



FONDI SHQIPTAR I ZHVILLIMIT
ALBANIAN DEVELOPMENT FUND



**SOCIO-ECONOMIC IMPACT OF
SECONDARY AND LOCAL ROAD
PROJECT IN ALBANIA**

FINDINGS FROM THE SLRP'S EVALUATION

TOPLINE RESULTS

This policy brief reports findings of impact evaluation of SLRP and seeks to inform policy makers, donors, practitioners, and advocates about the socio-economic benefits of investment in road projects (SLRP). These findings can help inform the broader policy discussion and can be used to inform policy design related to rural road project in resource-poor countries.

OVERVIEW

The Albania “Secondary and Local Roads Project (SLRP)” is one of the largest road rehabilitation projects in the rural hinterland of the country.

The project is co-financed by 11 donors and financial institutions (World Bank, OFID, CEB, EBRD EIB, IDB, KfW, WBIF, IPA 2008-2011, Government of Albania and other donors) and is being implemented by the Albanian Development Fund (ADF) since 2008.

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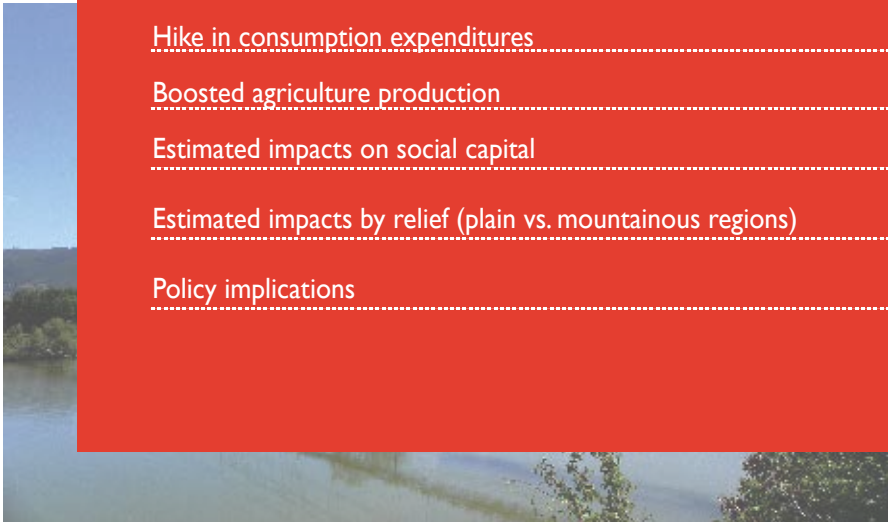
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Between 2008 and 2017, 144 secondary and local roads, totaling 1,200 kilometer of road network were rehabilitated and improved in rural Albania at the estimated cost of US\$ 370 million. About one million people benefited directly from this project across the country.

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OVERVIEW OF STUDY METHODOLOGY

Better road network and improved rural roads are expected to improve access to markets, health, and educational infrastructures by reducing travel time and transport cost. Road rehabilitation programs are also likely to boost employment in non-agricultural sector, which in turn could improve higher household income and consumption. While limited research has been undertaken on the impacts of improved road connectivity, less is known about the developmental impacts SLRP investment in Albania. The empirical evidence on the impacts of rural roads on household welfare is scarce in Albania and to undertake a cost-benefit analysis, it is important to quantify the benefits of road investments. This study uses rigorous econometric technique, Difference-in-Difference method, to assess the impact of SLRP on key economic and social outcomes. The method compares the changes in outcomes in communities connected by treatment roads and control communities before and after the SLRP investment*.

**Treatment communities represent beneficiary communities and control or counterfactual communities represent non-beneficiary communities.*

This study used representative data between 2011-2012 (baseline survey) and 2016 (follow-up survey) to examine the impacts of SLRP on access to key economic and social institutions, household income, consumption expenditure, and household assets. The analysis is based on household survey administered on a sample of approximately 2,000 households residing in 144 villages across 12 regions in each phase and consultation with 10 focus groups. Treated villages were within 5 km radius of the treated road segment (those constructed in 2012) and the control villages were within 5 km radius of counterfactual road (planned to be constructed after 2017).

