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FOOD PREFERENCES IN MEALS CONSUMED BY LONG-DISTANCE TRUCK DRIVERS*PREFERENCJE RODZAJU ŻYWNOŚCI W POSILKACH KONSUMOWANYCH
NA DŁUGICH DYSTANSACH PRZEZ KIEROWCÓW CIĘŻARÓWEK***Key words:** truck driver, East Africa, meal, food preference*Słowa kluczowe:* kierowca, Afryka Wschodnia, posiłek, preferencje żywnościowe*JEL codes:* Q19, R49

Abstract. This preliminary study identifies individual characteristics and job features that significantly influence the selection of meat for breakfast and lunch by truck drivers in Kenya. Based on the survey data collected in July 2017, two equations are estimated using the logit technique. Results show that individual characteristics drive the choice of non-meat foods for breakfast, while job features and environment encourage meat selection for lunch. Having formal education lowers the probability of choosing meat for either meal, but taking hitchhikers strongly encourages eating meat for lunch, likely due to the additional income from fees paid by travelers to the driver.

Introduction

Trucking is a major transportation mode in East Africa. The poorly developed maintained railroad system has inadequate capacity to move cargo from the seaport of Mombasa [Balistreri et al. 2009]. Not surprisingly, Kenya has the largest number of trucks in the region [*The East African* 2017]. The trucking industry transported 27.34 million tons of cargo unloaded in Mombasa in 2016 [KPA 2017-2018]. The long distance shipping implies lengthy routes; for example, the distance from the port of Mombasa to the border with Uganda is 950 km. The trip lasts several days and forces the driver to live “on the road”.

A driver in good physical and mental condition reduces the risk of accidents and the potential loss of life and cargo indirectly affecting transportation costs. Proper nutrition is essential to maintain health, but the working conditions make it difficult to follow an optimal diet. Truck drivers may have to eat at irregular intervals due to unpredictable road conditions, traffic jams, police roadblocks, and mandatory stops at weighbridges along the Northern Corridor (NC) in Kenya. The large number of establishments along the NC offers easy access to a variety of foods, although some may lack adequate parking, while pressure to deliver cargo may encourage skipping meals. The eating habits of truck drivers have been studied in developed economies [for example: Apostolopoulos et al. 2010, Hamilton et al. 2015], but not in lesser-developed countries, especially those in sub-Saharan Africa. Truck driver food choices provide insights about their eating habits and potential effects on short-term job performance and long-term health. Additionally, the driver performance influences the cost of providing transportation services and poses risks to the safety of others.

In sub-Saharan Africa, balanced nutrition is still a challenge. Protein consumption, especially that of animal origin, is relatively low compared to developed countries. With underemployment common in many countries, trucking is an attractive occupation because the demand for transportation services offers a relatively steady income. Steady income allows to exercise wider food choices. This study examines factors influencing the choice of meat for two main meals

possibly consumed by truck drivers; breakfast and lunch. Beside the commonly considered factors influencing food choices, such as education and age, this study accounts for factors specific to the conditions encountered in Kenya along the NC, for example, the frequent phenomenon of picking up hitchhikers and the various approaches to managing long-haul shipments. The study's unique contribution to the identification of factors relevant to food choices by truck drivers in a lesser developed country helps fill the gap in the literature focused on studying behavior of truck drivers in the developed economies of Europe, North America, and Australia. However, due to a relatively small sample size, this study is preliminary in nature. From the perspective of food establishments along the NC route, the results ascertain the relative effects each factor or driver characteristic has on choosing meat for a major meal, allowing for improved catering to the needs of truck drivers. The insights likely capture the behavior of truck drivers across other sub-Saharan African countries, especially in East Africa.

Truck driver food choices

Trucking is listed among the highest risk occupations in the United States [BLS 2007] and has one of the highest rates of sickness or injury compared to other occupations [BLS 2014]. Occupation has been used as a proxy in some studies for socio-economic position [Wandel, Roos 2005]. In developed countries, trucking is associated with comparatively low earnings or low socio-economic status [Rodriguez et al. 2003, Vayro, Hamilton 2016], but in Kenya, and other East African countries, a trucking is a highly desirable occupation offering earning opportunities considerably higher than other available jobs. Yet, truck drivers are considered an occupational group at risk for poor nutrition because the nature of their job is inconsistent with regular meal patterns. Work place conditions are also thought to contribute to gastrointestinal problems experienced by truck drivers in developed countries [FMCSA 2005], and likely experienced by truck drivers in lesser-developed areas because of the similar nature of the job.

