Mani, Anandi; Riley, Emma

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Social networks, role models, peer effects, and aspirations

Anandi Mani and Emma Riley*

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Abstract: We review the literature on pathways through which social networks may influence social mobility in developing countries. We find that social networks support members in tangible ways—via access to opportunities for migration, credit, trading relationships, information on jobs, and new technologies—as well as in intangible ways, such as shaping their beliefs, hopes, and aspirations, through role models and peers. Nevertheless, networks can disadvantage non-members, typically the poor and marginalized. Recent evidence suggests a range of policy tools that could help mitigate disadvantages faced by excluded groups: temporary incentives to encourage experimentation into new regions, occupations, or technologies, and role models—real and virtual—to mitigate psychosocial challenges faced by marginalized groups. Targeting large fractions of marginalized groups simultaneously could increase the effectiveness of such policies by leveraging the influence of existing social networks.

Keywords: behavioural and cultural economics, geographic labour mobility, human resources, regional migration, social networks

JEL classification: D9, Z1, O15, R23

* Oxford University, Oxford, UK; corresponding author: emma.riley@economics.ox.ac.uk

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Katajanokanlaituri 6 B, 00160 Helsinki, Finland

1 Introduction

There are multiple factors that underlie differences in inter-generational mobility across developed and developing economies. This chapter explores the role of one particular set of factors in contributing to these differences: social networks. Examining the role of social networks feels like a natural place to explore inter-generational mobility differences across developed and developing countries, for at least two reasons. First, as Henrich (2017) has argued persuasively, the secret of human success through the ages lies not so much in our innate intelligence, as much as in our ability to *socially interconnect* and to learn from one another over generations; in other words, in our ability to form and leverage social networks. To the extent that economies differ in their degrees of social mobility, it is worth examining this central role of social networks in contributing to such differences. Second, developing economies are characterized by less-efficient markets, weak institutions, and low state capacity. Given asymmetric information and poor enforcement under these conditions, social networks are likely to be especially vital to foster mutual trust and cooperation that is essential for all manner of socioeconomic activity, growth, and mobility.

However, it is equally true that in counting some members of society as belonging to their 'in-group', social networks, by their very nature, create 'out-groups' of those who do not belong.[1] This may foster growth and mobility for group members, while leaving others behind. On balance, then, questions to answer are: Do social networks enhance social mobility? Or are they a double-edged sword, creating mobility opportunities only for a select few while leaving many or most others behind?

This paper reviews the recent literature that sheds light on these questions. It examines two distinct types of channels through which social networks can affect mobility in developing countries: the first, more tangible channel is through access to *material* resources such as credit and insurance, opportunities for migration and trade, or information about jobs. The second, less tangible channel, is through provision of *psychosocial and emotional* resources—personified in role models and peers—that shape our beliefs, hopes, and aspirations, and hence our choices and efforts. In the sections below, we examine the available evidence for specific pathways under both of these types of channels.[2] We also examine policy options to improve outcomes for people who lack access to social networks. The paper concludes by identifying open questions, opportunities for further research, and policy innovation.

2 How social networks affect opportunity

2.1 Weak versus strong ties

A person's social network is composed of those he or she has strong ties with (such as kith and kin or close caste members) and those he or she has weaker ties with, such as friends of friends or acquaintances. Those whom we share strong ties with are typically more willing to support us with both material and emotional support—because bonds created by common ancestry, inter-marriage, and physical proximity make it easier to enforce norms of mutual reciprocity over time. Strong ties are hence likely to

[1] Such a classification of people as members and outsiders may simply arise because humans have a natural limit to how many relationships they can keep track of, given finite cognitive capacity (this limit is referred to as Dunbar's number, based on the work by Richard Dunbar (1998)).

[2] Notwithstanding the many plausible theoretical pathways through which networks can affect social mobility, we acknowledge that there are many empirical challenges involved in actually establishing evidence in favour of specific pathways. See Munshi (2014) for a discussion of these empirical identification challenges. Also see Chandrasekhar et al. (2018) for network formation.

be particularly important for migration decisions, where new arrivals require monetary support and a roof over their head, as well as detailed local information and emotional support (Massey et al. 1993; Palloni et al. 2001). Deep social ties can also facilitate trading activities requiring long-term cooperation (Curtin 1984) and provide access to mutual insurance and credit because such networks make it easier to enforce norms of reciprocity (Udry 1994).

However, strong social networks, especially in developing countries, tend to be populated by individuals who are very similar to each other. This may make it harder to gain access to new information and ideas from outside the network. In contrast, the 'strength of weak ties' consisting of more disperse friends of friends lies in being able to have access to *new* information that may be helpful for finding out, for instance, about job opportunities (Granovetter 1974, 1977; Leinhardt 1977), potentially beneficial new technologies (Griliches 1957; Rogers 1962), and other opportunities.

