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Social Contagion and Migration: Sources and Implications of Migrant Ambivalence

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Introduction

Only a very small proportion of the world's people move away from the countries where they were born. Since 1950, the proportion has been between 2.7 and 3.3% of the global population (De Haas et al., 2019). An even smaller proportion is of interest to business, because although the word 'migrant' includes any individual who has crossed an international border, firms are mainly interested in skilled people who voluntarily and legally cross borders (rather than, e.g. refugees). Although it is clear why a persecuted person would want to leave for a safer location, skilled people also choose to leave their country of birth and home language, abandoning fairly secure employment options, family and friends to start again elsewhere. International business research has generally assumed that skilled migrants make a rational decision to migrate, and that managing them does not require the kind of care increasingly recognized as needed to manage refugees (e.g. Guo et al., 2020). We interrogate that assumption.

We situate our work against the backdrop of a continued global war for talent (Becker et al., 2020; Beechler & Woodward, 2009), but also the ongoing discrimination against foreign-born and educated employees (Esses, 2021; Oreopoulos, 2011). We suggest that social contagion processes can often

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A. I. Mockaitis (ed.), *The Palgrave Handbook of Global Migration in International Business*,
https://doi.org/10.1007/978-3-031-38886-6_4

explain the decision to emigrate. Social contagion is a long-standing concept but has been little used in international business research, even though it was introduced to the field already in 1999 (Koka et al., 1999). The concept is increasingly used in management research generally (Anglin et al., 2018; Kensbock et al., 2022), and fear of migrants (in response to the European refugee crisis) has already been theorized through a social contagion lens (Guenichi et al., 2022). We make a contribution to international business research by showing that for potential migrants with the option of either leaving or staying, a contagion process seems to be at work. This has important implications for their needs and expectations in the new workplace.

Recognizing that most skilled migration originates in middle-income countries (Lucas, 2005), we suggest that the "middleness" of home countries affects the migration decision. Such middleness manifests in aspects like regulatory institutions that are present but not transparent, an education system with some but insufficient quality institutions, some but not complete political and economic freedoms, and other institutional imperfections (Marquis & Raynard, 2015). The fact that home country conditions provide neither a clear reason to remain nor a clear reason to leave combine with the challenges integral to migration (Bauloz et al., 2019) to make the decision about whether or not to emigrate non-obvious.

Our study is set in South Africa, a middle-income country with substantial inequality, a relatively small group of (typically well-paid) skilled people and a large group of people who suffer from hunger with the resultant social instability (Van der Berg et al., 2022). This duality provides clear motives for both staying and leaving. A model building approach was adopted to simulate the dynamics between social contagion and the determinants that drive migration. The nature of the determinants of migration was established by using a questionnaire about why people had left South Africa. Using this dataset in parallel to census data, parameters were developed for a model of social contagion in emigration.

Thus, we were able to identify the primary drivers of migration and their relative influence within the population. Drivers to emigrate include considerations that express pessimism about the country like concerns about crime and politics, but people also migrate because of "pull" factors, positive considerations like the search for further education, travel or job opportunities. These drivers were then used as inputs into a range of simulations, considering both general and isolated events. The simulations revealed that events related to the primary drivers of migration increase the likelihood of migration. However, those effect are fleeting and increased rates will subside in time. Positive messages also disseminate via social contagion and are found capable

of negating the influence of the determinants of migration. Thus, our evidence suggests that potential migrants in middle-income countries are highly sensitive to changes in the socio-economic conditions of their home country.

Migrants are potentially a valuable resource for firms, especially multinational enterprises (MNEs). They are rarely "knowledge stars" (Hamilton & Davison, 2018) who can command premium salaries, but they are skilled. They do not receive the extensive financial and social support that expatriates do (Wang et al., 2022) but they bring with them valuable home country knowledge (Kunczer et al., 2019). Yet, there may be unexpected challenges in managing them. Although the literature on acculturation (Berry, 2001) suggests that commitment to and engagement with the new country is important, when the migration decision resulted from social contagion processes, this implies that migrants were not certain that they wanted to emigrate—and may not be certain whether they want to stay. Understanding how this ambivalence plays out in the workplace has important implications for business and requires future work.

