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Model farmers, extension networks and the politics of agricultural knowledge transfer

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ABSTRACT

Model farmers are a common feature of many developing world agricultural extension networks within which they demonstrate new cultivation techniques and technologies to local communities. The diverse political-economic and socio-cultural roles that such farmers assume, however, are rarely afforded critical scrutiny. To do so, we emphasise the ways in which model farmers facilitate not only the production and transfer of knowledge but also of materials and legitimacy. These transfers occur both horizontally to community members and vertically through linkages with extension agents, research institutions and private sector interests. We establish how these transfers have important impacts upon both efficiency and equity. To illustrate, we use examples of model farmers drawn from research on hybrid rice dissemination in Mandya district, Karnataka. Despite having the same official functions within the extension network, the model farmers we surveyed assumed strongly different roles with notable implications for the effectiveness of knowledge transfer alongside equity considerations.

1. Introduction

The use of model farmers is a common feature of agricultural extension strategies that seek to diffuse new technologies and practices among smallholder populations in the developing world (Franzel et al., 2013). Model farmers are used by extension agencies to serve as in-community representatives for new agricultural inputs or cultivation techniques. They are envisaged to play a dual role. First, model farmers provide an entry point into a community for the diffusion of a new practice or technology. By creating an observable, field-level demonstration to be witnessed in real time by other farmers in the locality, model farmers provide a practical example of the innovation and its purported benefits. Second, they also assume a directly didactic role in which they instruct community members in the new technology and potentially help troubleshoot problems that arise in implementation. Model farmers therein serve as a community repository of knowledge while also helping to translate and embed an agricultural innovation into local contexts. On this basis model farmers may play a foundational role in a process of knowledge transfer through which new techniques are disseminated across a target population.

Model farmers, however, do more than simply diffuse technical knowledge. As we elaborate analytically and empirically, they also assume broader political-economic and socio-cultural roles as part of extension networks. As rural sociologists, three elements strike us as notable. First, by acting as nexus points in the flow of information, subsidies and material inputs between extension agencies and local communities, model farmers assume positions as gatekeepers to valued resources. This role can alter or reinforce local power relations and access to profitable opportunities. Second, as exemplars of agricultural innovation, model farmers generate considerable prestige from their position within extension networks that can similarly consolidate or unsettle local hierarchies. Third, model farmers also play an important role in the production of political legitimacy for research and extension agencies that are keen to promote the success of local initiatives. With constrained levels of funding within public agronomic services, there exists a pressing need for research and extension agencies to produce demonstrated 'success stories' of disseminated innovations (Sumberg et al., 2012a). This requirement can consolidate the status of model farmers as key tools of external success demonstration (Flachs, 2017).

Despite their importance, these broader roles surrounding the transfer of knowledge, the brokering of material resources and the generation of legitimacy have received little focused attention within recent academic literature (Röling et al., 1976 is an early and notable exception). Such an omission is problematic because variations in the political-economic and socio-cultural roles that model farmers assume can produce great differences in their practical forms and functions.

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This leads to a range of intended and unintended effects with positive and negative implications for both technology transfer and equity concerns. Given that model farmers remain a focal tool for extension delivery in many development contexts – notably they are the fulcrum of current Farmer-to-Farmer (F2F) approaches (Franzel et al., 2014; Meena et al., 2016; Samari and Sabouri, 2013; Tsafack et al., 2015) – there is a pressing need for critical perspectives on the opportunities and challenges involved in their usage.

To situate model farmers within contemporary extension contexts, we first examine the historical role of model farmers within extension services from the 1970s onwards. While the use of model farmers has long historical antecedents, we begin our discussion with the Training and Visit (T&V) system promoted by the World Bank across the period 1970–1990 that systemised and propagated their usage in developing world contexts. Moving beyond T&V, we then taxonomise the varied functions that model farmers assume in contemporary contexts, identifying and analysing their roles in generating flows of information, brokering material resources and building legitimacy between researchers, extension agents, neighbouring farmers, the local community and – increasingly – the private sector and non-governmental organisations. In so doing, we highlight the political-economic and socio-cultural processes operating within these networks that stretch far beyond the explicit goal of knowledge transfer. This taxonomisation is useful for both empirical research and project design as it indicates substantive constraints of the model farmer system that are often left implicit within official extension discourses. Specifically, we demonstrate how, despite a common central purpose, model farmers in practice can play very different roles depending on which combination of functions predominates.

Finally, we illustrate these issues empirically through concise examples of three model farmers encountered during research on hybrid rice promotion in southern India. Despite ostensibly playing the same formal role in extension networks, the latter exemplified the varied political-economic and socio-cultural functions model farmers play in agricultural extension and technology transfer. In conclusion we reflect on the policy implications of the knowledge politics that accompany model farmer use.

