9 Percent population change (aged 15+) by maternal language (Mali, 1987-1998)



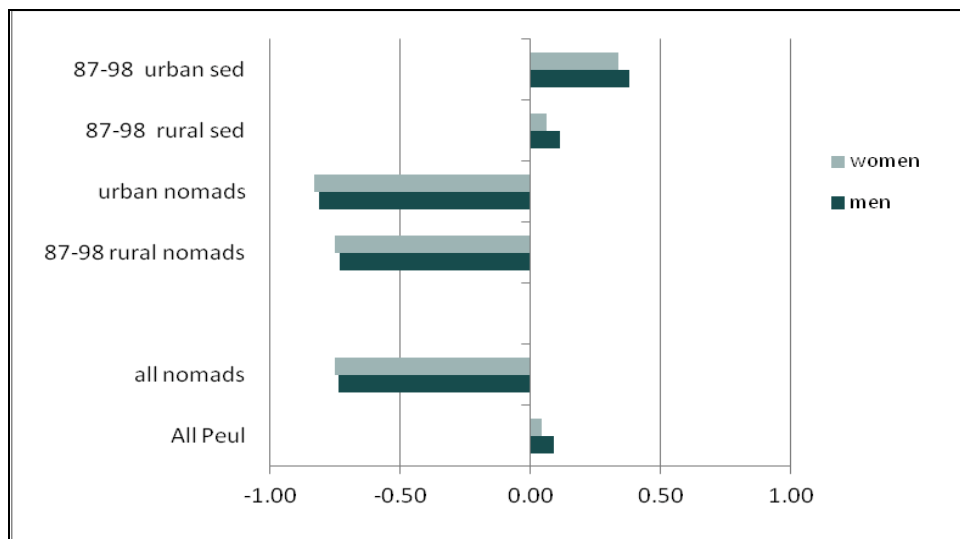
b) Maure



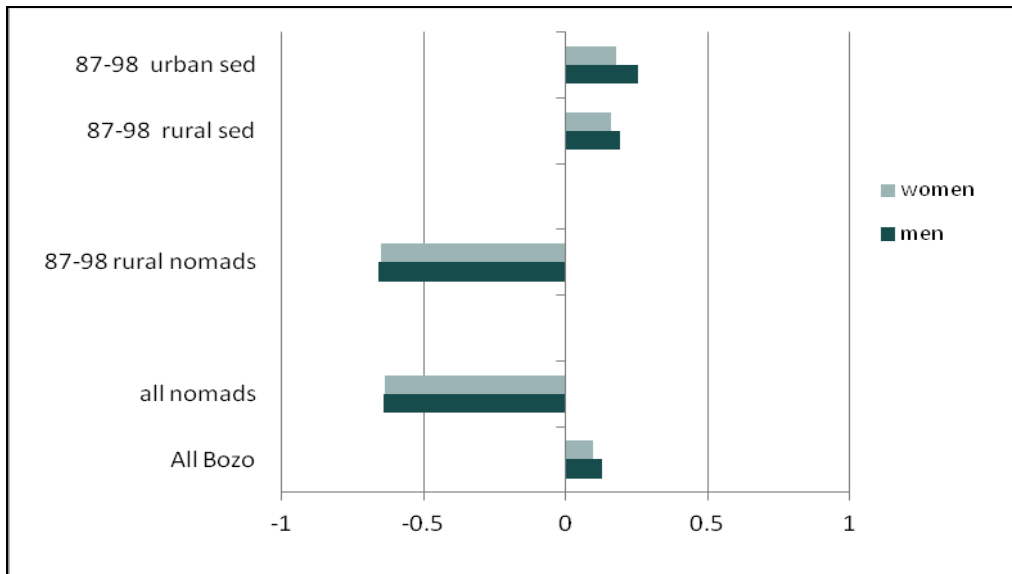
c) Arabs



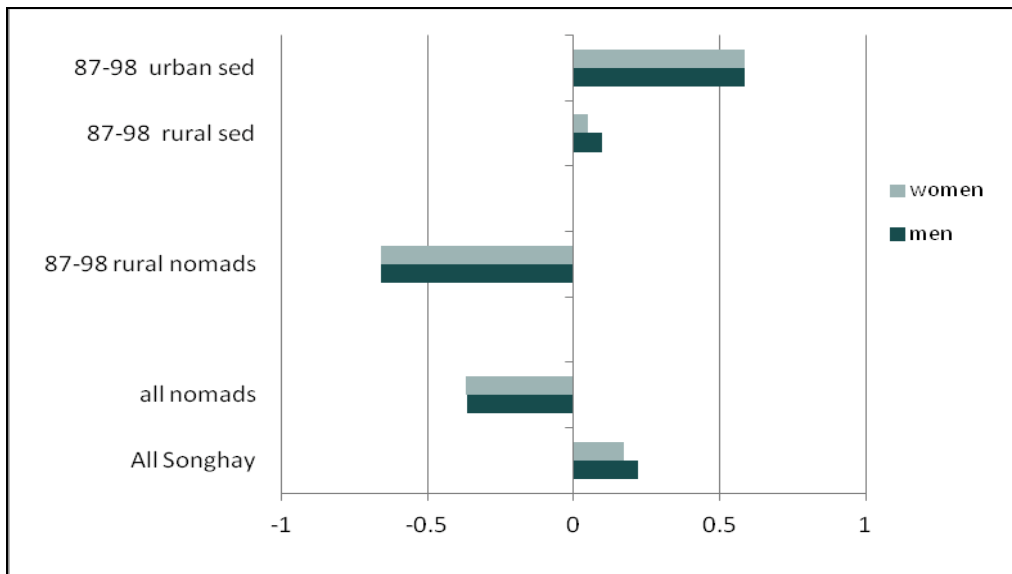
d) Peuls



e) Bozo



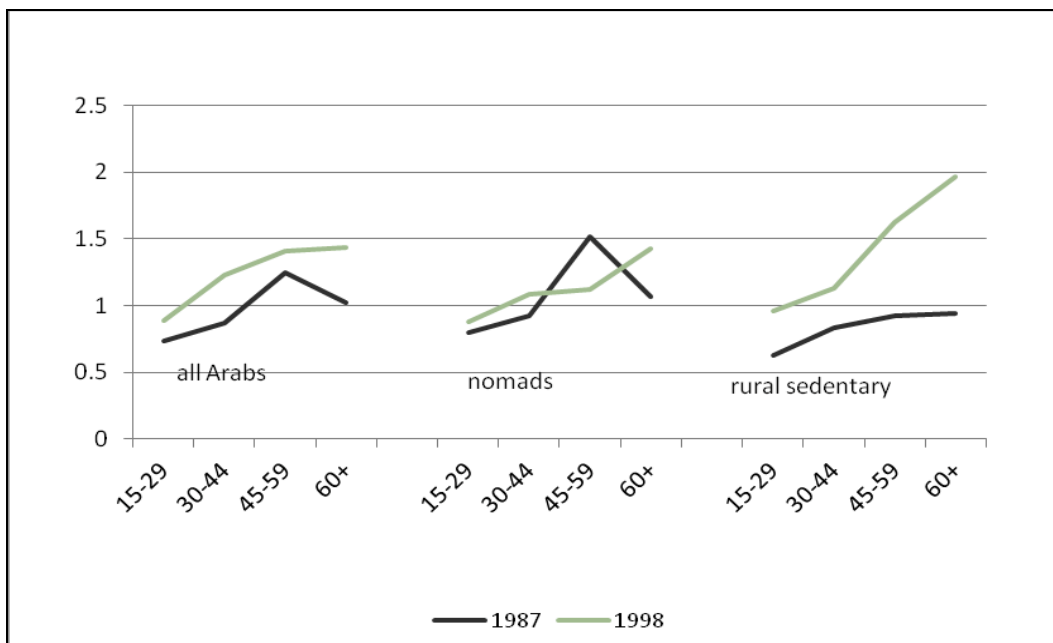
f) Songhay



Arab

The transformation of the Arabic speaking population, the third substantial nomadic population in 1987 is very different from the Tamasheq and the Maures. The vast majority of the Arab population seem to have decided to leave Mali, presumably as a consequence of the rebellion. As Arabic speakers, they can easily have migrated to a number of the Maghreb countries although we have no data on their destinations. The total Arab speaking population declined by over 50% with the nomadic population declining by 90% from 6843 to only 784 people aged 15+. However the sedentary population in both urban and rural areas also declined though much more for women than for men. The sex ratios for the Arab population change very dramatically between the two censuses (figure 10). There was a very substantial deficit of young men in 1987 (particularly marked for the sedentary rural population). By 1998 this deficit had largely disappeared. This could be because, amongst the very small population who remained in Mali, young men who, in 1987 were all off herding animals have now adopted a different pattern of livestock management.

FIGURE 10 Arab sex ratios (Mali, 1987 & 1998)



Peul

The Peul are a large ethnic group in Mali who have long practised agropastoralism (De Bruijn & Van Dijk 1995). Although some sub-groups have always been nomadic as a way

of managing livestock and access to pastures, the majority have always been sedentary, or at least most of the population has been largely sedentary. The Peul were not persecuted in the rebellion although the insecurity and violence took place in the areas where Peul were most likely to be nomadic – in parts of the regions of Mopti and Tombouctou. Overall Peul population growth was positive during the decade although the population did not grow as fast as other sedentary populations. The nomadic Peul population decreased just as rapidly as the Tamasheq nomads suggesting that we need to consider factors other than the rebellion as the primary stimulants of the nomadic transformation.

Bozo

The Bozo are fishermen and traditionally lived in and around the central Inner Niger delta (Kassibo 2000) where they were nomadic in order to exploit the seasonal movements of fish. A combination of droughts, dams and growth of other populations has meant that many Bozo have had to leave fishing and many others have migrated elsewhere in Mali and to other neighbouring countries (Jul-Larsen & Kassibo 2001). Overall the Bozo population increased between 1987 and 1998 with population growth rates being similar in urban and rural areas. The transformation from rural nomad to sedentary is similar in scale to the transformations experienced by Tamasheq and Peul.