In the next subsection, we examine the effects of both types of social ties on tangible pathways and opportunities for mobility—first strong ties and then weaker ties. Accordingly, we examine the effects of networks on migration, trade, and social support/credit, followed by their effects on jobs and technology adoption.

2.2 Migration

Migration is a key route out of poverty (Beegle et al. 2011). The average male migrant is able to earn 5.6 times as much in the USA as in their home country if they are able to migrate (Clemens et al. 2019). The literature shows that having a wide social network at the site of migration can facilitate migration in two ways: (1) providing material and social support, and (2) providing information about earnings opportunities.

First, looking at internal rural-to-urban migration, Chen et al. (2010) show that in China internal migration rises steeply in terms of migration of co-villagers, and that this is due to villagers helping each other with both migration costs and job search. Similarly in China, Foltz et al. (2018) find lineage networks increase migration through credit access and that this effect is strongest for the poor. Such lineage, or family-based, migration therefore reduces village inequality, as the poor benefit more. Migration can also have large benefits for those who remain at the origin village, through increased risk sharing (Meghir et al. 2019). However, despite great benefits for the poor, the income risk they face discourages their migration—unlike richer individuals who can choose to migrate even without relying on social networks. This gives rise to large and persistent urban–rural wage gaps (Munshi and Rosenzweig 2016).

Social networks are likely to play an even more vital role in facilitating movement towards jobs across borders than they do within borders (Massey et al. 1993; Palloni et al. 2001). Migrants, new to an area, will experience larger information frictions in international migration, creating an even more important role for job referrals. Munshi (2003) finds that Mexican migrants to the USA are more likely to be employed and to hold a higher-paying non-agricultural job when their network is exogenously larger due to past (negative) rainfall shocks in the origin community. The network therefore plays a key role in ensuring good labour market outcomes for its members.

The benefits of the social network to new migrants need not be linear with respect to its size, however; rather, the benefits of migration may depend on the stock of existing migrants (Carrington et al. 1996). For instance, Beaman (2012) finds an inverse U-shaped relationship between migration and the existing stock of migrants between Mexico and the USA. Migrants benefit from having established members in their networks but, due to direct competition, experience a deterioration in labour market outcomes from members of their social network recently migrating. Likewise, McKenzie and Rapoport (2007) also find evidence for an inverse U-shaped relationship but show that a large migration network is able to

overcome the need for wealth to migrate, and so the poor are more likely to migrate when there is a larger network of existing migrants. However, Blumenstock et al. (2019) find, using detailed individual-level mobile phone usage data from Rwanda over a five-year period, that the relationship between the size of the network and migration rates is roughly linear. They also find that migrants prefer *interconnected* networks (i.e. where multiple people know and interact with each other) within which they can have strong ties and rely on others for social support.

2.3 Trade

Migrant networks facilitate trade between the origin and source countries. Immigrants have knowledge of local markets and tastes, language skills, and business contacts that have the potential to reduce transaction costs in trade and allow members to better take advantage of opportunities (Gould 1994).

Historically, the main way trade took place was within trade diasporas, where close network links allowed cooperation (and moral hazard) problems to be overcome (Curtin 1984). Greif (1989, 1992, 1993) describes the case of Maghribi Jewish traders of the medieval era, hypothesizing that they were able to overcome contractual problems associated with agency trade due to their close social network. Agency trade presented opportunities for efficiency gains from not having to travel personally with goods, but posed the risk the agent would embezzle funds. The Maghribi Jews' strong reputational mechanisms within their network enabled them to overcome commitment problems and established their dominance in trade. However, the size of the Maghribi network was not determined by the available trading opportunities, and so was likely inefficiently small. This was compounded by efficiency losses resulting from reluctance to trade with non-Maghribis, particularly as trade opportunities expanded with new trade routes, better legal protection, and institutions.

Rauch (1996) argues for a second reason why social networks may be beneficial for trade: differentiated products with high information costs on both sides, wherein networks can more effectively match buyers and sellers. Rauch and Trindade (1999) show that even relatively small ethnic communities can increase trade, mainly by enforcing community sanctions and thereby deterring opportunistic behaviour. Empirically, Parsons and Vezina (2018) take advantage of a natural experiment to show that places where Vietnamese refugees were exogenously located during the embargo period saw the fastest growth in trade after the embargo was lifted, providing support to the above theoretical predictions.

Casella and Rauch (1997) look at the wider benefits of trade networks, showing that group ties increase trade and are beneficial to the economy as a whole, as well as group members. They do, however, disadvantage non-members, with the largest losses for those with the poorest domestic market niches. They find that trade networks may have larger negative effects in multi-country settings by diverting trade from the most efficient patterns.