There is a lack of information about eating specific meals, including breakfast, lunch, and dinner. Drivers in developed countries considered lunch a major meal and an opportunity for social gatherings [Wandel, Roos 2005]. However, the availability of healthy food choices for truck drivers in developed countries is somewhat limited. Many drivers admitted eating in establishments offering "drivers' food": mostly fried, unhealthy foods [Wandel, Roos 2005, Whitfield-Jacobson et al. 2007, Apostolopoulos et al. 2010]. However, drivers may be partly responsible for the offered menus because they indicated preferences for meals that can be eaten fast or that could satisfy hunger for an extended period of time permitting them to drive for long periods. Trucking is a highly competitive job and encourages long working hours to earn higher income [McDonough et al. 2014].

Knowing that truck driving as an occupation is associated with substantially higher social status in sub-Saharan Africa where it is a highly sought type of employment, it is reasonable to expect that despite consistent job conditions (e.g., long hours, irregular eating patterns, pressure to deliver cargo), the characteristics of the driver, his job, and environment may have different effects on specific food choices. This study assumes that meat is a preferred food given the relatively low consumption of meat in sub-Saharan Africa as compared to developed economies. Among meals, breakfast and lunch (the mid-day meal) are the most important meals for many Africans, and presumably also for the truck drivers. Preference for meat implies that a driver derives utility from consuming meat as often as possible and therefore it is an important choice in the morning and mid-day.

The available data allow modeling the observed choice and the choice implies the maximization of satisfaction a truck driver gets from his decision. The choice is recorded as absence or occurrence of eating meat and can be modeled as the limited dependent variable. A suitable approach to estimation of an equation where the choice is associated with characteristics of an individual and other relevant factors is a logit technique, especially if the sample size is small, risking compromise to the normal distribution assumption.

Data

The lack of studies on truck driver eating habits across sub-Saharan Africa required the collection of own data for the purpose of this study. The questionnaire consisted of several parts with one part focusing on the well-being of the trucker including the consumption of three main meals of the day, namely breakfast, lunch, and dinner. Truckers shared opinions about life on the road including their preferred stopping venues, eaten meals, and choices of food regarding the main meals of the day. The interviewed trucker also provided socio-economic and demographic information.

During early July of 2017, a team of four enumerators interviewed 42 truck drivers. The interviews took place as drivers waited at obligatory weighbridges on the NC corridor. A face-to-face interview took nearly one hour on average. The truckers transported goods from the port of Mombasa to, primarily, Uganda, crossing the Kenyan-Ugandan border in Busia. Such a trip commonly takes several days.

The average truck driver was about 40 years old (tab. 1) and had 13 years of truck-driving experience. About 86% of drivers received formal education, indicating that formal education is not required to become a driver, making this occupation particularly attractive. Only 10% were married and nearly 80% traveled routes reaching Kenya's western border at Busia. The average pay per trip was 29,714 Kenyan shillings (about \$286.54 as of July 6, 2017 [XECurrency 2018]). The average truck age was about six years, a relatively new truck by East African standards. Only 19% of drivers admitted taking hitchhikers. Despite the common presence of hitchhikers along the route, some trucks pulling a container prevent hitchhikers from climbing on top of cargo, while some companies may explicitly forbid drivers to carry hitchhikers. One-half of the interviewed drivers worked according to a set schedule, reflecting company management practices.