Songhay

The Songhay were at one time the major opponents of the Tamasheq and the Maures in the Northern Mali conflict. In the past Songhay, many of whom were traditionally farmers, many along the banks of the Niger, who owned animals had reciprocal arrangements with herders who looked after their animals (Marty 1999) for them, and Songhay nomadic pastoralists were rare. Songhay were seriously affected by the conflict but did not have to flee Mali. Nevertheless their nomadic population has fallen by a similar proportion to the Tamasheq, Peul and Bozo. Overall the Songhay population is growing rapidly, and this is particularly marked in urban areas.

Overall the patterns of nomad population change are unambiguous. Even assuming that there is considerable underreporting of nomads in the 1998 census, the nomadic lifestyle is disappearing fast in Mali. In the case of the populations who were most affected by the rebellion – the Tamasheq, Maures and Arabs – it is possible that some of the missing populations have remained nomadic but in neighbouring countries, especially Mauritania

and Niger. However this is unlikely since those countries too have undergone very rapid sedentarisation in recent years. The decline in nomadic lifestyle amongst Peul, Songhay and Bozo suggests that Malians in general no longer want or are no longer able to be mobile: issues of land tenure and access may also contribute to this (Nori et al 2008).

Tamasheq and language

A rather different question is whether some of the disappearance of the Tamasheq, Maure and Arab populations are because they are deliberately transforming themselves into other groups? Below I examine this in detail for the Tamasheq population.

In this paper we identify Tamasheq as those who state in the census that their maternal language is Tamasheq. However in both censuses data were also collected on the language spoken in day-to-day life. Given the decrease in numbers of maternal tongue Tamasheq and the problems posed by having Tamasheq ethnic identity in Mali during the 1990s two directions of change are possible:

(1) that more people are choosing to speak other Malian languages in their daily lives as an attempt to distance themselves from Tamasheq identity

or

(2) the consequence of the rebellion, the forced migration and the period as refugees has intensified the sense of ethnic identity amongst the Tamasheq and means they are turning in upon themselves in terms of language and Tamasheq parents, especially those living in areas of the country where the Tamasheq are a minority, are encouraging their children to speak Tamasheq rather than other local languages or French. There is some evidence that in terms of choice of marriage partners both during and after the rebellion, that rural Tamasheq have increased the proportions of marriages with very close kin (Randall 2005).

FIGURE 11 Two Kel Tamasheq women: one of berber origin one of Bella (former slave) origin



The Tamasheq speaking population is made up of two very distinct physical groups (figure 11): the Berber Tamasheq (traditionally the rich, high status powerful groups – whom the French identified as ‘Touareg’ and their former slave population (*iklan* in Tamasheq, commonly called by their Songhay name Bella in Mali). These two populations cannot be distinguished in the census because both speak Tamasheq. In the 1980s the proportion of Berber and Bella was probably around 50:50 in Mopti region and Tombouctou Region, whereas in Gao and especially in Kidal the proportions of Bella were much lower. In the rebellion only the Berber Tamasheq were persecuted and had to flee Mali and skin colour was a major factor in the persecution. Bella are often stigmatised, particularly within the Tamasheq population, but to an extent more generally, because of their former slave status – thus there may be added incentives for trying to transform their identity. Bella are also more able to transform their identity in black African Mali than the fair-skinned Tamasheq who will always be physically distinct.

Because there are a large number of Malian languages and very small numbers of Tamasheq speaking most of them, data on language and region of the country have been grouped as follows. Tamasheq speaking Bambara (the dominant language of the country, especially in the south and the capital), and Tamasheq speaking Songhay, the dominant sedentary language in the northern part of the country are identified separately. Speakers of all other languages (a tiny minority) have been grouped together. Given the small

numbers of Tamasheq in the southern part of the country we examine linguistic behaviour for 4 regions: the south (including Kayes, Koulikoro, Sikasso, Segou and Bamako), Mopti, Tombouctou and Gao (for 1998 the data for Kidal have been added to Gao to facilitate comparability).