Literature Review

Social Contagion in Social Science Research

Contagion processes occur as much in the social as in biological sphere (Dodds & Watts, 2005); in other words, behavior and/or emotion can traverse populations just as diseases are able to propagate. A characteristics of social contagion is that outcomes do not result from rational, evaluative choices, but instead that we are "infected" with positive or negative attitudes and behaviors like aggression, savings behavior and other outcomes in the same way as we are infected by biological contagions (Marsden, 1998). Simply put, social contagion occurs when behavior inside a network is imitated and thus spreads from one person to another.

After initial application to general individual states like emotions (Kimura et al., 2008) and obesity (Cohen-Cole & Fletcher, 2008), such network effects have also been documented in management research. Evidence of contagion has been found both when the impact is positive like that of optimism on new ventures (Anglin et al., 2018) or learning within networks (Peters et al., 2017), as well as for negative outcomes like performance-reducing "dark-side" relationship effects (Zhang et al., 2021) or the "epidemic" of mental disorders in business (Kensbock et al., 2022).

Contagion models have had very little application in international business research. The close conceptual links between social contagion and social networks have been recognized in studies on various dimensions of learning (Huang et al., 2011; Pérez-Nordtvedt et al., 2010), and the adoption of voluntary cross-national policies has also been ascribed to social contagion processes (Olabisi, 2019). In the context of migration, social contagion has also been used to explain the diffusion of policy related to migration (Brücker & Schröder, 2011). All of those applications deal with contagion at an institutional level, with the spread of the fear of migrants (in response to the European refugee crisis) as one of the few studies dealing with the topic at the level of the individual (Guenichi et al., 2022).

We argue that social contagion can also explain the very decision to emigrate. The non-rational nature of social contagion is arguably particularly useful to explain migration, because it is long known that migration itself is not an entirely rational decision: "it is not so much the actual factors at origin and destination as the perception of these factors that result in migration" (Lee, 1966: 51). In this regard, the conditions in middle-income countries are especially relevant.

The Challenges and Opportunities of Migration from Middle-Income Countries

Most skilled migrants come from middle-income countries (Lucas, 2005): Conditions in high-income countries are typically munificent enough for few people to consider emigration, whereas few people from low-income countries have the skills that allow them to legally emigrate. Marquis and Raynard (2015) differentiate between emerging (typically middle income) and developing (low income) markets, and show numerous dimensions according to which the institutions of middle-income countries are present, but imperfectly so. Whether in terms of infrastructure, capital markets, human development, political freedoms or others, people living in middle-income countries enjoy some benefits of institutions, although inconsistently.

Moreover, the position of middle-income countries in the middle of the global economic hierarchy does not mean that they are "average" across dimensions, but instead reflects the variability found inside them (Müller et al., 2018). This means that an important driver of migration, perceptions (Lee, 1966), is especially consequential. Looking at residents' associations in India, the widely varying standards of living of residents are clear, ranging from people who struggle to access basic services to those with skills who,

reflecting the scarcity of skills in middle-income countries, experience a substantially higher quality of living conditions (Kamath & Vijayabaskar, 2009). Potential migrants from middle-income countries tend to be people with skills, and they must, therefore, decide how best to use their skills: Do they wish to continue living and working in a (familiar) country in which they have access to a level of institutional development, albeit uneven and unpredictable, or should they migrate in search of a better future?

This decision plays out against the backdrop of a persistent global labor shortage, both for employees who are highly skilled and for people with more general skills (Hajro et al., 2022). Given the global shortage of labor, it makes sense that firms would be keen to gain access to a global pool of labor. However, it is also known that migrants—called "self-initiated expatriates" if the move is not intended as permanent (Doherty, 2013)—can expect extensive employer discrimination for the fact that they are foreign-born and/or that their experience has been gained elsewhere (Esses, 2021; Oreopoulos, 2011).

