
SURVEY TECHNIQUES: CASE STUDY AN INVESTIGATION INTO THE CONSTRAINTS ON THE AVAILABILITY OF MOTORISED TRANSPORT SERVICES IN RURAL GHANA

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Objectives of the case study

The following case study has been selected because it presents a range of different surveys which have been used to help identify how transport performs in rural areas of Ghana. Some participatory work was undertaken, though this was not a dominant feature of this particular study. The work described here was undertaken by TRL, and is documented in an unpublished Report.

1. INTRODUCTION

Rural poverty in the developing World, especially in Sub Saharan Africa, is closely linked to poor communications and poor access to essential facilities. Access comprises four key components:

- Extent and quality of infrastructure
- Siting of facilities relative to residential areas
- Availability of transport services
- Affordability of travel to facilities in terms of time and/ or money

In October/ November 1997 and March/ April 1998 TRL conducted two DFID-funded survey exercises in Ghana, each of five to six weeks duration to address the latter two problems. This work was conducted in collaboration with the Building and Road Research Institute of Ghana and the Department of Planning of the University of Science and Technology, Kumasi. The instruments for data collection were:

- A checklist to obtain information on village parameters such as population, essential facilities within the village and availability and access to transport services. This information was gathered during group participatory discussions within the villages visited.
- A questionnaire aimed at individual household representatives to determine household size, livelihood, income and other indicators of prosperity, transport requirements and trip frequencies with respect to trip purpose, cost and mode.
- A questionnaire aimed at vehicle operators to obtain information on the extent of tripmaking, goods charges and passenger fares, and factors affecting their businesses such as seasonal deterioration of roads, competition, access to vehicle repair and maintenance facilities, regulation and access to credit facilities for vehicle purchase.

Seven Districts were chosen for study throughout Ghana and in addition two villages were investigated in a peri-urban district close to Ghana's second largest city, Kumasi. Villages were selected over a wide range of degrees of accessibility from those located

on main roads to those accessed only by unmotorable tracks. In total, 57 villages were visited and 412 householders were interviewed. A total of 197 vehicle operators were interviewed in market towns and villages. The main findings were as follows:

- Population density has a large impact on the cost and provision of rural transport services, i.e. better services are associated with higher population densities as evidenced by fares, goods charges, waiting times for vehicles and frequency of vehicles serving the villages.
- Wide variation exists between the districts surveyed with respect to household prosperity as indicated by income and total known expenditure per capita. The northern sector of Ghana is poorer than the south and in the north far less use is made of motorised transport services. Here, much more use is made of bicycles instead and ownership of bicycles is greater than in the south.
- Large differences in fares exist between districts which may suggest that operators and unions have less influence where competition is greater, for example, the peri-urban district Kwabre.
- Goods charges for short distances are high. This suggests that there may be pressure to keep passenger fares down but vehicle operators' income is made up on goods.
- In the Southern sector of Ghana, where use of motorised transport services is commonplace, expenditure on transport goes up dramatically as income rises. This is reflected in the number of motorised trips to market per household which increases with household income.
- Market-related trips are the main trip purpose outside the village and accounts for the majority of use of motorised transport.
- Elasticities of demand for motorised transport services indicate that trip making by households is sensitive to income and fare levels; an increase in the annual household income by 5.7% of the average tends to produce an increase in the number of motorised trips by 1.3% per year per household and a decrease in fare by 8.6% of the average fare result in an increase in motorised trips by 2.5% per household per year.

2. THE SURVEY INSTRUMENTS: QUESTIONNAIRE DESIGN

2.1 The Household Questionnaire

This was made up of seven main sections:

- **Demographic and household composition** seeking general information on each household, including age, sex and marital status of the head of household (not necessarily the interviewee), the numbers of men and women (18 years old or over) and number of children under 18.
- **Household income and livelihood.** This section attempts to gather information from which an indicator of the household's level of prosperity can be estimated. The interviewee is asked for the household's gross annual or monthly income. Questions are included in this section seeking information on the household's main source of income and whether or not any contribution is made to household income from household members with particular non-agricultural occupations.
- **Expenditure.** It is expected that most households cannot state any figure for their gross income, or, at least cannot give any accurate estimate for this. Therefore data has been collected on a number of items including food

(including subsistence value of the food if they grow, rather than buy, their own), other consumables, clothing, health and education fees.