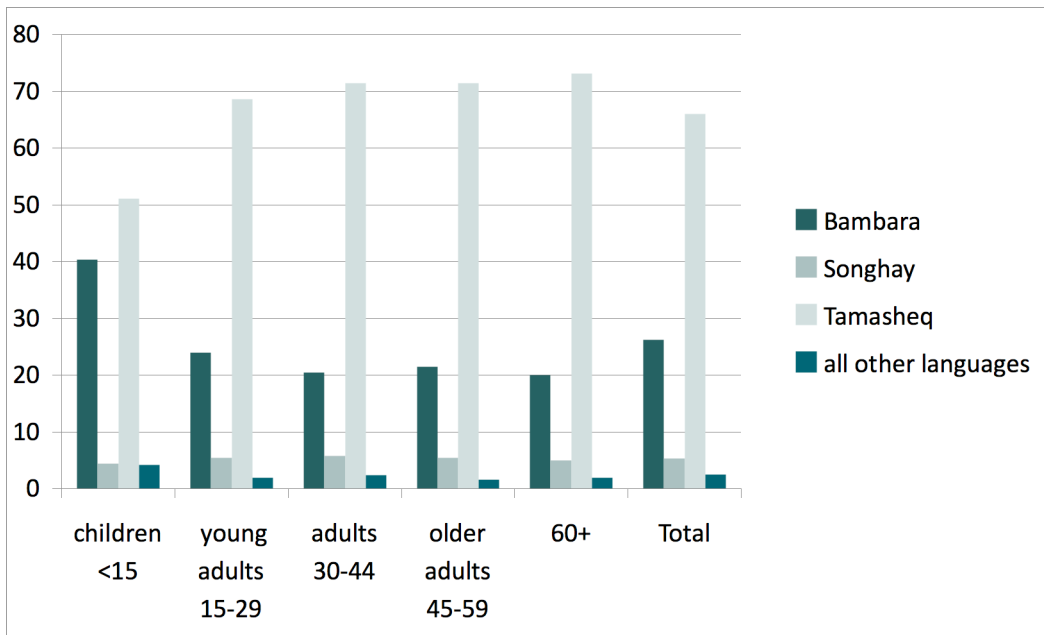
Figure 12 focuses on urban Tamasheq in the south. These people are unlikely to be pastoralists or farmers and are more likely to have urban forms of employment, including civil servants, and children are likely to go to school. The small numbers of Tamasheq mean that, although they may live in groups of Tamasheq households they will also need to communicate and socialise with people of other language groups. One might expect that the younger people will be more likely to speak Bambara having grown up in the area and been to school locally than older people. This is borne out by figure 12. In both censuses the children under 15 are most likely to speak Bambara and the proportions speaking Tamasheq increase with age. What is most notable is the change between 1987 and 1998 with more people speaking Tamasheq in the later year. For children this could either be a result of parental pressure or, possibly, because many have only recently returned from exile and have never been socialised in Bambara. For older people, where the proportion speaking Bambara rather than Tamasheq are already quite low, there may be elements of Tamasheq nationalism and solidarity.

A somewhat different picture prevails in the urban areas of the north where in the urban areas fewer maternal language Tamasheq use Bambara as their spoken language (figure 13). Here the major other language used is Songhay, especially in Tombouctou. Whereas in the south there is considerable variation by age, with younger people more likely to speak a language other than Tamasheq, in the northern urban areas the percentages differ little by age.

In both 1987 and 1998 over 98% of the nomads with Tamasheq as their first language spoke Tamasheq for daily communication: amongst this group there is absolutely no evidence at all of trying to take up a new identity or adapting to another context. For the rural sedentary population, a group which increased by over 60% in the intercensal period, and which probably includes the majority of repatriated refugees, there is little change in the proportions for whom both their maternal language and their language spoken is Tamasheq (table 11).

FIGURE 12 Mali urban South: percentage with Tamasheq maternal language speaking other languages (1987, 1998)

a) 1987



b) 1998

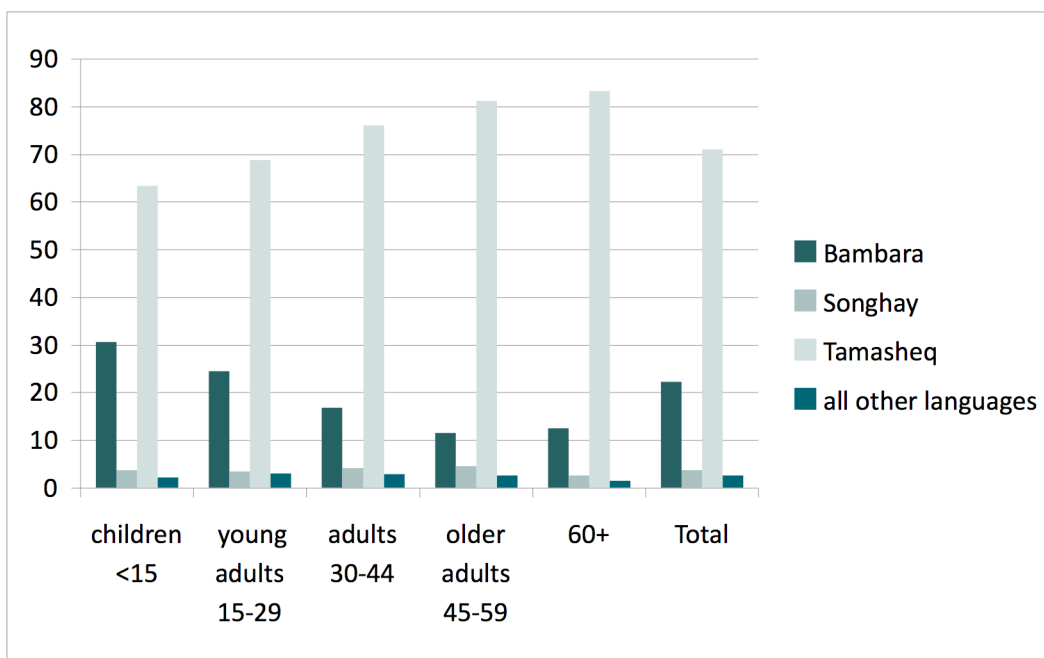


FIGURE 13 Mali urban North: percentage with Tamasheq maternal language speaking other languages (1987, 1998)