This discrimination compares starkly with the experiences of traditional expatriates who typically receive support for themselves and their families (Cooke et al., 2019; Fan et al., 2022; Mendenhall et al., 1987). The study of expatriation started when senior executives were increasingly placed abroad, and indeed, the careers of senior executives remain the emphasis of that body of scholarship (Sanders & De Cieri, 2021). Much as it was strategically important to support them, the fact that living and working across borders is not easy is evidenced by the fact that expatriates require (and indeed are motivated by) costly financial and developmental support, and leave expatriate assignments if they do not receive such support (Maley et al., 2020; Suutari et al., 2018; Wang et al., 2022). Migrants are unlikely to receive such support and more likely to face discrimination. Moreover, their home country conditions are typically sub-optimal but seldom unbearable. In short, it is far from clear that a skilled person from a middle-income country will indeed benefit from migration.

A Model of Social Contagion

The Dodds and Watts (2005) generalized model of social contagion consists of a population of N individuals, each of which is assumed to occupy one of three states: Susceptible (S), Infected (I), or Recovered (R). As the names suggest, individuals falling into the 'susceptible' classification are vulnerable to being infected after exposure to an 'infected' individual, with vulnerability to

the common cold being a useful analogy. Individuals who are 'removed' are analogous to people who had recovered from measles; they are no longer vulnerable to infection. Individuals maintain a memory of doses received from their last T contacts and the sum of individual i's last T doses (i's dose count) is denoted at the tth step by:

$$D_{t,i} = \sum_{t'=t-T+1}^{t} d_{t',i} \tag{4.1}$$

In the event that a susceptible individual's dose count exceeds a specified threshold d^*, the individual will move into an infected state. Infected individuals whose dose count drops below the threshold may recover with probability r at each time step. Once in the recovered state, individuals may become susceptible again with probability ρ. The dynamics described are illustrated in Fig. 4.1.

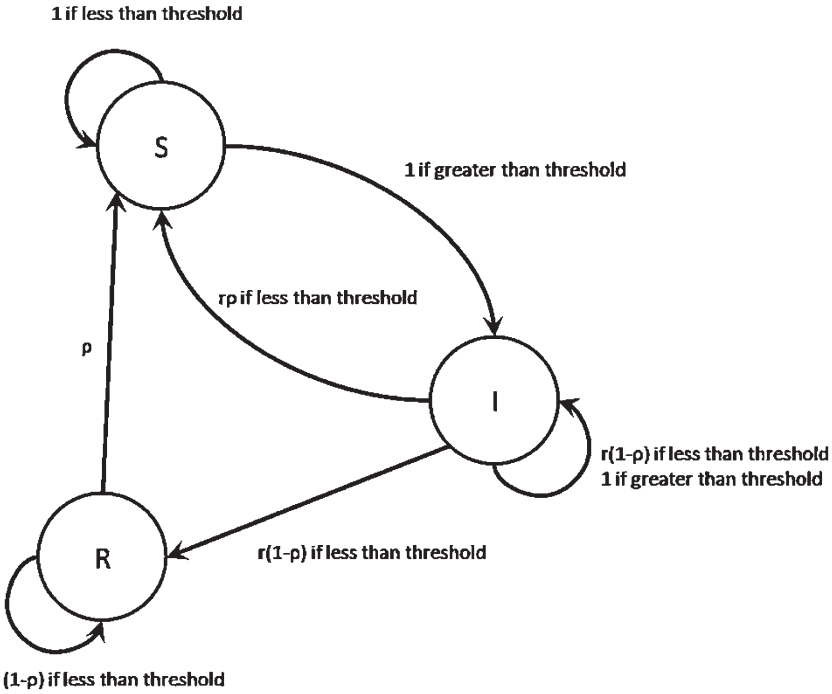

Fig. 4.1 Generalized model—State transition probabilities. Source: Dodds and Watts (2005)

This model can be developed further as per the rumor transmission model presented by Kawachi (2008). In this model, the states occupied are that of Susceptible (X), Spreader (Y) or Stifler (Z). A 'susceptible' individual is one who is not aware of the rumor while a 'spreader' knows about the rumor and spreads it actively. Lastly, 'stiflers' know about the rumor but do not spread it.