2.4 Credit and insurance

Social networks provide informal insurance and credit to their members (Townsend 1994; Udry 1994), assisting them through times of trouble. The extent to which individuals are able to insure themselves with others depends on how close they are to them socially (Chandrasekhar et al. 2018). Both Fafchamps and Lund (2003) and Dercon et al. (2006) show that reciprocal insurance against shocks takes place primarily through networks of family and friends rather than through geographical relationships, such as within a village. Again, these networks are primarily deep networks allowing for reputation building. Shocks seem to be at least partially insured through these networks. New technologies are increasing the ease of risk sharing with a wider network over larger geographical areas through reductions in transaction costs (Blumenstock 2014; Jack and Suri 2014) while potentially penalizing those without access to or ability to use new technology (Riley 2018a).

Munshi (2011) showed, using data from the diamond industry in India, that, by providing mutual support for their members, social networks substitute for inherited wealth and parental human capital. They can therefore overcome the dominance of industries by privileged income groups and allow their members to move into new occupations through bootstrapping their way out of poverty.

Social networks can also be an important source of credit enabling a household to make lumpy investments in assets and enterprises. Kinnan and Townsend (2012) show that kinship networks are also important sources of funds for investments, particularly large investments that would be too large to collateralize out of assets. Johny et al. (2017) find that strong social network links allow households to take risks with income diversification. Likewise, Angelucci et al. (2017) find that households share cash transfers given through Progresa with their kin and that this allows both consumption smoothing and higher-return investments to be made.[3]

However, there is evidence that traditional kinship sharing networks can reduce investment, particularly in assets that can be easily shared, distorting investment decisions (Di Falco and Bulte 2011). Likewise, Jakiela and Ozler (2016) find experimental evidence that households are willing to forgo higher returns to keep income hidden from kin. Such a social tax has been demonstrated both within lab experiments and outside of them (Baland et al. 2011; Boltz et al. 2019). Kinship taxes may also reduce business productivity (Squires 2018). Kinship networks also reduce investment in alternative risk mitigation methods (Di Falco and Bulte 2013) and migration (Morten 2016). Empirical evidence has shown that the rich may form social groups that exclude poorer members (Arcand and Fafchamps 2011; Hoang et al. 2018). Those excluded from them are more likely to be poorer to begin with, and hence find it harder to save their way out of poverty in the absence of a supportive social network (Chantarat and Barrett 2012).

2.5 Jobs and firms

Social networks are also an important determinant of access to jobs, but here the breadth of network matters for effectively transmitting information about opportunities (Granovetter 1974). Evidence from developed countries highlights that around 50 per cent of jobs are found through networks of family and friends (Ioannides and Datcher 2004). Rates in developing countries are similar, if not higher: 40–85 per cent of job searchers find their job through family and friends (for Ethiopia, see Caria et al. (2018); Serneels (2007); for India, see Beaman and Magruder (2012); for Colombia, see Nicodemo and García (2015); and for the Middle East, see Gatti et al. (2014))

Economists have long modelled social networks as facilitating job opportunities through a reduction in search costs (Calvo-Armengol and Jackson 2004; Topa 2001). This channel is likely to be even more important in developing countries, where information frictions are larger (Wahba and Zenou 2005). Many employers actively encourage referrals from employees' social networks because of the benefit this brings in terms of adverse selection problems and screening (Montgomery 1991). Referred employees may also work harder so as to not make the person who referred them look bad, thus overcoming moral hazard problems (Dhillon et al. 2013). However, a key motive for workers to refer others in their network is reciprocity and risk sharing (Beaman and Magruder 2012; Witte 2018), with employees referring those closest to them in their social network, such as family. As a result, such referrals based on lineage and social network reciprocity may not provide the person who has the best skill-set for the job, who would be the most effective hire for the firm.

Network-based referrals also have negative effects for those not in the network. Witte (2018) finds that the reciprocity motivation of referrals leads to the exclusion of individuals on the periphery of social networks, increasing inequality. Beaman et al. (2018b) finds that job-referral networks result in few

[3] Progresa, later known as Oportunidades and now Prospera, is Mexico's national conditional cash transfer programme.

women being referred by men, despite men being capable of referring equally qualified women when required to. Caria et al. (2018) find that providing job-seeker support to just some people in a social network reduces information and resource sharing across the network and worsens the search efforts of those not given assistance.

Social networks that may have worked well historically can also hinder mobility when new opportunities emerge. Munshi and Rosenzweig (2006) find that traditional caste-based social networks continue to channel lower-caste males into schools that lead to traditional occupations, despite the rapid rise in returns to white-collar occupations during the 1990s. Lower-caste girls, who historically did not have networks based on occupation, are able to switch to English schools that better allow them to take advantage of new occupations. Networks may therefore actual worsen labour outcomes for their members by not adapting to occupation changes.

Lastly, social networks may also act as an important determinant of firm formation in developing countries by allowing for substitution of formal contract enforcement with social trust and long term relationships (Dai et al. 2018; Zhang 2017). Family firms are a particularly important example of this (Bertrand and Schoar 2006; Greif 2006). This is a relatively under-explored area in developing countries, but historic analysis has shown the importance of social networks to firms, through better access to credit (Braggion 2011) and better contract enforcement (Gupta et al. 2018) within a network, resulting in clear evidence of firms clustering by community.