A “SNAP” SHOT OF ENDLINE PARTICIPANTS

CHARACTERISTICS OF THE END LINE SURVEY SAMPLE (2016).

The average age of SLRP beneficiaries is 38 years. The typical participant in the sample is male, married, adult (> 25 years of age), literate, and lives in a household with 3.9 family members. More than 95% of the households had access to improved toilet and electricity. Other key demographic and socioeconomic characteristics include:

EDUCATION: The literacy rate in the sample is over 97%; the average completed years of schooling is 9 years. Approximately 99% of the school-age children were enrolled in school.

HOUSEHOLD HEAD: The average age is 54 years; male and married; 36% have completed secondary school; the average monthly cash earned is 33,379 ALL; took 27 minutes to reach workplace.

HOUSEHOLD INCOME AND CONSUMPTION

EXPENDITURE: Households earned a monthly wage income of 48,981 ALL and the annual non-wage income² was 197,630 ALL. The SLRP respondents were asked about their monthly consumption expenditure for 52 food items. The monthly expenditure on food items was 13,000 ALL, while a typical household spent approximately 34,000 ALL annually on non-food items.

HOUSEHOLD ASSETS: About 8.3% of the household own other residential plot in the commune; the average price of the residential plot is 37.000 ALL per 100 sq. meter; about 77% households own livestock; households had higher propensity to own four-wheeler (23%) than two-wheeler (5%).

²Non-wage income is income from business, crop sale, rent, and pension.

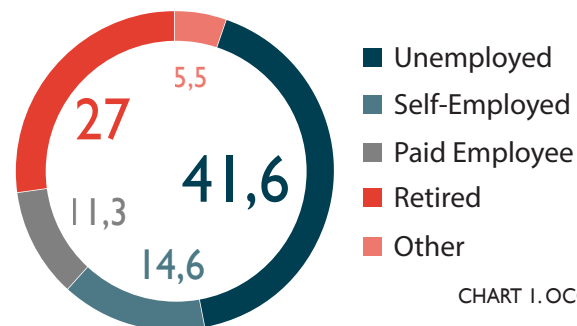


CHART 1. OCCUPATIONAL STATUS OF THE HOUSEHOLD HEAD (%)

ACCESS TO HEALTHCARE: The average time taken to reach hospital is 100% more than the travel time to public ambulatory (chart 2). On average, an ambulance takes 47 minutes to reach the communities.

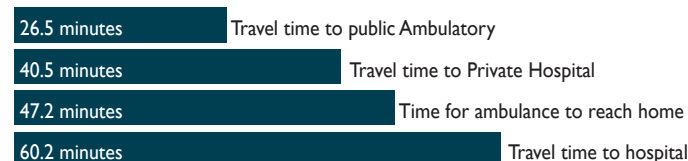


CHART 2. TRAVEL TIME TO HEALTH CLINICS (MINUTES)

ACCESS TO SCHOOL: Among different types of educational institutions, the travel time is highest for the college (137 minutes). The average travel time to reach secondary school is approximately 100% more than the travel time to primary school (chart 3).

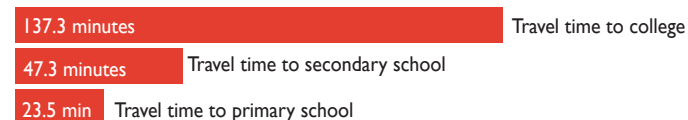


CHART 3: TRAVEL TIME TO HEALTH CLINICS (MINUTES)

OTHER CHARACTERISTICS

The average price of farm plot was 104.700 ALL per 100 sq. meter in the surveyed communities. Price of greenhouse agricultural land is significantly higher. About 72 % of the households produce crops and of them close to half used mechanized tools to cultivate land (53%). Most of the agricultural production is for subsistence (chart 4). The percent of household with a family member migrating to outside village for work was 10% in 2016 follow-up survey, while it was approximately 25% in the 2012 baseline survey.