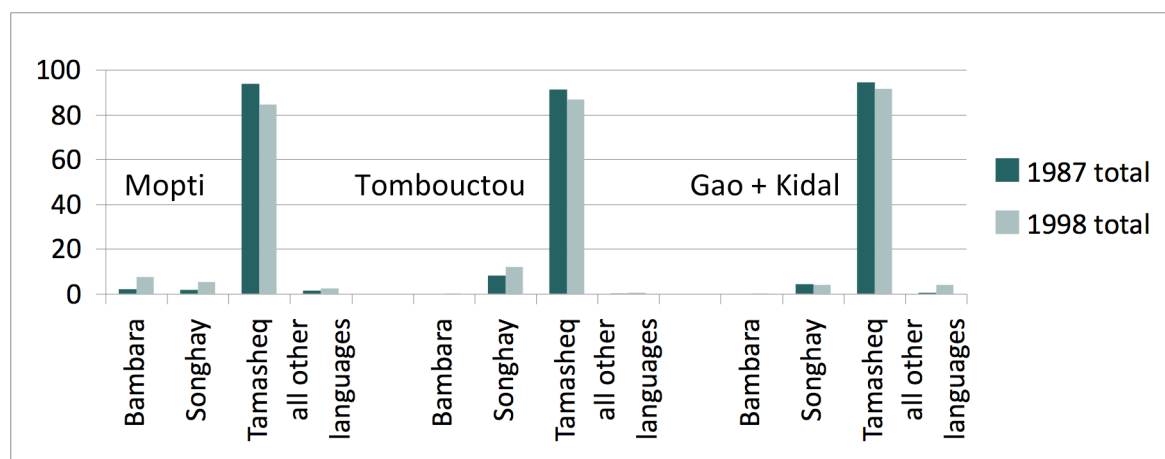


TABLE 11 Percentage of rural sedentary individuals aged 6+ whose maternal language is Tamasheq and who speak Tamasheq as their principal language of daily communication (Mali, 1987 & 1998)

Year	South	Mopti	Tombouctou	Gao	Kidal
1987	84.7	93.2	97.7	98.0	n a
N	3188	11779	44329	23014	
1998	84.0	96.3	97.8	98.6	99.2
N	4477	14644	73277	43228	14599

There is little evidence of deliberate transformation of identity through language – unless this is taken to extreme and people (probably Bella) are concealing their maternal language in the census. Obviously this cannot be followed up through analysis of census data.

DISCUSSION

This analysis confirms what many of those interested in Sahelian pastoral populations have long suspected: a nomadic way of life, where the whole household moves together and the water and pasture needs of livestock are prioritised, is rapidly disappearing. This seems to be widespread across all ethnic groups who practise pastoralism, and also across previously nomadic fishers. The fact that the populations most affected by the 1990-96 conflict in Northern Mali have decreased in absolute numbers, as well as experiencing a decline in nomadic lifestyle indicates that the conflict has probably contributed to an acceleration of the transformation, but is it certainly not the sole factor responsible for the decline in Malian nomads.

However the disappearance of year round nomadism practised by the whole household does not necessarily mean that these populations are becoming totally fixed in sedentary communities all year round. The 2001 study of Tamasheq repatriated refugees and nomads made it clear that new forms of mobility are emerging: mobilities of parts of households, mobility for part of the year – especially in the wet season. Some people are investigating new forms of livestock management. Whilst forcibly sedentarised in the refugee camps in Mauritania in the early 1990s, former nomads who had previously seen a nomadic lifestyle as the only lifestyle which was acceptable and who had despised all forms of sedentary living, began to see some merits in a more sedentary life, merits which included the acquisition of material goods and comforts (such as mattresses) as well as easier access to schools and health centres.

From this brief resume of the history of the decline in Malian nomadism in the late twentieth century several questions emerge.

The overall question is whether the well being of the former nomadic populations is improving or deteriorating? Although some (especially government officials - see Randall & Giuffrida 2006) would claim that sedentarisation necessarily improves the well-being of nomadic populations because it allows access to services such as education and health, there is good evidence from East Africa that, in some cases, sedentarisation is more associated with destitution, poor nutritional status and poor health (Fratkin and Roth 2005) and general evidence that nomadic populations do not have higher mortality than sedentary populations (Randall 2008).

This question can be addressed in various ways through the census data; analysing patterns of school attendance and achievement is one route. Another is an investigation of household structure and economic activities in different environments and differential use of child labour. A comparison of demographic dynamics such as fertility and mortality is another route, although the census questions are not necessarily a very reliable form of data for this. Further analyses need to be done, and it will be interesting to see if the 2009 census in Mali shows a continued decline in numbers of nomads. Given the political changes and decentralisation, the re-establishment of former refugees and development of their pastoral economy, and also maybe a more propitious atmosphere for being able to find and to census the nomads, it is possible that their numbers will have started to increase again.