Firms' reliance on social networks also has a potential negative side. Banerjee and Munshi (2004) show that differential access to capital across social groups and concentration of industries by a social group results in substantial mis-allocation of capital. History-dependence may make it difficult to remove dominant firms supported by their social network, as Bai et al. (2019) argue for China.

2.6 Technology adoption

Agricultural technologies have long been shown to spread socially (Griliches 1957), with diffusion following an S-shaped process. Opinion leaders, or those seen as particularly knowledgeable, may be especially effective at spreading new ideas and getting opinions to change, though typically only to those similar to themselves (homophilous), which can limit the spread of new information (Rogers 1962). In his seminal work on innovation diffusion, Rogers argued that social networks play a key role in the adoption of new ideas and technologies, with radial networks—being more open to new information—facilitating this process. In this sense, his ideas are a generalization of Granovetter's theory on the strength of weak ties, showing that social networks allowing the spread of diverse information facilitates the adoption of innovations.

Foster and Rosenzweig (1995) were two of the earlier authors to present evidence for social learning in the context of new crop varieties during India's Green Revolution. In the same context, Munshi (2004) finds that farmers learn from each other about the adoption of new types of wheat. Using a randomized controlled trial (RCT) providing fertilizer vouchers and improved seeds, Carter et al. (2014) find that own fertilizer use rises alongside the number of members of the social group receiving a voucher. In contrast, Bandiera and Rasul (2006) find an inverse U-shaped relationship between the size of the social network and agricultural technology in Mozambique. In smaller networks, farmers initially are more likely to adopt if they know more adopters, but at higher levels of social group uptake they strategically delay adoption to free-ride on the knowledge accumulation of others, rather than experimenting with adoption themselves.

How exactly farmers learn through a social network is still an important area to understand. Conley and Udry (2010) use detailed data on communication patterns to define the set of farmers from which a farmer may learn. They find that farmers' fertilizer use is influenced significantly if their information

source is an experienced farmer who had unexpectedly better (worse) yields by using more (less) fertilizer than themselves. There are strong impacts on own fertilizer use (Beaman et al. 2018a), showing that learning from one farmer might not be enough to adopt a new technology, with farmers needing to see multiple people using a technology before they are also influenced to adopt. However, relying on social networks to transmit technology presents the risk that those excluded from the social network might be further excluded from new technologies, particularly minorities and women (Beaman and Dillon 2018).

3 Social networks as aspiration windows

3.1 Beliefs about the self

So far we have discussed opportunities, but for people to actually take advantage of an opportunity they must believe they are capable and that the desired outcome will follow from their efforts (Bandura 1977, 1997; Rotter 1966). Indeed, the outcomes realized from our current efforts shape our future aspirations too; failing to recognize this two-way feedback between aspirations and outcomes could contribute to low social mobility from an aspiration failure, especially among the poor (Dalton et al. 2016). Thus, people need a sufficient sense of self-efficacy and a strong internal locus of control to achieve social mobility. Both of these concepts have been strongly linked to whether an individual exerts effort or not (Maddux 2000) and are key determinants of economic outcomes (Almlund et al. 2011; Heckman and Kautz 2012; Heckman et al. 2006). While self-efficacy is primarily affected by your own mastery of tasks, secondary vicarious experiences of observing others similar to yourself succeed at tasks also provide evidence as to whether you yourself would succeed (Lybbert and Wydick 2018).

While self-efficacy is primarily determined by one's own efforts and outcomes and observing those of others, interventions have targeted self-efficacy by trying to change people's beliefs about their capability of achieving desired outcomes. In India, McKelway (2018) shows that an intensive intervention aimed at generalized self-efficacy increases women's employment in the labour market, with the proposed channel being increased effort by women to reach a desired employment outcome. Another intervention in India targeting a range of non-cognitive skills including agency and aspirations also raised self-efficacy in adolescents, as well as self-esteem (Krishnan and Krutikova 2013). Krishman and Krutikova also find descriptively that both self-esteem and self-efficacy are positively linked to later educational and labour market outcomes. Self-esteem has also been shown to be an important determinant of economic decisions, with sex workers in India making more future-oriented savings and preventive health choices in response to an intervention that bolstered their self-image (Ghosal et al. 2015). Looking at the broader concepts of hope and aspirations, Valdes et al. (2018) find that an intervention designed to raise hope among microfinance clients raised their aspirations, future-orientation and hope, and improved business performance.

3.2 Aspiration windows

For people who are already embedded in a social network, the social network is an important determinant of their beliefs and aspirations about the future, which further drives behaviour. Ray (2006) argues that individuals' goals, aspirations, and beliefs are socially determined by those around them: they have an aspirations window. This window is formed through their social network in the form of peers and role models who are similar spatially—economically and socially—and whose outcomes are attainable.