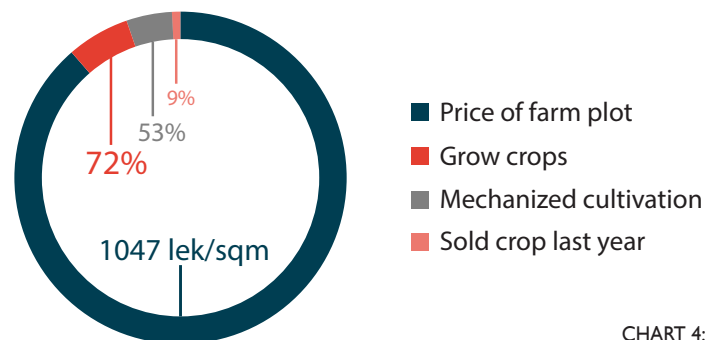


CHART 4: AGRICULTURE



A “SNAP” SHOT OF SLRP’S IMPACTS

IMPACTS=

(TREATED – CONTROL) 2016 – (TREATED – CONTROL) 2012

This section presents findings from the impact evaluation of SLRP programs in Albania. The standard approach in impact evaluation studies is to use a binary treatment variable in the treatment-control framework. At the outset of the evaluation that is before road construction comparison roads/communities similar to the treated communities were selected. The comparison communities thus represent the counterfactual that is what would have happened to the treatment communities in absence of the road improvement. The findings are based on comparison of baseline difference between treated and control communities to end line difference between treated and control communities, which is known as difference-in-difference (DID) method. The reported impact estimates are calculated based on DID regression method, after adjusting for confounding variables, such as characteristics of the head of the household, distance, household size etc. Impact estimates in the following charts are reported as the average difference between treatment and comparison households for a given outcome measures, controlling for baseline difference between the treated and control groups and other confounding variables.

IMPROVED ROAD QUALITY

Households in the beneficiary communities were more likely to report good quality of nearest motorable road. More than half of the treated households (57%) rated road quality as good, while less than one-fourth of the control households (22%) rates road quality as good (chart 5). The impact estimates show that SLRP improved condition and quality of the nearest motorable road by 35% percentage points in the beneficiary communities.

CHART 5: IMPACTS ON ROAD QUALITY (% OF RESPONDENTS REPORTING)



SLRP IMPROVED ROAD QUALITY BY 35% PERCENTAGE POINTS.

BETTER ACCESS TO HEALTH AND EDUCATION ACCESSIBILITY TO HEALTH FACILITIES

Households in the treatment communities reported that access to health infrastructures has improved due to better connectivity. The average travel time to public ambulatory and private clinics was similar among treatment and control households (chart 6). It is likely that households are not using the SLRP roads to travel to public ambulatory (lowest tier of public health facility) since these facilities are most likely located within the communities. However, treated households did report that hospital has become more accessible due to improved road conditions. The average reported travel time to hospital reduced by 15 minutes in the treated communities, which is equivalent to 27% reduction compared to average travel time in the control communities (56 minutes)

The study further found that households in the treated communities were more likely to visit public ambulatory in the event of sickness in the family compared to households in the control communities. On average, treated households were 12 percentage points higher probability of visiting public ambulatory than the control households. Given that only 20% of the control households visited public ambulatory, the impact estimates are equivalent to 60% increase in visit to public ambulatory (chart 7).

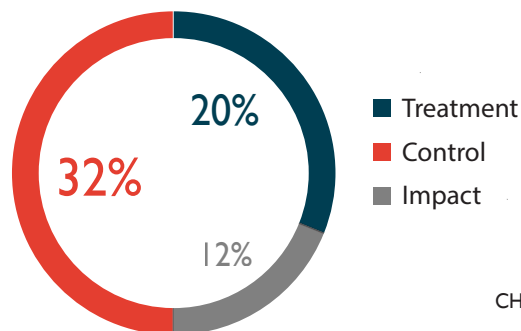
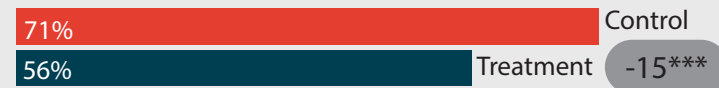


CHART 7: IMPACTS ON VISIT TO PUBLIC AMBULATORY

Hospital



Private Clinic



Public Ambulatory



CHART 6: IMPACTS ON ACCESS TO HEALTH INFRASTRUCTURES (MINUTES)

A 71 year old retired person in Frakull e Vogel village, Administrative Unit Frakull, Fier (beneficiary village) mentioned during that focused group discussion that the new road has made access to medical center easy, especially for the older generations and pregnant women as they are in need of medical help".

