There have been efforts in recent years to promote adoption of ICT-based market information services (MIS) to enhance smallholder farmers' access to agricultural markets. Application of such services improves information flow among users which enables economic agents to perform economic activities faster. In turn, farmers' welfare increases through reduced transaction costs which translate into improved agricultural income. In Malawi, although there have been rigorous efforts by the government and development partners to enhance application of ICT-based services, there are no known studies that have examined the impact on smallholders. This paper therefore examines the effect of participation in ICT-based MIS on transaction costs and smallholder farmers' agricultural income using propensity score matching technique. The paper finds that participation in ICT-based MIS reduces transaction costs facing smallholder farmers. There is also strong evidence that provision of ICT-based market information results into increased agricultural incomes. The findings imply that development strategy that embodies ICT-based MIS presents the farmer with means of resolving market failure that arises from high transaction costs. In particular, ICT-based MIS strengthen farmer linkage to agricultural markets. It therefore has the potential to help smallholder farmers escape the low-equilibrium poverty trap.