Genicot and Ray (2017) build on Ray's work to develop a model of socially determined aspirations with bidirectional feedback between individuals and society. A crucial feature of this model is that how

far an individual's current standard of living is from their aspirations gives an *aspirations gap*, which drives behaviours. If there is no difference between an individual's current standard of living and their aspirations, they have no reason to change their behaviour. Likewise, if an individual's aspirations are too far from their current experience, they will have little incentive to try to close the gap as they will remain far from their goal. Other models of socially determined aspirations have also been developed by Stark (2006) and Bogliacino and Ortoleva (2013). Evidence in support of the U-shaped relationship between aspirations and effort, as well as the social dimensions of aspirations, has been found in Nepal, India, and Ethiopia (Janzen et al. 2017; Mekonnen 2016; Ross 2019)

An important question is who enters into an individual's aspiration window. A person's peers and neighbours certainly go into the window, with 'keeping up with the Joneses' effects widely documented (Bursztyn et al. 2014; Galiani et al. 2018). More broadly, social mobility itself influences the width of the aspiration window: higher mobility allows a larger window of others whose outcomes feel within reach (Ray 2006).

However, the poor may have aspiration windows that lack positive role models. This may be due to restrictions on who can be within their aspiration window based on economic and social dimensions, such that the rich are excluded, or due to limited flows of information preventing stories of success from filtering back. This smaller aspirations window constrains their 'capacity to aspire' (Appadurai 2004). The 'capacity to aspire' is where a social group can both envision the future and their capacity to shape this future. As Appadurai (2004: 69) argues: 'The more privileged in society simply have used the map of its norms to explore the future more frequently and more realistically, and to share this knowledge with one another more routinely than their poorer and weaker neighbours. The poorer members because of their lack of opportunities to practice the use of this navigational capacity ... have a more brittle horizon of aspirations.' The poor may therefore not only lack the resources to take risk and learn about their potential, but also have less opportunity to learn about their potential from each other. The lack of examples of members of their social group making a success may further reinforce beliefs that they cannot succeed.

3.3 Real-life role models and peers

Ray (2006) argues that your aspiration window is defined by not only peers and those you interact with around you, but also role models you observe and relate to. Who you can relate to, and aspire to be like, may itself depend upon the extent of mobility in the society you live in: the greater the perceived mobility, the larger the set of potential role models. As Ray (2006: 3) argues: 'A bonded labourer may believe that there is an unbridgeable wall between him and the local shopkeeper in the village; if labour is free to move and possibly change occupations, such comparisons may well be made.'

Exposure to leaders has been shown to impact aspirations and behaviours, with the channel argued to be an aspirational effect. In India, Beaman et al. (2012) use natural random allocation of female leaders to study the impact on girls' aspirations and educational attainment. They find that in villages with councils which were randomly assigned to have a female leader in two electoral cycles, adolescents and their parents have a lower gender gap in aspirations. They argue this impact operates through a role model by ruling out other potential channels. Kalsi (2017) uses the same natural experiment to look at the impact of female leaders on sex selection. She finds higher chances of survival for girls if local political seats are reserved for women, again arguing that the channel is through changes in beliefs. Across genders, Chiapa et al. (2012) find exposure to educated professionals through the Mexican anti-poverty programme Progresa raise educational aspirations for exposed children and children's educational attainment, though they cannot rule out that other aspects of Progresa could have changed aspirations.

Capturing a role model in a mentorship role, Macours and Vakis (2014) use random variation in whether local leaders received an intervention designed to raise agricultural production to see if their example influenced productive investments and attitudes of other female beneficiaries. Female leaders who were assigned to the production intervention successfully started new activities, and female beneficiaries who interacted socially with them also increased their productive investments, as well as other future-oriented activities such as human capital investment. The authors interpret this as a shift in attitudes towards the future through increased capacity to aspire. Mentorship role models have also been shown to improve female businesses by providing localized, context-specific knowledge and access to opportunities (Brooks et al. 2018).

Role models might be particularly important to navigate through the education system by providing not only information about the value of education but also relevant information about job opportunities that education will open up. They may also be able to combine this information with a degree of mentorship and knowledge of the detailed steps it takes to actually gain a professional job. Teachers may be in an important position to act as role models by providing information and aspirations for better-quality jobs, as well as provide mentorship, particularly for those from poorer backgrounds who lack access to family networks or contacts in professions (Krishna 2013, 2014). As Krishna argues, those from poor rural backgrounds often have no idea how to even start applying for some professional jobs—that is if they even know the job exists. Teachers can be in a position to provide this knowledge and mentorship. Eble and Hu (2018) find that female maths teachers increase self-belief, aspirations, investment in education, and test scores for girls with low perceived ability in China. They carefully rule out that female teachers teach differently, arguing that the only difference is an ability to act as a role model. Likewise, Paredes (2014) looks at the wider impact of female teachers, finding that girls benefit, in terms of test scores, from being assigned female teachers, while there is no impact (positive or negative) for boys.