Another person from non-beneficiary village, Kalivere, Administrative Unit Gjegjan, Puke reported facing lots of problems due to poor network of road leading to his village. Respondents mentioned that they have to make arrangements 2-3 weeks in advance to access medical service and they do not receive medical help on time and this has increased the risk of infant deaths too. Due to no road, it was difficult for ambulance to reach village in the time of need

ACCESSIBILITY TO EDUCATIONAL FACILITIES

As expected, the study finds significant impact of the project in reducing travel time to secondary school. The study shows that the road rehabilitation project led to improvement in access to secondary school but improvement in access to primary schools were not observed. The SLRP project reduced travel time to secondary school by 16 minutes and travel cost by 72 ALL, which corresponds to reduction by 31% and 54%, respectively (chart 8). 94% of the households used motorized transport (bus/care) to commute to secondary school

“Several participants reported that road projects have been beneficial for students as well as the teachers. Respondents in the control villages mentioned that transportation cost to school is very high due to lack of better connectivity and public transport. In contrast, households in the beneficiary villages agreed that access to schools has improved and transportation cost has reduced by more than 50%. One beneficiary reported that his son does not have to wake up at 5am in the morning to reach school on time. Ermal, a 28 years old teacher in Qinam village Administrative Unit Zall-Herr, Tiranë, (non-Beneficiary village) complained of long waiting times after school, however, beneficiary households were happy that with new roads they can commute to school easily and quickly. The number of students attending schools has increased as better public transport has made it easier for them to attend school in any kind of weather (Respondents in Prosek village) Administrative Unit Kthellë, Mirditë”.

CHART 8: IMPACTS ON ACCESS TO SCHOOLS

PRIMARY SCHOOL

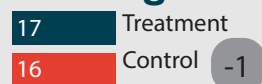
Travel Time



Travel Cost

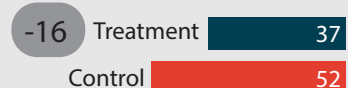


% Using Bus

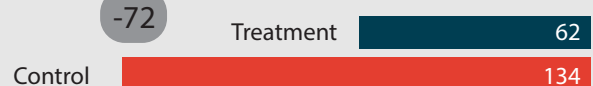


SECONDARY SCHOOL

Travel Time



Travel Cost



% Using Bus



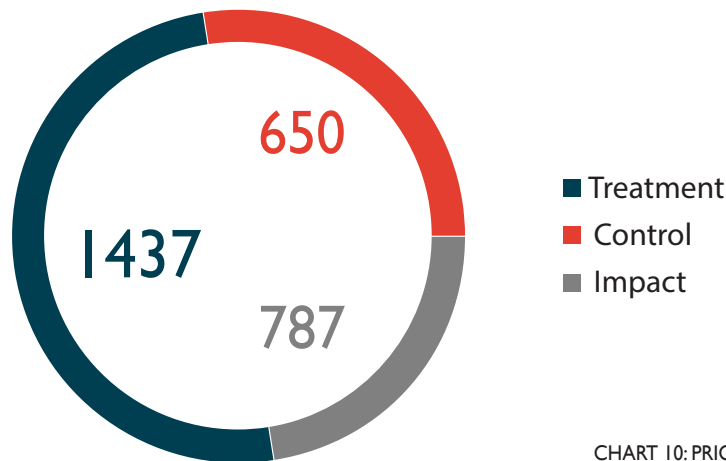


CHART 10: PRICE OF FARM LAND PER SQ METER

HIGHER HOUSE AND LAND VALUE

Price and value of home and residential land witnessed a significant increase in the treated communities. The value of house is 71,000 ALL higher in the treated communities relative to the control communities, which is equivalent to 22% increase in house value. The average price of residential land is almost five times higher in the treated communities compared to control communities. The average price increased by 29,000 ALL per 100 sq. meter in the treated communities, which is an increase of about 48% at the sample mean of 60,000 ALL per 100 sq. meter in the control communities (chart 9).

