

Rural Transport Training Materials

Module 1:

Policies and Strategies

The Impact of Feeder Road Investment on Accessibility & Agricultural development in Ghana

Session 1.2

Part 2

Presentation 1.2b



The World Bank



DFID Department for
International
Development



theIDLgroup 

1. Introduction

Learning Objectives

- ③ Explain the extent to which agricultural prices and production are affected by rural access
- ③ Examine impact of investment in the various types of road improvement

Session Overview

- ③ Ashanti Region of Ghana
- ③ Road investment and impact for farmers

2. Ashanti Region of Ghana

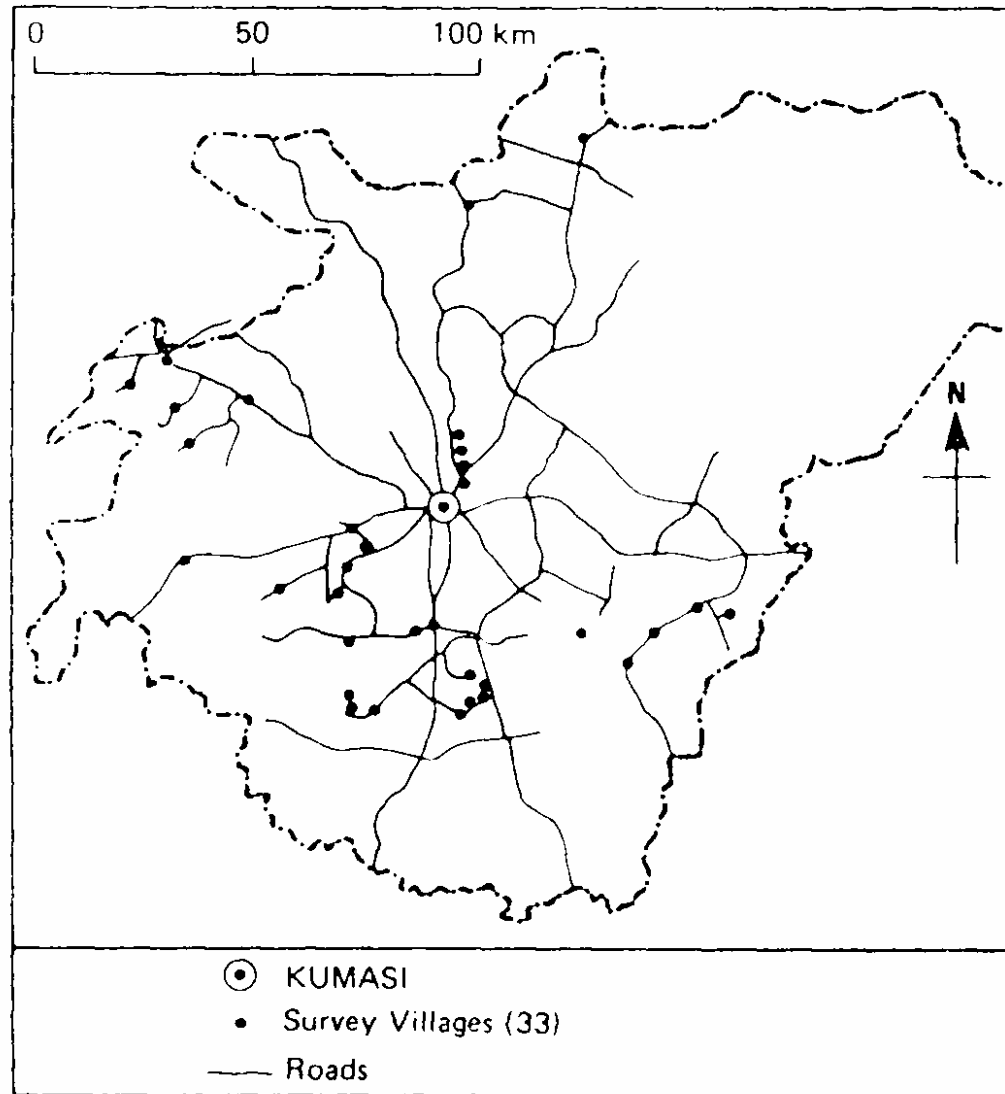
Study 1978 - 1982

- ◎ Kumasi = major administrative centre, market, transport and distribution centre of central southern Ghana
- ◎ All major roads in the region radiate from there
- ◎ In 70% of the region (excludes Kumasi & Afram plains) have
 - 4,400 km of roads (gravel, motorable earth & tracks)
- ◎ Of the rural population:
 - 98% live less than 2 km from a road or motorable track
 - 0.3% live more than 5 km from a road or track
- ◎ Land area
 - 31% lies more than 2 km from vehicle access
 - 3.3% lie more than 5 km from a motorable road or track

The Survey

- © Ministry of Agriculture enumerators collected cross-sectional socio-economic data for the study
- © 491 households in 33 villages
- © All the villages (except 2)
 - had vehicle access
 - were between 8 and 102 km by road from Kumasi
 - found in the cocoa growing forest zone (except for two villages in the savannah to the north of the region)