Overall, research into role models suggests this is an exciting area where behavioural change can be made through low-cost, scalable interventions. However, there are still many open questions around who makes the best aspirational role model, how important the provision of information is, and whether that information needs to be tailored in a form very specific to the individual, such as through a mentoring relationship. Questions also remain about the extent to which media-based role models that are easily scalable can induce behavioural and attitudinal change through one-off versus prolonged exposure. We revisit these issues in Section 4.

A person's peers may also have similar effects to a role model in determining and calibrating their aspirations and beliefs. They also matter for behaviour, particularly education choices. Bobonis and Finan (2009) examine peer effects between eligible and ineligible children of the social protection programme Progresa who are living in the same communities, finding that peers have a large influence on school enrolment decisions of ineligible peers, particularly those from poor backgrounds. However, there is mixed evidence on the academic benefits of being around high-achieving peers, with papers finding both positive and negative effects (Duflo et al. 2011; Hahn et al. 2017; Kremer et al. 2009; Lavy 2018; Lavy and Sand 2018; Lavy and Schlosser 2011; Lavy et al. 2009).

Having high-achieving peers may help the most disadvantaged students by reducing discrimination. Bagde et al. (2016) find that an affirmative action programme in India benefited lower-caste and female students, with no negative effects on students from placing them in demanding programmes with more advanced peers. Being exposed to poor classmates also has a positive effect on richer students, making them more generous and egalitarian and less likely to discriminate, with no negative impact on their academic performance (Rao 2019). As a result, poor students receive more in an experimental game. Exposure to peers from different backgrounds may therefore help reduce discrimination and increase social mobility while also benefiting these students.

Having peers around may also increase the benefit that people get from other social programmes. Field et al. (2016) find that when women were randomized to a business counselling programme, an increase in business activity was only seen if the woman brought a friend. In fact, part of the benefit of many social programmes such as microfinance and self-help groups might be from providing women with a group of economic peers, thus raising their confidence and changing social norms (Prillaman 2017; Swain and Wallentin 2009). Additionally, peers may increase people's efforts through reputational and status effects (Bursztyn and Jensen 2017). Breza and Chandrasekhar (2019) find that monitors are effective at increasing savings because people want to impress others and signal their reputation.

Overall, both role models and peers have an important influence on beliefs, aspirations, and setting norms for choices. However, the role models and peers that a person is exposed to may be limited to those similar to themselves, particularly for the poorest members of society, thus limiting their ability to provide new norms of behaviour or to raise their aspirations. How to expose people to successful role models and peers is thus a key challenge that must be addressed to improve social mobility.

3.4 Neighbourhoods

One approach that has been tried under several programmes is to offer families an opportunity to settle in better neighbourhoods (Katz et al. 2000; Oreopoulos 2003; Raj Chetty et al. 2016). Physical proximity within a neighbourhood offers a natural starting point to build social networks. Neighbourhoods can hence shape social mobility by influencing both access to material opportunities as well as our beliefs, aspirations, and behaviour through the peers and role models we are exposed to. Recent work from the USA documents in granular detail the surprising heterogeneity in inter-generational social mobility across even proximate neighbourhoods, as well as the damaging impacts of dysfunctional neighbourhoods in this regard (Chetty and Hendren 2018a,b; Chetty et al. 2014; Sampson et al. 2002)—particularly through their impact on jobs (Bayer et al. 2008; Ioannides and Datcher 2004). Of course, it must be acknowledged that disentangling the effects of social networks from those of other factors such as jobs and schools presents an empirical challenge. However, many programmes still struggle to induce people to move (Schwartz et al. 2017), and even with intensive customized help and support just over 50 per cent of households offered this support actually moved (Bergman et al. 2019).

In developing countries, similar relocation programmes struggle even more to induce movement—possibly because people rely more on their social networks in their daily lives, given weaker market and institutional environments. Experiments that have tried to ascertain the demand for improved housing in new neighbourhoods have found only moderate demand. For instance, 34 per cent of those who won a lottery for improved housing in India did not take up the offer, and 32 per cent took up the offer but left soon after (Barnhardt et al. 2016). The main reason for lack of demand for better housing could be the impact of moving away on *existing* social networks: the resulting loss of informal insurance and support networks is perceived as too great to make even subsidized housing attractive. In fact, there is evidence that those who moved away under a housing lottery in Ethiopia did experience a reduction in their social network size (Franklin 2019). This may suggest that neighbourhood-wide relocation programmes, or upgrading within slums, may be a better approach than moving only some. However, this could make it harder to change beliefs and behaviours of those trapped within low-quality social networks within a neighbourhood.