Price of farmland also increased in the communities that were connected with the improved road. Price of farmland increased by 787 ALL per sq. meter, which corresponds to 121% of the average farm land price in the control communities (chart 10).

“Ledion of Kodovjat village Administrative Unit Kodovjat, Gramsh mentioned that due to new road the value of house and the land has increase. The price has increased from 500,000 ALL to 3,000,000 ALL after the village has improved road connectivity due to SLRP projects. Respondents in this village further mentioned that the travel time to the nearest city (14 km far) has reduced from one hour to 20 minutes due to better transport facilitated by the new road. Respondents in another benefitted village, Prosek, Administrative Unit Kthellë, Mirditë did not witness any increase in land value due to lack of investment in the surrounding areas. Ismail, a 67 years old, retired person in Gjejalaj, Durrës (treatment) was very happy that land price in his village has increased several folds. One businessman started a vineyard on a big piece of land in his village and that has created seasonal employment opportunities for the locals.”

Improvement in accessibility due to road rehabilitation project could increase land and house value. Due to limited actual sale transaction of land and house, this study relies on the self-reported information provided by the survey respondents. The positive impact of improved road on land and house value is seen in this study too.

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RESIDENTIAL LAND PRICE (Million Lek per 100 sq. meter)

0.35 Treatment

Control (0.06) 0.29**

HOUSE VALUE (Million Lek)

3.98 Treatment

3.27 Control 0.71

CHART 9: IMPACTS ON HOUSE AND LAND VALUE

IMPROVED EMPLOYMENT PERSPECTIVES

The study findings indicate that road improvement projects benefitted the employment situation of the head of the household. Travel time to workplace reduced by 10 minutes. The average travel time in the sample is 27 minutes, implying that travel time reduced by 37 percent.

The road projects had significant impacts on employment status of the head of the household. The unemployment and probability of self-employment was significantly different between treated and control communities. Household heads in the treated communities are 12.6 percentage points less likely to be unemployed compared to control communities. Furthermore, conditional on being employed, household heads are 12.9 percentage points higher probability of being self-employed than household heads in control communities, a reduction by 31% (chart 11).



“Arben of Surrel village Administrative Unit Dajt, Tiranë mentioned that the new road has opened a plethora of opportunities for self-employment. Residents are investing in olive groves which have created opportunities for seasonal employment. Existing businesses are increasing in size and scale thereby creating further scope of employment for local residents.”

CHART 11: IMPACTS ON EMPLOYMENT OF HOUSEHOLD HEAD

Self-Employment



Unemployment

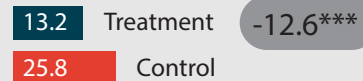


CHART 12: IMPACTS ON MONTHLY HOUSEHOLD INCOME (,000 ALL)

Household Monthly Income



Household Head Monthly Income



The study did not find evidence of impact on household income which may well be due to insufficient and short follow-up time period after the interventions or due to measurement error and bias. Household income is 32,000 ALL higher in treated communities than control communities. This corresponds to a 20.7% increase in household income compared to the control mean income of 154,000 ALL. However, the impact estimates are not statistically significant. Similarly, the estimated impact for monthly income of household head is 23,000 ALL, equivalent to 22.3% of the average income in the control communities (chart 12).

HIKE IN CONSUMPTION EXPENDITURES

Total Consumption Expenditure



Per Capita Non Food Expenditure



Per Capita Food Expenditure



CHART 13: IMPACTS ON CONSUMPTION EXPENDITURE (MONTHLY)

The study found a significantly positive impact on monthly non-food expenditure. The impact estimates show that the road improvements led to an increase by 58% in non-food expenditure per capita per month in treated communities (e.g. clothing, education, and festivals etc.) compared to the average expenditure in the control groups (4900 ALL); however no significant difference is observed on monthly food expenditure per capita across the treated and control groups. On average, a typical household spends about 6,000 ALL per month per person on food and about 5,800 ALL on non-food items per month (chart 13). The project further found statistically significant impact on household consumption expenditure. The total household consumption increased by 25% in the treated communities compared to the average consumption in the control communities (11,275 ALL).