In the Dodds and Watts (2005) model, at each (discrete) time step *t*, each individual *i* comes into contact with another individual chosen uniformly at random from the population. The probability that individual *i* comes into contact with an infected individual is the current fraction of individuals infected in the population at time *t*, denoted Φ_t. If the contact is infected, an event occurring with probability *p* results in *i* receiving a 'dose' d drawn from a fixed-size distribution *f*, otherwise *i* receives a dose of zero.

Within the generalized model, the probability that a susceptible individual who comes into contact with *K* infected individuals in *T* time steps will become infected is the infection probability, denoted by P_{inf}. The quantity P_k is the expected fraction of a population that will be infected by *k* exposures (Dodds & Watts, 2005).

$$P_{\text{inf}}(K) = \sum_{k=1}^{K} \binom{K}{k} p^k (1-p)^{K-k} P_k \tag{4.2}$$

where $K = 1, \ldots, T$ and

$$P_k = \int_0^\infty d\, d^* g(d^*) \int_0^\infty d\, d^* f^{k*}(d) \tag{4.3}$$

The infection probability $P_{inf}(K)$ provides the 'dose-response' curve averaged over all members of the population and dose sizes distribution, where we note that *K* contacts with infected individuals will result in *k* actual exposures with probability $\binom{\mathbf{K}}{\mathbf{k}} \mathbf{p}^{\mathbf{k}} (\mathbf{1?p})^{\mathbf{K?k}} \mathbf{P}_{\mathbf{k}}$ (Dodds & Watts, 2005).

Research Design

Migration in the South African Setting

Our study is set in South Africa, a middle-income country with substantial inequality. This inequality affects the labor market with "the paradox of a

typical emerging market mismatch of demand and supply with a shortage of higher-level skills and a surplus of lower-level skills" (Wöcke & Barnard, 2021: 256). It means that skilled South Africans are in demand and able to command high salaries, but it also introduces substantial societal instability that has and continues to affect numerous dimensions of the South African economy (Luiz & Barnard, 2022).

Emigration from South African has tended to occur in "waves" (Louw & Mersham, 2001; Rule, 1994), providing prima facie evidence of a contagion process. Moreover, waves of migration have coincided with particularly disruptive periods in the history of the country, for example, starting with the election of the National Party on its Apartheid mandate in 1948. The fact that social negatives play an important role in triggering migration is also consistent with a contagion-type explanation.

Motives for Migration

To develop parameters for the model, we decided to use the structure of the population (derived from Census SA data) and to superimpose on that structure the motives people have for emigrating. The Census data provided evidence of the composition of the South African population in terms of race, gender, age and education level. We did not consider the full (and quite young) South African population, but only people who could make an independent decision to emigrate, 20 years and older.

To develop an understanding of why South Africans leave, we relied on a survey that was sent out by an organization concerned with gaining value from the South African diaspora, "Homecoming Revolution", and supported by the Development Bank of South Africa. Respondents were asked to select from the following list of motives, the primary reason why they left South Africa: global job opportunities, politics, crime, travel, exile, education, money, family and affirmative action. The survey was not representative; no reliable evidence exists of the size or composition of the number of South Africans living abroad (Barnard & Pendock, 2013). However, a large number of responses (6939) was received. Of those, 4399 responses were complete in terms of race, gender, age and education level, and thus usable.

Using the Apartheid-era racial designations, the bulk (87.5%) of respondents were white, reflecting the historical distribution of skills and thus ability to migrate. Black South Africans represented 4% of the respondents, Indian/Asian South Africans 3% and "Coloureds" (i.e. mixed-race South Africans) 5%. The level of skills of migrants was also high: 84.4% of respondents had

completed tertiary education, with 15% of respondents having a masters or doctoral degree. Although some responses had been received from people who were younger than 20 years of age (often living with migrant parents), those responses were not considered, and the mean age at departure was 31 years old. The gender split was 48.5% female and 51.5% male.