3.5 Social identity and belonging

Indeed, the fact that aspirations are shaped by social norms within a network is a potential obstacle to reshaping them. An individual who tries to raise their aspirations and sets goals outside the norm for the social group may be perceived as rejecting their friends within the group (Akerlof 1997). As a result, they might be excluded from the group themselves for seemingly rejecting its values. This presents a problem for individuals trying to better their economic situation on their own, as they risk

falling further if something goes wrong and they no longer have the support of the social group. As a result, people may fail to take steps to better their situation, in order to maintain their place in their social network. Sociologists have documented in detail this sort of behaviour playing out. A classic study here is Whyte's (1955) depiction of education choices among adolescents in a poor Boston neighbourhood, where boys shunned education because it was perceived as an act of disloyalty to the group. This effect has also been documented among racial minority groups in the USA, with students shunning educational achievement for fear of being seen as 'acting white' and rejecting their peer group (Fryer and Torelli 2010). In Pakistan, Jacoby and Mansuri (2015) show that social stigma discourages educational investment among low-caste children. Experimental evidence too shows that priming a social identity, such as caste or gender, can have a negative effect on both aspirations and educational outcomes for that group (Hoff and Pandey 2006, 2014; Mukherjee 2015).

For poor communities, their social group may be deep and tightly knit within their community, but lack as many links outside the community as the social networks of those of higher economic status—they may have deep bonding but low bridging social ties (Woolcock and Narayan 2000). In the absence of radial links that shape access to new ideas and information, poorer and more isolated communities may be even more dependent on each other. This intensifies the risk of not conforming to the group identity while also making it harder to find opportunities outside it. Empirically, this link between the need for bridging social ties and escape from poverty was found to be a key part in social mobility from the Brazilian Favelas by Perlman (2010). Equally, though, those with the strongest links to the outside who were actively trying to escape the Favela also had the lowest social status within the community, while those with the highest social ties had the strongest sense of roots.

This suggests that when raising aspirations the entire social group should be targeted, so as to raise the social network as a whole rather than individuals from it. This argument also provides support for group-based social interventions such as basic income or cash transfers, where large numbers of individuals within a community are targeted at once, so that social change is consistent with group membership. We discuss these approaches in the next section.

4 Policy challenges: broken ladders and social mobility

Overall, the discussion so far has largely provided evidence of various channels through which social networks work as positive levers for upward mobility for people who belong to these networks. Nevertheless, we have also acknowledged that these very social networks that benefit members could hurt those who are not members, either actively or otherwise. While there may be some room for choosing membership into certain groups, social networks may be hard to gain entry into—especially in developing countries, where they tend to be based on characteristics such as family background, caste, ethnicity, race or gender, all attributes that are beyond an individual's power to control.

In this section, we address the challenges faced by those who do not belong to upwardly mobile social networks, who are hence (actively or inadvertently) disadvantaged. How can policy be designed to create opportunities for social mobility among such disadvantaged groups with 'broken ladders'? We discuss a few different options and the evidence for these below.

4.1 Migration, technology adoption, and experimentation

Available evidence shows that notwithstanding the huge gains from migration (Clemens et al. 2019), the poorest groups historically choose not to migrate (Ardington et al. 2009; Hatton and Williamson 1998). While international migration may be beyond the scope of national government policy, a recent study by Bryan et al. (2014) shows that even a policy offering one-time support for temporary, seasonal migration

can yield huge gains: landless households in rural Bangladesh offered a US$8.50 incentive to migrate to find work in the urban area resulted in a 10 percentage-point increase in migration rates, a 30–35 per cent increase in consumption, and higher caloric intake.

Two further lessons from this intervention deserve to be noted. First, offering the intervention more intensively to a larger fraction within a given community is more effective: it induces higher rates of migration both among those offered the incentives as well as those who are not. This points to the fact that experimentation feels less risky when many others like ourselves are engaging in it alongside us, especially among vulnerable groups—consistent with our discussion on the need for social identity and belonging in Section 3. Second, this intervention highlights the importance of first-hand experience in encouraging experimentation and the value of one-time incentive nudges to try them out: it led to a sustained 8 per cent increase in migration rates three years later, *without* any further incentive. This insight could be applied to domains other than migration that vulnerable groups may hesitate to venture into as well: for instance, free trial periods, insurance schemes, or guarantees for programmes that offer training-plus-employment opportunities in new trades or for new technologies such as health products (Dupas and Robinson 2013).

Given that cash interventions that intensively target communities are costly, Beaman and Dillon (2018) suggest an alternative policy approach too, from an agricultural context: performance-based incentives for community-based extension partners—rather than the farmers they were encouraging to experiment with new technologies. In fact, Berg et al. (2019) find (in the context of a health insurance scheme) that such performance-based incentives for such partners can overcome communication barriers that may arise from social distance from the intended beneficiaries due to education, caste, or poverty status.

4.2 Role models revisited: edutainment and other interventions

However, cash incentives and/or information may not always be enough. As the pre-eminent psychologist Albert Bandura has observed, 'Failure to address the psychosocial determinants of human behavior is often the weakest link in social policy initiatives. Simply providing ready access to resources does not mean that people will take advantage of them' (Bandura 2009) What are alternative policies that may help address such psychosocial challenges for communities or individuals who lack the support of a social network? Recent evidence suggests another class of policies could help, even if imperfectly so: exposure to role models—virtual or real—who are similar enough to ourselves.

