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**Program B.Tech civil**

**Subject Architecture & Town Planning**

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### Test no 2 ; what are the impacts of highways(road) and buildings on agricultural Land of your city?

### Ans test no 2 ; Roads were an early choice for large-scale public investments in poor and rural countries, and they continue to be a popular investment for both governments and aid agencies (van de Walle, 2002; World Bank, 2013). While there are sound economic arguments as to why investments in road should benefit agrarian households, estimating this economic gain is not straightforward. Roads are not randomly placed, but they are instead endogenously determined by various socio-economic factors that are likely to confound the estimate based on a simple comparison across regions with various degree of road infrastructure. I use the rugged geography of the terrain in Nepal to overcome this endogeneity problem to estimate the effects of road on household’s decision to participate in agricultural markets; measure the scope of this participation; and examine if these roads also bring welfare gains through improved agricultural production and incomes. I also estimate the effect of roads on farmland values, to quantify these immediate and inter temporal economic gains from improved market integration in agriculture. Road investments are typically costly; and these costs can escalate rapidly in remote areas and with difficult geographies. Although the costs of investment in roads are often large, there is limited empirical evidence on whether the economic gains justify the levels of expenditure. In Nepal, road construction is the largest public investment program, accounting for 14 percent of its total development budget over the last five decades (Government of Nepal, 2002a). During this period, its road network has expanded by more than forty-fold from 376 kilometers in 1951 to 15,308 kilometers in 2002. Nevertheless, more than 20 percent of its agrarian households still do not participate in either input or output agricultural markets, and more than 80 percent of its poor households draw income from agriculture. This makes it an ideal case to examine the effect of public investments in roads on market choices made 2 by poor agrarian households; and to examine if these investments bring gains in economic welfare to economies that continue to be dominated by subsistence agriculture. More than 80 percent of Nepal’s terrain is covered by mountains. This rugged terrain significantly influences the design and costs of constructing road networks. In this setting, I estimate the economic impact of roads using the 2010 Nepal Living Standards Survey, which collected information on household’s agricultural activities, its connectivity and participation in the agricultural market, information on every agricultural plot it owned, and its GIS location. I merge this data with a larger set of geographic and climatic maps collected from different sources to construct a unique geospatial data of socio-economic and environmental variables for Nepal. I develop an algorithm that uses the newly constructed geospatial data and predicts the most cost-effective design to link all 75 district headquarters into a single national road network based on three cost factors: land gradient, river crossing, and surface distance. I then use the household’s distance to this predicted road network to examine the impact of road on agriculture using three different instrumental variable (IV) strategies. The IV approach that relies on the spatial variation identified by the predicted network is valid if this network is not correlated with land quality that directly affects land values. Each IV model therefore seeks to address this plausible correlation in different ways.