BOOSTED AGRICULTURE PRODUCTION

The improvement in road conditions due to SLRP program also had beneficial impacts on several key outcomes related to agriculture.

About 19.5% of the households reported selling their crops in the market, however there is a marked difference in crop selling across treated and control groups. Farmers in treated communities are 8.5 percentage points more likely to sell their crops compared to farmers in control communities (chart 14).

Furthermore, the road projects seem to have had impact on expenditure on agricultural inputs due to better market access. The input expenditure is 15.5% lower in the treatment communities than the average expenditure in control communities (61.252 ALL per household per annum). The observed impact of 9,526 ALL is not statistically significant (chart 15). Input costs are primarily expenditure on seeds, fertilizers, irrigation, livestock etc.

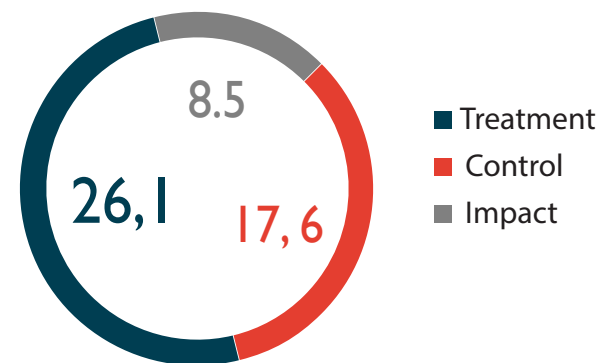


CHART 14: FARMERS SOLD CROPS (% REPORTED)

Finally, there is some evidence of positive impact on agricultural outcomes. Agricultural products in this study consists primarily of wheat, corn, vegetables, and potatoes but also some crop production for cattle food. The analysis is restricted to four crops: wheat, corn, vegetables, and potatoes. The total agricultural production is higher in treated communities (1725.8 kg vs 1285.2 kg per household per annum), implying an increase of agricultural production by 34.2%. Disaggregated analysis shows significant impact of the road project on vegetable production. Households in the treated communities are producing 49% more vegetables than control households.

Input Cost

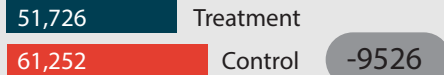


CHART 15. AGRICULTURAL INPUT COST PER HOUSEHOLD PER ANNUM (ALL)

Total Vegetables Production (Kg) HOUSEHOLD PER ANNUM



Total Agricultural Production (Kg) HOUSEHOLD PER ANNUM



CHART 16: IMPACTS ON AGRICULTURAL PRODUCTION (KG)

“Jonuz, 52 years old, resident of Surrel village Administrative Unit Dajt, Tiranë reported crop diversification as one of the important benefits of the new road. Due to new road, farmers are investing in cash-crops and are making higher profits than before.”

ESTIMATED IMPACT ON MIGRATION

Improved roads can either increase migration by reducing transport cost or decrease migration through better employment opportunities in the village. The migration analysis shows that the SLRP had been instrumental in reducing migration from the rural areas. The probability of someone migrating to urban areas is 2.7 percentage points lower in treatment communities compared to control communities.

OTHER KEY OBSERVATIONS BY PARTICIPANTS OF THE FOCUSED GROUP DISCUSSIONS

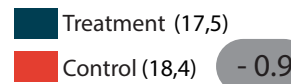
“Maintenance cost of vehicles has come down by a lot in the beneficiary village. The quality of life of residents has improved in the last 5 years Marku, 48 year old, Surrel village Administrative Unit Dajt, Tiranë”.
 “The new road has caused many families to buy new cars and other motor vehicles”.