2. Model farmers in agricultural technology transfer

The use of model farmers has been a longstanding feature of extension initiatives in developing world contexts, with the strategy being employed in parts of Latin America and the Philippines from the 1950s onwards (Selener et al., 1997). The contemporary prevalence of model farmers within extension networks in many Asian and African contexts, however, is to a considerable extent a legacy of the Training and Visit (T&V) system of extension that was heavily promoted by the World Bank during the 1970s and 1980s (Musa et al., 2013). This extensive governmental initiative both formalised and generalised model farmers as a lynchpin of modern extension strategies, setting operational templates and normative expectations about model farmer usage that remain influential today.

Aimed at creating a streamlined and more efficient system of extension to disseminate advanced research to farmers, the T&V system promoted a three-tier chain of knowledge transfer to link public sector researchers through extension agencies down to smallholder farmers. First, agricultural researchers working within public research institutions were charged with providing direct and extensive training about plant varieties, new technologies and farm management innovations to a cadre of extension agents. The latter would, secondly, deliver these improvements at the community level by recruiting model farmers - known as 'contact farmers in the T&V lexicon - as local implementers and demonstrators of the technology in question. Third, the model farmer would subsequently disseminate the information gleaned from extension visits to a further set of 10–15 neighbouring farmers and allow their fields to be inspected by those curious to see practical examples of the new techniques, crops or inputs. Extension agents were expected to visit model farmers in their fields on a bi-weekly schedule throughout the growing season to provide supplemental training and troubleshoot cultivation issues.

The T&V initiative sought to channel scientific expertise towards food production crops as grown by the vast majority of small and medium farmers, thereby moving activities away from a colonial-era focus on plantations and export crops typically grown by rural elites. The systematic usage of model farmers within this strategy was designed to address a number of key constraints associated with the diffusion of techniques and technologies at such scale. As Niels Röling argued, effective technology transfer requires a strongly embedded process of communication between resource and user communities. This cannot easily be established without substantial network building to establish “agendas, ground rules, appropriate media and an understanding of internal processes and contextual factors” (Röling, 1990 19). Generating effective communication, therefore, is time consuming, socially challenging, and requires a degree of long-term relationship building that often exceeds the capacities of both extension agents and communities (Leeuwis, 2004). This is particularly the case when attempting to scale up extension activities across geographically widespread and socially heterogeneous target populations.

Given these constraints, incorporating model farmers as surrogates for extension activities often appears to be a more feasible strategy than building substantive direct linkages across target communities. From the perspective of extension agencies – both in the T&V period but also in contemporary initiatives – investing in a relationship with a model farmer who can disseminate technologies through local networks can be a significant shortcut to smooth the diffusion of agricultural innovations by promoting a process of embedded learning within a community wherein information and experiences are passed internally between cultivators (Leeuwis, 2004). Extension agents typically assume that carefully selected model farmers will already have a leadership role within local social networks and therefore possess robust communication channels with local farmers through which knowledge can be efficiently transferred. Such advantages can be further multiplied if the chosen farmer has sufficient social influence to guarantee a strong local buy-in for a particular agricultural innovation. Finally, a knowledgeable and potentially innovative model farmer is more likely to be able to adapt a technique or technology to local conditions than either extension agents or primary researchers.

It was on this basis that the T&V system – with the model farmer at its heart – appeared to offer a strategy of extension that could be applied at a broad scale across diverse local contexts with relatively predictable results. It is also the basis on which contemporary Farmer-to-Farmer systems are founded. Notwithstanding its widespread propagation, however, some analysts raised concerns over conflicts of interest surrounding the role of model farmers and their potential for personal advancement (Röling et al., 1976). This was reflected in the initial choice of who could be a model farmer. Practitioners such as Feder and Slade, for example, noted that the selection process of model farmers reflected an inherent tension in the dissemination of externally derived agricultural innovations:

> *While their potential for opinion leadership on matters of crop husbandry is the key criterion, they should not be exceptional in their command of resources lest other farmers fail to imitate them, attributing their achievements to their wealth not to the application of improved practices. There is an obvious trade-off between choosing those farmers who will adopt innovations most speedily and those who are somewhat less suitable … but whose resource position is typical of the majority of farmers and hence, their behavior more readily imitated* (Feder and Slade, 1984).

While aware of this intrinsic trade-off, the balance of selecting model farmers within T&V was one that repeatedly fell in favour of more educated, well-connected and almost exclusively male