This information allowed us to identify the relative weighting of the motives for each group. For ease of reference, Table 4.1 provides the single-most important motive for migration for each demographic grouping. The pattern observed suggests that younger white people go abroad in search of experiences: travel and work experience. Once they get to child-rearing age, concerns about crime is the dominant motive. For older people, family reunification is key. White women become preoccupied with both crime and with family reunification at a younger age than white men. Whereas crime is the primary reason why white South Africans emigrate, work opportunities abroad is the dominant reason for the migration decision of South Africans of color. The search for education also emerges as a far more important motive for South Africans of color than for white South Africans.

Social Contagion Simulation Model

Understanding the composition of the South African population as well as motives for migration for the different racial groups allowed us to develop the Social Contagion Simulation Model (SCSM). Using the widely used mathematical programming language, MATLAB, we adopted a phased approach in developing the model. To begin with, the generalized model was developed first and then evolved to incorporate elements of the rumor transition model.

The inputs to SCSM are comprised of a given population and an initial epidemic distribution, which are incorporated to establish an initial condition. As in the generalized model, SCSM considers a population of N individuals but differs in that it assumes that each individual may occupy one of four states as we incorporate the 'stifler' state of the rumor transition model. Unlike the rumor transition model, however, the recovered state of the generalized model is retained, hence the states considered are Spreader, Stifler, Susceptible and Recovered.

Within the context of migration, a spreader will expose a rumor encouraging emigration, either through general discussion regarding the determinants of migration or based on a particular determinant in alignment with the model's parameters, for example, an experience of 'crime'. The concept of the 'stifler' status is developed to be that of an individual who exposes individuals to

Table 4.1 Primary motive per demographic group

Race	Education	Gender	20–24 year	25–29 year	30–34 year	35–39 year	40–44 year	45–49 year	50–54 year	55–59 year	60–64 year	65–69 year	70–74 year	75+
White	High school	Male	Travel	Money	Crime	Crime	Crime*	Crime*	Crime*	Crime*	Crime*	Crime*	Family*	
		Female	Travel	Crime	Crime	Crime	Crime	Crime	Crime*	Family*	Family*	Family*		
	Tertiary	Male	Jobs globally	Jobs globally	Jobs globally	Crime	Crime	Crime	Crime	Crime*	Crime*	Family*	Education	Crime*
		Female	Travel	Travel	Crime	Crime	Crime	Crime	Crime	Crime*	Crime*	Politics*	Family*	
African/ black	High school	Male	Politics*	Jobs globally*	Jobs globally*			Family						
		Female	Jobs globally*			Education								
	Tertiary	Male	Education	Jobs globally	Jobs globally	Jobs globally*	Jobs globally*							
		Female	Jobs globally*	Jobs globally*	Money	Education*	Jobs globally*	Money	Jobs globally*					
Colored	High school	Male	Politics*	Jobs globally*	Jobs globally*	Jobs globally*	Crime*	Family*						
		Female	Jobs globally*	Travel*	Crime*	Jobs globally*								
	Tertiary	Male	Jobs globally*	Travel*	Travel*	Jobs globally*	Education*							
		Female	Travel*	Travel*	Jobs globally*	Travel*	Crime*	Jobs globally*	Jobs globally*	Travel*				
Indian/ Asian	High school	Male	Travel*	Jobs globally*	Education		Politics*							
		Female	Jobs globally*	Crime*	Education*	Jobs globally*								
	Tertiary	Male	Education*	Jobs globally*	Jobs globally*	Jobs globally*	Jobs globally*	Jobs globally*	Jobs globally*	Jobs globally*				
		Female	Jobs globally*	Jobs globally*	Jobs globally*	Jobs globally*	Crime*	Politics*	Money*	Family*				