APPENDICES – ISSUES OF DATA QUALITY

Appendice 1 – Mali 1987 census data

Originally 7687997 individuals recorded.

- 3385 records were not classified as either nomade or sedentaire (the majority of these were also miscoded according to region).
- A further 279 individuals were classified as Region= 0.
- A further 1504 individuals were classified under the variable sex with non valid values (NB the majority of these were in Mopti region).
- A further 515 individuals did not have a valid code identifying the unit in which age was measured. (most in Kayes and Gao).
- These records had to be manipulated in order to create individual identities which would allow various household characteristics to be investigated. In doing so it became clear that there were a number of duplicate records – some of these duplicates appear to be genuine duplicates (ie the individual appears on the file more than once: eg a group of households in Tombouctou region have been entered 120 times giving over 8000 extra individuals), some have missing data for some identity variables which means that identity cannot be calculated. A third type of duplicates are pairs or triplets of individuals who have the same id codes but are clearly distinct in terms of their characteristics.

Issue with age

There are two age variables p7unite and p7age. P7 unite indicates whether data were recorded in days, months or years. Having recoded the days and months into the appropriate age in years there remains a very large deficit of children aged 1. On the other hand, for those children whose age was coded in months there is a large number (46597 boys and 46266 girls) whose age is recorded as 99. If these 99 children are added to those who are genuinely recorded as having age 1 the totals for each sex come very close to those in the published report.

TABLE A1 1987 records in census data file deleted because of problems

Number of records		sedentaire	nomad	comments
7687997	Of which 3385 (0.04%) excluded because invalid nomad/sedentaire variable			
7684612	1719: Sex not male / female 90 no region	1783	26	Most in Mopti
7682803	515: unit for calculating age not valid	298	217	Sedentaires mainly in Kayes, Mopti & Gao. Nomads all in Kayes and Gao
7682288	68172: duplicate records	51758	16414	38.9% were in Sikasso and were sedentaires, 29.4% were in Tombouctou where a series of households were duplicated 120 times, 89.7% records in Tombouctou were nomads
7614116				
Removing duplicates for the regional files where will look at household levels variables but records which remain on the individual level files				
	58425 records removed	55410 (0.8%)	3015 (1%)	For sedentaires similar proportions of each region. For nomads 1.4% in Tombouctou, 1% Mopti and 0.7% Gao

Cleaning 1987 data files

Because of the size of the ID (more than 16 digits) the files for which there is a unique individual id have to be manipulated by REGION (called Mali87-Bamako-sd). These files must be used and then merged for all analysis which requires household level variables using AGGREGATE because only one individual with each id can be selected.

However these id-duplicate individuals have been retained in the individual level file (Mali87_merge_no false duplicates) and are used in all analyses which focuses on numbers of individuals.

Appendice 2 – 1998 data

1998 duplicates

Errors in the census file were discovered. This meant that some individuals were entered multiple times and this could be verified by looking at the names. Overall this made little difference but was substantial for Kayes (leading, for example, to an extra 70 men aged 80+). Because of the substantial impact on nomad population in both Kayes and Kidal these duplicates were removed. For the sake of completeness they were also removed from the total country file.

1998 household level files and merging with habitat

As for 1987 there were major problems in generating a unique identifier because there were more digits than SPSS could cope with. Furthermore with CREC and MREC it was not at all clear what the hierarchy of variables should be for an identifier. As in 1987 we have an individual file (called **Mali 1998 de jure with id_ no duplicate names**) In fact the id on this file is wrong and there are duplicates. In order to match the individual records with the habitat records the files had to be dealt with at a regional level and different ways of making the ID were used for each region to minimise duplicate ids (which were not genuine duplicates). All analysis which requires total numbers should use the file above, whereas analyses which require variable on the household (either derived variables or those from the habitat file) need to be done for each region separately (see directory MALI 1998 BD IND ET HAB JUMELEES)

Appendice 3 – Data on migration, 1987 and 1998

In 1987 there are data available on the 'cercle' de naissance. Otherwise the data on migration seem to comprise just one question 'how long have you lived here'[P9DUREE] [on the questionnaire it is not clear whether 'here' means this house, this town or this cercle: however from the enumerator's manuel it is clear

« la durée de résidence est la longueur de la période pendant laquelle la personne interrogée a résidé au lieu de dénombrement. Elle est exprimée en année révolue. La question à poser est "Depuis combien de temps vivez-vous dans cette localité ?" ».

The manuel then goes on to say that for people born in their cercle de recensement the answer should be left blank. Clearly the data were supposed to be recorded as for 1998 – only those people who moved cercle – but in reality it seems that a great many more migrants were recorded and one imagines that the enumerators didn't follow the rather complex instructions given in the enumerator's manuel. However, although there are some errors on the file (where people have lived somewhere longer than their age) it is possible to construct a file with a variable – duration of migration. This shows plausible patterns and levels of migration by age.