Table 1. Summary statistics of selected characteristics of truck driver and his job

Variable name	Mean	Standard deviation	Minimum	Maximum
Pay per trip pay, Kenyan shillings	29,714.29	17,072.35	500	95,000
Truck driver age, in years	39.71	9.92	23	61
Distance travelled (1 = Mombasa to or past Busia)	0.79	0.42	0	1
Education (1 = any formal education)	0.86	0.35	0	1
Age of truck in years	5.76	5.08	1	25
Hitchhiking (1 = stops to carry hitchhikers)	0.19	0.40	0	1
Schedule (1 = operates under schedule)	0.50	0.51	0	1
Years of experience	13.32	10.78	1	42
Marital status (1 = married)	0.10	0.30	0	1

Source: own survey results

Estimation approach

The choice is commonly modeled using a latent variable approach. The observed choice implies that the individual maximizes his utility that remains unobservable. A logit technique is commonly selected for estimation because of its less restrictive assumptions characteristic to the probit technique.

The current study estimates two empirical relationships linking the truck driver's choice of meat for breakfast and lunch. Since the choice has a binary nature, it is suitable for a choice between two alternatives, which depend on the characteristics of the problem [Pindyck, Rubinfeld 1998]. The logit model with dependent variable takes the general form [Wooldridge 2002]:

$$E[y|q\beta] = G(q\beta) \quad (1)$$

where:

$$q\beta = \alpha + x\gamma + \varepsilon \quad (2)$$

Contains an intercept, a vector of explanatory variables x with coefficients vector, random error, and $G() = \Lambda()$, the logistic CDF. The logit model directly estimates the food choice for each truck driver while ensuring that the predicted responses for a given set of truck drivers fall in the unit interval. A chi-square test is used to verify the model's goodness of fit. However, the estimated coefficients cannot be interpreted until an additional step is performed and converts them into the probability of the dependent variable change in response to the change in the explanatory variable. The conversion quantifies the effects making it practical to gauge the relative importance of factors relevant to choosing meat for breakfast or lunch as compared to choosing food other than meat.

Results

Table 2 shows the estimation results and the corresponding effects of explanatory variables on the probability of choosing meat for breakfast and lunch. Due to the limitations on the length of this paper, the discussion focuses on the statistically significant effects because of their importance for making practical recommendations to the users of the results generated by the study.

Among the socio-demographic characteristics, the probability of having meat for breakfast declined by 2.1% for each additional year above the average age of the interviewed drivers, or by 21% if a driver was about 50 years old. The age effect was even larger in the case of

Table 2. Estimation results of equation modeling food preferences for breakfast and lunch among long-distance truck drivers and effects of each variable on the probability of choosing meat

Variable name	Consumption preference for breakfast (1 = meat)	Consumption preference for lunch (1 = meat)	Consumption preference for breakfast – marginal effects	Consumption preference for lunch – marginal effects
Log of pay per trip	0.7830 (-1.0000)	-1.0990 (-0.881)	0.1040 (-0.1310)	-0.1600 (-0.1210)
Age of trucker in years	-0.1610* (-0.0920)	-0.1800** (-0.0900)	-0.0213** (-0.0108)	-0.0262** (-0.0102)
Distance ^a (1 = from Mombasa to or past Busia)	-2.2300* (-1.1850)	-0.2340 (-1.1470)	-0.2950* (-0.1370)	-0.0341 (-0.1660)
Education ^a (1 = Formal)	-3.0920* (-1.6150)	-1.4320 (-1.4230)	-0.4090** (-0.1750)	-0.2080 (-0.1960)
Age of truck in years	0.0420 (-0.0960)	0.2170* (-0.122)	0.00549 (-0.0127)	0.0316** (-0.0152)
Hitchhiking ^a (1 = carry hitchhikers)	1.6670 (-1.4450)	3.4240** (-1.7120)	0.2200 (-0.1790)	0.4980** (-0.2030)
Schedule ^a (1 = operates under schedule)	0.2580 (-1.1490)	2.8040** (-1.2400)	0.0342 (-0.1520)	0.4080*** (-0.1330)
Log of years of experience	2.1730* (-1.2200)	0.5710 (-1.005)	0.2870** (-0.1430)	0.0831 (-0.1430)
Marital status ^a (1 = married)	1.1450 (-1.659)	-1.648 (-1.928)	0.1510 (-0.2160)	-0.2400 (-0.2720)

Note: Standard errors in parentheses

^a Indicates the discrete change of dummy variable from 0 to 1, * $p < 0.5$, ** $p < 0.05$, *** $p < 0.01$

Source: own survey results

choosing meat for lunch and lowered such choice by 2.6% for each year added to the average age of the drivers. Having formal education lowered eating meat for breakfast by about 41% as compared to drivers who did not receive formal education. With the change in the years of experience in truck driving, the probability of choosing meat for breakfast increases by 29%.