Ashanti region showing location of survey villages



Initial movement and location of sale of crops

- ◎ Field to village = average 3.9 km = footpaths.
- ◎ 90%+ households
 - principal means of carrying goods from the field is by **headload** – mainly women
- ◎ Tractors used occasionally in savannah villages
- ◎ For food sales
 - 57% holders sold most at their **house**
 - 24% sold at the local **village market**

Initial movement and location of sale of crops

- ③ **Cocoa:** sold at the village buying posts of the Cocoa Marketing Board at a fixed price set for the whole country
- ③ **Food:** mainly sold to travelling wholesalers at the village who arrange for its transport & onward sale in urban markets
- ③ **For the farmer to arrange to sell his own produce in urban markets**
 - Expensive
 - Own return fare
 - Transporters charge two to three times as much for individual loads than for goods in wholesale quantities

Social Mobility and Migration

- ③ **Number of trips** depends on **proximity** to urban centres
- ③ The most accessible villages had *higher* levels of mobility
 - A village close to Kumasi had a trip rate of **84** journeys/holder/year
 - Inaccessible villages had rates of only **one** journey per holder per year
- ③ **Average trip rate** of Kumasi for all villages was **19 journeys/holder/year**

Impact of Accessibility on Farm Gate Prices

- ◎ Transport charges related to travel distance.
- ◎ Assume 1/3 of the Kumasi market price covers wholesale & retail margins, then
 - farmers located 100 km from Kumasi would receive 6.7% less for their maize than
 - farmers selling direct to wholesalers at Kumasi market
- ◎ Similar decline in farmers prices for
 - Yam, 6.5% and
 - Plantain, 5.2% at the same distance from Kumasi

Ghana case study



Case study

- A. *What transport investment would you recommend for the Ashanti Region of Ghana?*
- B. *What are your reasons for these recommendations and how will they contribute to agricultural development and returns for farmers?*

3. Road investment and impact for farmers

- ⊙ Estimated that **transport costs** would **fall** by about **20%**
 - if an earth track was upgraded to a good gravel standard
 - Assumed transport savings passed on to farmer

But!

- ⊙ Only a **small increase in farm gate prices**
 - if the track *was already passable* by motor vehicles before the upgrade

Improvement from Pathway to basic Motorable Earth Track

- ◎ **Headloading more expensive than vehicle transport**
 - moving one headload of produce from farm to village was Cedis(¢) 2.9 for 3.9 km
- ◎ Majority of holders preferred using domestic labour for headloading
 - though 40% did hire labour when necessary.
- ◎ Assume it costs ¢0.5 to move a standard 40 kg headload one kilometre then
 - the costs of moving a 100 kg bag of maize would be ¢1.25 per km

- ◎ Converting a footpath from the village to the road head to basic vehicle track =
 - substantial impact on farm gate prices

- ◎ **But!**

- This impact might not justify the costs of construction & maintenance

- ◎ If the farmer sells his produce

- to a travelling wholesaler at the village
 - after the construction of vehicle access
 - farm prices increase, depending on the length of road

Potential improvement in farm gate maize prices following conversion of footpath to an earth road

| | Length of footpath to be changed to vehicle access track | | |
|---------------------------------------|--|-------|-------|
| Improvement in farm gate maize prices | 2 km | 5 km | 20 km |
| | 4.3% | 11.4% | 70.6% |

Converting paths to roads is more beneficial

It is **140 times** more beneficial to the farmer to have **vehicle access brought 5 km nearer to his village**

(where the alternative is headloading)

than

to improve 5 km of *existing* earth roads & motorable tracks up to a good gravel standard

Conclusions of this research: Agriculture

- ⊙ **Agriculture: not adversely affected by inaccessibility.**
- ⊙ Inaccessible villages concentrate more on agriculture than accessible villages
- ⊙ Accessible villages focussed on non- agricultural sources of income e.g. marketing, rural industry and the provision of services
- ⊙ The provision of other modern inputs to agriculture were not adversely affected by inaccessibility
 - Extension services were more dependent on the local management and enthusiasm of individual extension workers than on the problems posed by inaccessibility,
 - even though accessibility may hinder the *efficiency* of extension organisation

But!

- ⊙ Inaccessibility did make it difficult to obtain loan finance

Conclusions: Mobility

- ③ Mobility rates [number of trips] was higher the more accessible the village was to Kumasi
- ③ Good communications are very important to social mobility & access to social facilities

Conclusions: Farm Prices

- ③ Improved road surfaces (to reduce road roughness) of short lengths of roads has a negligible effect on the prices paid to the farmer
- ③ **Replacing a 5 km footpath** between a village and the road by a motorable vehicle track may benefit the farmer through **increased farm gate prices by over one hundred times**
 - more than improving the same length of poor quality road surface to a good quality gravel road
- ③ However these benefits would have to be carefully weighed against the cost of construction

Overall

- ③ There are advantages of ensuring that all villages have direct vehicle access
- ③ The quality of the road surface is of minor importance
- ③ For Agriculture:
 - investment in bridging, drainage work & other small scale remedial work to extend vehicle access and keep routes open to vehicle traffic
 - probably represent the best use of scarce engineering resources