1998 has rather different question and is clearly focused at CERCLE level.

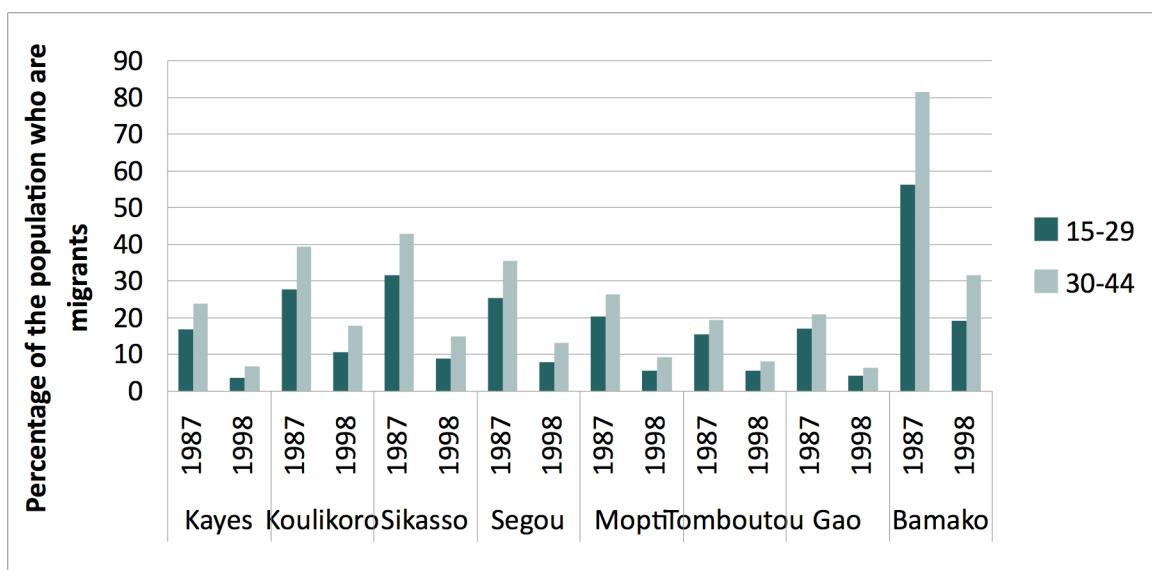
- People born in the cercle and never moved were recorded on the questionnaire with "—"
- People born in the cercle, who moved away and then moved back had to record the number of years since they moved back.
- People living in a cercle other than their cercle of birth had to record the number of completed years since they moved there

However on the SPSS file everyone has an entry – which is most often their age. Therefore it seems that if they were a non migrant the duration of residence is set at age. Thus one can (theoretically) identify migrants by those for whom duration of residence is different from age. The levels of migration seem to be quite low. This is almost certainly because they were only trying to establish if people had moved cercle. This approach will not catch much of the rural-urban migration to small towns – which is often within cercle, or much education related migration, again usually within cercle, or much of the marriage related migration. It is most likely to capture the migration to the larger cities (Bamako,

Segou, Mopti). The figure below shows the reported levels of migration for the two censuses and the age groups 15-29 and 30-44. For every region the proportions of migrants were much lower in 1998, yet given that there was no reference period for the migration – all those who had migrated in 1987 should also have been migrants in 1998.

Two cross checks undertaken with known respondents in the town of Douentza suggest that some of the lower levels of migration in 1998 may be because the questions were not asked by the enumerators but the answers were assumed. In both these households (identified through names) both parents had been born somewhere totally different and both had migrated to Douentza at some time in the previous 15 years. Yet in all 4 cases of adults they were recorded as having been born in the cercle of Douentza and never having moved.

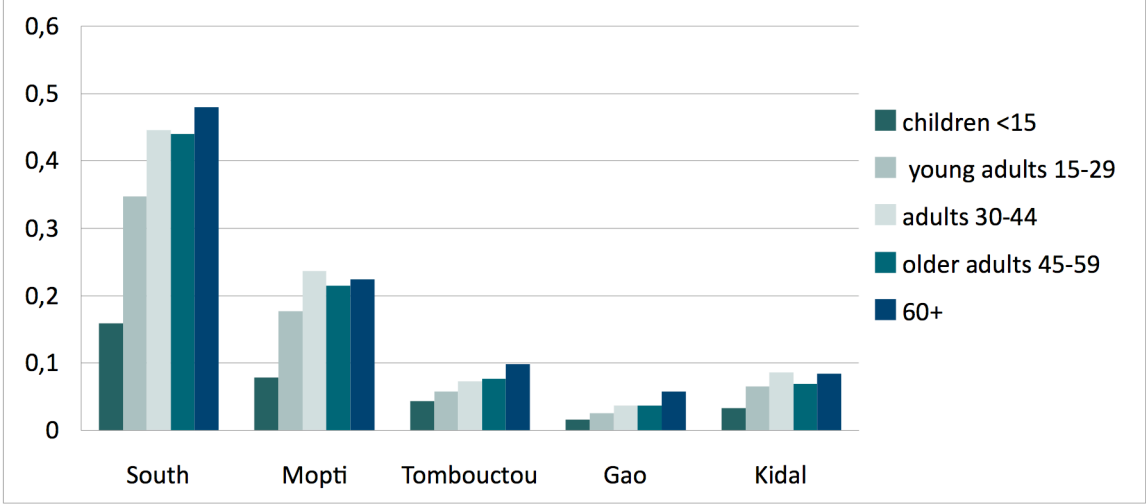
FIGURE A1 Impact of census questions of levels of recorded migration (Mali, 1987 & 1998)