* Indicates fewer than 30 observations

a rumor discouraging emigration through general discussion. Susceptible individuals may interact and be influenced by both spreaders and stiflers, while recovered individuals do not. Recovered individuals do, however, become susceptible over a period of time. Based on the demographic group to which an individual belongs, an individual may have an affinity to particularly themed rumors, for example, black South Africans may be particularly open to registering prospects for job opportunities or further education abroad. Individuals maintain a memory of both spreader and stifler doses received from their last T contacts and the sum of individual i's last T doses (i's dose count) is denoted at the tth step by:

$$D_{t,i} = \sum_{t'=t-T+1}^{t} b_{t,i} \times d_{t',i} \tag{4.4}$$

where,

$$b_{t,i} = \frac{1}{1+\alpha \times \log^{\beta}(1+t)}$$

Memory is managed slightly differently to that of the generalized model as an individual's memory fades with time, as opposed to remaining constant. When an individual receives a 'dose' (an event that causes a memory), there is a peak. Over time, there is a gradual decline.

In the event that a susceptible individual's dose count either exceeds a positive threshold $+d^*$ or drops below a negative threshold $-d^*$, the individual will move into the infected state of the spreader or stifler, respectively. Infected individuals whose dose count drops below the positive threshold $+d^*$ or rises above the negative threshold $-d^*$ may recover with probability r at each time step. Once in the recovered state, individuals may become susceptible again with probability ρ. Hence the simulation parameters of the generalized model are retained. However, it should be noted that the intensity of the dose is governed not only by dose size but in addition the individual's affinity toward determinant of migration as facilitated by the memory structure. Figure 4.2 illustrates the integrated dynamics of the SCSM.

At each (discrete) time step t, each individual i come into contact with another individual chosen uniformly at random from the population. This event occurs with probability Φ_{1t} and Φ_{2t}, the fraction of spreader and stifler individuals, respectively. Subsequently, with probability p_1 and p_2, the

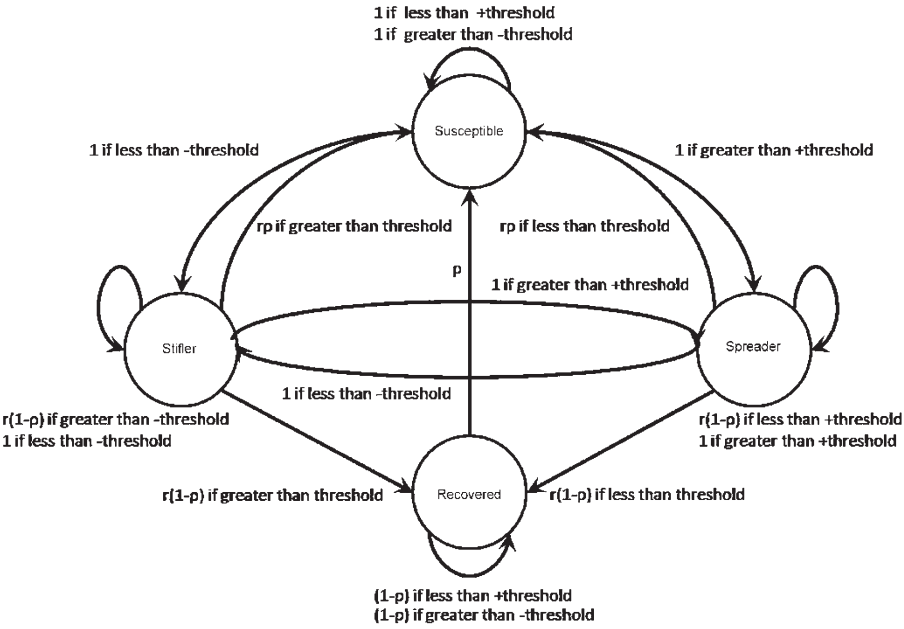

Fig. 4.2 SCSM state transition probabilities

susceptible individual will receive a dose d_+ or d_-, drawn from a distribution after exposure to a spreader or stifler.