Virtual role models have been shown to be effective at changing norms around women's status, fertility, and the acceptability of divorce. In Brazil, La Ferrara et al. (2012) find that exposure to role models and modern family norms through television in the form of novellas reduced fertility, while Chong and Ferrara (2009) show that the same novellas increased divorce rates. To take an example from another setting, Jensen and Oster (2009) find that exposure to cable TV results in a decrease in reported acceptability of domestic violence and in son preference and fertility, as well as an increase in women's autonomy. TV-based role models therefore seem an effective way to change norms and beliefs, particularly from prolonged exposure, but open questions remain about their adequacy for more marginalized communities, such as uneducated women (Iversen and Palmer-Jones 2018). The promise of using virtual role models to induce behaviour change has led to the development of specific video-based media with this goal in mind. Bernard et al. (2014) find that a video-based role model raises aspirations and impacts forward-looking behaviours, including saving and investment in children's education. They are able to isolate the role model effect from information provision by carefully controlling the content of their video.

A number of studies have looked at the impact of virtual role models on small businesses. Bjorvatn et al. (2015) find that incentivizing secondary school students in Tanzania to watch an edutainment

show on entrepreneurship resulted in an increase in business start-ups, with stronger effects for women. Batista and Seither (2019) find that a video-based role model intervention plus goal setting and business training had positive impacts on small businesses in Mozambique, increasing their aspirations, hours worked, and savings. In contrast, Barsoum et al. (2016) find that an edutainment intervention targeted at entrepreneurs in Egypt induced changes in attitudes towards entrepreneurship, particularly with respect to women, but little change in entrepreneurship-related outcomes.

Lafortune et al. (2018) find increased business participation and income of an enterprise from the owner's exposure to a successful entrepreneur role model, driven by confidence rather than increased business knowledge. This leads to an interesting question of whether role models are providing information only, and whether they add any value above information provision alone. Jensen (2012, 2010) finds that providing information on the returns to schooling and opportunities alone increases school attendance. In contrast, Nguyen (2008) finds that while statistics on education returns do improve test scores for both rich and poor students in Madagascar, the role model intervention only improves test scores if the former student presented as a role model is from a poor background, the same as the target students. In fact, the role model intervention undoes any beneficial impact of providing average statistics for the poorest, because it suggests the presence of high heterogeneity in returns. Likewise Riley (2018b) finds that randomized exposure to a role model in the form of a movie character before students' national exams has large effects for those most similar to the role model—that is, female and lowest-ability students.

These findings suggest that role models shed light not only on average returns but also about heterogeneity in returns; hence, depending on people's initial assumptions about heterogeneity and returns for their type, this can have ambiguous effects on behaviour. The above evidence suggests that real-life role models may have more of an impact on behaviour going beyond attitudes alone, through their ability to better provide relevant information and mentorship, as well as to inspire and increase confidence. However, media-based role models can be more easily scaled up and rolled out at low cost compared to physically exposing a group to a role model, and so might provide a more realistic policy measure to increase exposure of disadvantaged groups to positive role models and opportunities for mobility that they may not otherwise explore.

5 Conclusions and future directions

To summarize, a large body of evidence shows that social networks play a crucial role in offering support for upward mobility for its members—be it support for migration, credit access, trading relationships, jobs, or technology adoption. However, such networks could disadvantage those who do not belong to such networks, such as minorities and marginalized groups. A combination of policy tools could help mitigate disadvantages that such groups face—be it one-time cash incentives that encourage poor and marginalized groups to venture into new regions, occupations, or other choices that may feel risky to vulnerable groups. Targeting large fractions of such groups simultaneously could increase the effectiveness of such policies. Interventions in the form of virtual and real-life role models can also help to mitigate psychosocial challenges faced by marginalized groups, especially if they address heterogeneity within their target populations.

Looking ahead, the spread of digital and mobile technology including social media to developing countries is causing considerable churn in these societies—in markets for labour and credit, and hence in migration, trade, and technology adoption. Governments could play a positive role in leveraging digital technologies to facilitate social mobility among the disadvantaged—for instance, through the creation of purpose-built platforms to improve outcomes related to jobs, education, and access to credit. Three concrete examples of such policy levers come to mind, one in each of these three domains. First, the use

of biometric smartcard (ID) technology to facilitate direct bank payments under the National Rural Employment Guarantee Scheme NREGS) in India (Muralidharan et al. 2016) has resulted in less corruption and increased the incomes and bargaining power of disadvantaged workers in rural areas. A second example is online learning platforms tailored to individual learning speeds and styles (Muralidharan et al. 2019) that could be harnessed for more effective learning and even aspirational change among children from deprived backgrounds. Finally, mobile banking platforms offer the promise of social mobility through financial access for disadvantaged groups, including women and the poor (Suri and Jack 2016). How to effectively harness these new technologies to democratize access to resources, especially among those outside successful social networks, to improve their social mobility, remains an area for further research and policy experimentation.

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