Job conditions and environment also exert significant effects on the probability of choosing meat for breakfast and lunch. Driving a long distance decreases the probability of selecting meat for lunch by about 29% as opposed to driving shorter distances. An additional year above the truck average age increases the probability of choosing meat for lunch by nearly 32% (tab. 2). An even stronger effect on the probability of choosing meat for lunch, 41% (tab. 2), is associated with working according to a set schedule. Finally, among measures of truck driver behavior, taking hitchhikers increased the probability of choosing meat for lunch by almost 50%, the largest effect among the binary variables included in the specification.

Implications

Several factors, including the age of the driver, having formal education, and driving particularly long distances lowered the probability of choosing meat for breakfast. Such a choice is likely desirable from the perspective of eating a health-promoting diet if the driver eats adequate amounts of protein from plant sources or animal protein at other meals. It is likely that the commonly offered breakfast includes primarily plant-based dishes given the existing traditions.

The choice of meat for lunch appears to be driven by a different set of factors that mostly increase the probability of eating meat. Those factors are associated with job conditions and environment and include working on a set schedule and taking hitchhikers. Although 50% of the interviewed truck drivers worked according to a set schedule, only about one-fifth reported taking hitchhikers. A set schedule permits planning of the trip and periodic stops necessary to have a meal, and creates conditions enabling proper nutrition. Hitch hiking is typically associated with some payment made by a hitch hiker directly to the driver, and that additional income seems to encourage the choice of meat for lunch given the typically higher price for meat than non-meat dishes. Animal protein is normally more expensive in sub-Saharan Africa than plant-based dishes. The phenomenon of hitchhiking seems to have a subtle but significant effect on truck driver food choices. The payment, however small, likely enables a choice of a pricier dish and increases discretionary income rather than contributing to overall income. Perhaps a future study can verify driver choices in more detail.

Conclusions

Food choices among truck drivers are seldom studied in developed economies due to paucity of data. Data are almost completely absent for truck drivers in sub-Saharan Africa, where trucking is a major mode of transportation. Eating a healthy diet has a direct effect on health and job performance and, in the case of truck drivers, indirectly on the risk they may pose to others along the heavily traveled NC route in Kenya.

The survey data collected among truck drivers at weighbridges in Kenya in July 2017 was used to estimate two equations modeling the choice of meat for breakfast and lunch. In general, the socio-demographic characteristics, including education, lower the probability of choosing meat for breakfast. Also the drivers traveling long distances are more likely to choose non-meat breakfast dishes. This behavior is consistent with the preferred diet assuming the drivers have sufficient intake of protein from other sources assuring a balanced diet. Meat selection for lunch is influenced by job-related factors and involves more complex behavior that may be more difficult to predict. Future research is needed to gather additional information about eating habits and the motives behind food choices among the drivers in this part of sub-Saharan Africa to gain knowledge useful for developing wholesome food choices assuring health-maintenance.

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Streszczenie

Celem artykułu jest identyfikacja cech osobowych związanych z zawodem kierowców ciężarówek w Kenii, które znacząco wpływają na wybór przez nich rodzaju spożywanego mięsa na śniadanie i lunch. Posługując się danymi zebranymi w lipcu 2017 roku obliczono dwa równania techniką logitową. Wyniki wskazują, że cechy osobowe kierowców decydują o wyborze dań bezmięsnych na śniadanie, a cechy związane z zawodem i środowiskiem pracy zachęcają do wyboru dań mięsnych na lunch. Posiadanie formalnego wykształcenia obniża prawdopodobieństwo wyboru dań mięsnych na którykolwiek z posiłków, lecz zabieranie autostopowiczów nakłania do wyboru dania mięsnego na lunch, prawdopodobnie w wyniku dodatkowych dochodów z opłat podróży, które otrzymuje kierowca.

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