• **Possessions and property characteristics.** This section aims to gather further information which could be used to deduce the household's income category. Ownership of bicycles and other vehicles, particularly motorised ones, radios, television sets etc. show a greater level of prosperity than in a household which owns very few or none of these items. Also included in this sections are questions about the type of house construction and fuel used for cooking and lighting. A household which lives under a metal roof, uses kerosene for cooking and lighting is likely to be in a higher income category than one living under a thatched roof, uses wood for cooking and candles for lighting.

• **Travel patterns.** The interviewee is asked questions about number of trips, journey times, trip distances, mode of travel and fare, if any, relating to 11 different activities; short trips within the village were not included. The issue of gender in Ghana, as in many other Sub-Saharan African countries is important and therefore trip making is split by gender.

• **Goods transport charges.** The relationship between goods charges per unit of quantity per km and distance for motorised transport is sought. Additional information included the type of goods, the units carried (e.g. large bag, small bag, basket etc), number of units and trip purpose (from which trip distance can be obtained, referring to the previous section on travel patterns) is tabulated.

• **Reasons for dissatisfaction with motorised transport services.** This section aims to rank the importance of a number of different reasons why householders do not make more use of motorised travel/transport.

2.2 The Participatory Mapping Checklist

It is necessary to process information on travel patterns from household questionnaires from a particular village in the context of the facilities available in that village and the accessibility of facilities external to the village. On arrival at each village, prior to interviewing individual household members, a meeting was held with the village headman, assemblyman, schoolteacher and/or other senior village members firstly to obtain permission to carry out the interviews and then to collect information such as:

- Village size
- Location of the nearest water source, markets, schools, religious centres etc
- Agriculture: type (whether subsistence and/or commercial) and extent, main crops, number and duration of harvests and crop storage facilities
- Type and quality of roads linking the village with the outside world and
- Type and frequency of motorised transport services into the village

In a typical household interview the interviewee might say that he or she travels, for example 20km to the nearest market by bus. If the village is linked to the main road by an unmotorable feeder road 5km long and the nearest point that motor vehicles come to the village is the junction of the feeder road with the main road, then allowance has to be made for this and the interviewees' response corrected to 15km.

2.3 The Vehicle Operator Questionnaire

This is divided into nine sections:

- **General information** relating to vehicle type, ownership, load capacity (passenger number and or weight of goods), crew composition, use (whether for passenger or goods transport) and type of operation (whether on a "for hire "basis or on regular routes). This section contains, in addition, fairly detailed questions on the routes on which the vehicle is driven relating to road quality, distance, time, trip frequency, passenger and goods charges and how these differ between the wet and dry seasons.
- Sections 2 and 3 are aimed at drivers of passenger and goods vehicles to acquire information on demand for their services and how and where goods vehicle drivers find their loads.
- A section (4) to get more detailed information on seasonal constraints on vehicle operators.
- **Vehicle operating costs and maintenance.** Questions relating to vehicle age, tax, insurance, fuel type and costs, responsibility for maintenance and servicing, frequency of servicing, vehicle utilisation and availability of spare parts.
- **Use of small enterprise services in vehicle maintenance.** The city of Kumasi, capital of the Ashanti Region, is well known in Ghana for the *Kumasi Magazine* a large compound of small enterprise shops specialising in various forms of manufacture and repair service. This section is aimed at determining the importance of the Kumasi Magazine to vehicle operators for maintenance, servicing and supply of spares to vehicle operators in the various regions of Ghana visited in this study.
- **Payment for vehicle.** This section seeks to establish how the vehicle has been/ is being paid for, the ease of availability of credit and the reasons for purchase of any particular type or make of vehicle.
- Finally, the interviewee is asked what changes he thinks would best improve his business.

Prior to commencement of interviews, which were carried out in towns or villages with a market on market days, the local branch of the GPRTU (Ghana Private Roads Transport Union) was notified of the activities of the survey team who received much co-operation from GPRTU officials in finding drivers for interview.