ESTIMATED IMPACTS ON SOCIAL CAPITAL

A limited number of previous studies indicate that social capital, measured by interpersonal trust, helpfulness, civic engagement, and political participation, is positively impacted by better road connectivity. Although the average trust and helpfulness level is very high in Albania, the findings suggest that these measures of social capital did get a fillip due to the road projects. The percentage of respondents reporting trustworthiness and helpfulness is 5 and 16 percentage points higher in treated communities compared to control communities. The study did not find any significant difference in political party participation between treated and control communities.

“Rakip, head of Shahinaj village Administrative Unit Gjepalaj Durrës, mentioned that the community life is more vibrant and lively after the road construction. We all feel part of a big family. The new road has stopped abandonment of the village and that has led to positive community feeling.”

Party Member



Help



Trust



CHART 17: IMPACTS ON SOCIAL CAPITAL AND POLITICAL PARTICIPATION

“Milk vendors are coming to our village to collect milk as the transportation cost has decreased substantially (Agim in Shahinaj village Administrative Unit Gjepealaj Durrës.)”

“A resident of non-beneficiary road mentioned that due to lack of better roads, the village is unable to exploit tourism potential as the village has natural beauty and historical castles to attract tourists Residents further reported high incidence of migration among younger generation due to lack of better roads.”

Chart 18: Impact on migration (% households)



There is evidence of heterogeneous benefits by the relief of the regions. The disaggregated analyses between plain/coastal and mountainous regions revealed that households in the mountain regions were happier with the quality of new road compared to households residing in the plain regions. The impact of SLRP projects on road quality was 63.7 percentage points in the mountain regions, while it was 23 percentage points in plain regions. This implies that road benefits are 40.7 percentage points higher in mountain regions compared to plain regions (chart 19).

POLICY IMPLICATIONS

The above results have several important policy implications. These findings indicate that improved road connectivity had beneficial impacts on access to health and educational institutions. Furthermore, the economic impacts on household income, employment, and agricultural income are weak, indicating that it may take a few more years to observe income and employment impacts. In order to estimate the long-term economic impacts, it is recommended to carry out several follow-up household surveys in later years. Lack of transformative changes in agricultural sector suggests that complementary policies are needed to take advantage of better road connectivity. Future research works should identify the key complementary investments to help maximize the benefits of rural roads improvement and construction.

ESTIMATED IMPACTS BY RELIEF (PLAIN VERSUS MOUNTAINOUS REGIONS)

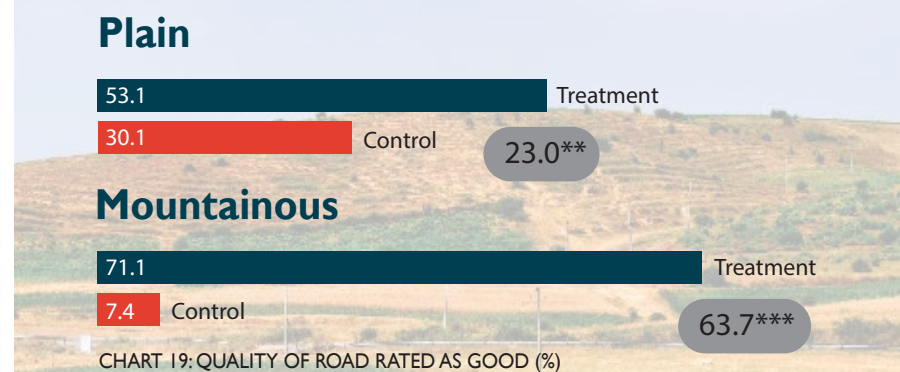


CHART 19: QUALITY OF ROAD RATED AS GOOD (%)

This study has several methodological advantages. The comparability between the treatment and control groups is key to conduct rigorous impact evaluation. This study formed representative control group at the design stage by pairing each treated road segment with control road segment with similar characteristics within the same region. In summary, the SLRP projects had positive impacts on several socio-economic outcomes and given the realization of full benefits of infrastructure projects takes longer time horizon, it is worth noting that substantial benefits may appear in future follow-up surveys.

*This study was conducted with the financial support of the European Investment Bank and the Council of Europe Development Bank through Norway Trust Account.