One way of testing the quality of the 1998 migration data is to focus on the Tamasheq population. The majority of the berber Tamasheq (rouges / nobles) had to leave Mali during the rebellion in the early 1990s and most had been repatriated by 1998. In Mopti and Tomboutou regions at least 50% maternal tongue Tamasheq were berber – the figure would have been slightly higher for Gao and much higher for Kidal. Thus we would expect very high levels of migration to be recorded in this population. Yet only for the South and for Mopti are levels of migration higher than for the region as a whole (figure 2). In Bamako this is to be expected since, apart from children born in Bamako, all Tamasheq will have migrated from the north. This suggests either that the question was

badly put or misunderstood, or that there was substantial under-enumeration of Tamasheq in 1998 (which is possible).

FIGURE A2 Percentage Tamasheq reporting migration by age & region (Mali, 1998)



Appendice 4 – Collective Institutions, 1987 and 1998

The 1987 file provided only included individual residents and does not seem to have the collective institutions. However in analysing household size for the northern regions it became clear that there are some very large households (there were 2 of 99 individuals – which were probably even larger in reality but because of digit space anyone who was 100+ in a household was deleted from the regional files). These “households” must have had the wrong code for the household type. There are several very large households 90-99 individuals. Looking at the largest individually it is clear that we have

- 2 schools in Djebok (7123) arrondissement (or one school with two buildings) 99 children each aged 6-13, no household head, all students and all primary school and all Tamasheq 54 boys & 45 girls in first and 66 boys and 26 girls in second (possibly more in both since size was truncated at 99)
- 1 school in Aguel Hoc, Kidal (7413) 97 children 72 boys & 25 girls all Tamasheq. No household head because first person is under 15.
- 1 school Ineka – Menake 79 boys, 18 girls all Tamasheq
- Some odd institution in Mopti region (5649) mixture of students and farmers – mostly children, some related and unrelated – all Dogon (92 individuals)
- School at Talataya Ansongo – 79 individuals all Tamasheq 64 boys and 15 girls
- Prison in Tombouctou commune: all adults – most have profession but ALL currently inactive. Mainly young men but some older ones

The 1998 file had a code for collective institutions and they could be identified. In theory we should be able to identify if a large number of children (especially those of nomadic origin) are in boarding schools through looking at the collective / institutional population (which include military barracks, hospitals, prisons and boarding schools).

Overall the number of individuals in collective institutions in 1998 was as follows :

TABLE A2 Number of individuals in collective institutions (Mali, 1998)

Region	All individuals in institutions		Possible boarding schools (at school and aged < 30)	
	Men	Women	Boys	Girls
Bamako	1113	63	616	284
Kayes	94	79		
Koulikoro	516	140		
Sikasso	641	609		
Mopti	234	78	115	4
Tombouctou	34	12	26	0
Gao	198	39	162	6
Kidal	6	6	0	0

These numbers seem very small considering the size of the Malian army, the prison population and hospitals. This suggests that there has been considerable underenumeration of the institutional population or that, of some reason, they are excluded from our files.

Using the data we do have we can assume that in the prisons and the army there is no one currently attending school. Thus if we select only those who are currently at school we will obtain details on all boarding school pupils who were censused (plus a few students in hospital). Apart from a few odd cases where we have individuals older than 30 recorded as being at school the results seem to suggest a boarding school in Gao (mainly / possibly all boys), a small boarding school in Tombouctou – all boys, a boys boarding school in Mopti, a mixed boarding school in Segou, a large mixed boarding school in Sikasso, a very large institution in Koulikoro – possibly post secondary since most students are over age 20. Possibly a small primary boarding school in Kayes – but may just be children from hospital. There is clearly no boarding school in Bamako.

If we then examine the characteristics of all those who are (a) at school (b) under 30 and (c) not living in Bamako it is clear from these data that Tamasheq children are not all disappearing off to boarding school. Of 1213 possible students only 10 were maternal tongue Tamasheq.

However in the household file there were several extremely large households. The largest were examined and it was possible to identify

- prison in Mopti central arrondissement. Adults (mainly men) range of ages – all currently inactive of 'oisif'
- Medressa in Gao: all students aged largely 6-13 and studying in medressa. No household head. Mainly Tamasheq

In both years there are probably more collective institutions in the household file. It was decided not to search and remove them but to retain them in the household file because otherwise there would be no Tamasheq children at all going to school.

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