In the SCSM, should p not be successful, the individual *i* may receive an 'anti-dose' depending on probability γ. Hence individual *i* may oppose a rumor and be influenced in the other direction, otherwise receiving a dose of zero. It should be noted that we now facilitate that a susceptible individual may oppose a spreader's rumor and receive a stifler dose, and vice versa. This interaction can be eliminated by setting the gamma to zero.

Results

In the next section, we discuss the results of the simulation. We first provide the baseline scenario, then the model in the case of both generalized and thematic crises, and then the case of successes.

Baseline Scenario

To ensure the integrity of the SCSM model, the model was first run with the simplest case of Dodds and Watts' (2005) generalized model of social and

biological contagion. The model illustrated the presence of epidemic threshold dynamics where initial outbreaks either die out or else infect a finite fraction of the population, depending on whether or not p (the probability of exposure given contact with an infective) exceeds a specific critical value p_c.

The long history of migration from South Africa informed the values assigned in the model. The initial condition of each simulation was that the entire population was infected. The probability of exposure given contact with an infective, p, was set at 0.6. The value of *r* (the probability of moving from an infected to recovered state) was set at 0.5 and at 0.7 for ρ (the probability of moving from an immune to a susceptible state).

To develop the baseline model, ten iterations of the simulations were run with a population of 1000 individuals over 1600 time steps (days). A normal distribution with a mean of 4 and standard deviation of 0.25 was used to assign doses, whereas a normal distribution with a mean of 1.5 and standard deviation of 0.1 was used to assign thresholds. Thresholds were allocated to individuals at the onset of the simulation and remained unchanged for the duration of the simulation, while dose sizes varied. Thus, individuals were generally allocated thresholds of between 1.4 and 1.6 and received doses of 3.75–4.25. However, extremes were possible; an individual with a threshold of only 1.2 could receive a dose of 4.7. With no further exposure, based on the forgetting curve, the individual will only have the opportunity to recover after two days.

In addition to a general rumor advocating migration, themed rumors were also able to occur. Four such themed rumors were used, crime, foreign job opportunities, travel and 'money', earning in a hard currency. Both the rumors selected and the affinities toward determinants of migration were chosen in alignment with the findings from the Homecoming Revolution survey. The following heuristics are assumed with respect to themed rumors:

- Because individuals differ in terms of the key drivers of migration (e.g. crime versus foreign job opportunities), they will respond differently and in accordance with that affinity. Should an individual be exposed to a general rumor, it is assumed that the individual will be inclined to perpetuate the rumor in terms of their own natural affinity toward a determinant of migration. Thus, it is assumed that while general discussion may fuel an individual's decision to migrate, they will in general perpetuate the rumor in terms of the determinant toward which they are most sensitive.
- An individual will perpetuate rumors in terms of the determinant of migration to which they are inclined with a probability of 0.5 versus an alternate determinant to which they are exposed. Thus, should an individual who is naturally inclined to discuss crime as a reason for leaving be successfully

exposed to a rumor regarding foreign job opportunities, they may in future discuss that rumor with probability 0.5.

The baseline model behaved predictably and across ten iterations, stabilized after approximately 550 days. The initial epidemic in which the entire population was infected reached a state of equilibrium over time where 24% of the population was actively advocating for migration (spreader), 72% of the population might have considered it but were not actively engaged in thinking about (susceptible) it, while 4% of the population did not take note of the discussions about migration (recovered).

Generalized Crises

In order to determine how the dynamics of the baseline model react to a general crisis where a significant percentage of the population was exposed to a particular determinant of migration, the following scenario was constructed. A general crisis was introduced to the baseline model over 10 days (days 833 to 843). The crisis resulted in each individual being exposed to a determinant of migration, receiving a dose with a probability of 0.5. The scenario was run for ten iterations for each determinant of migration, respectively. A single iteration of a general crisis occurring because of crime is illustrated in Fig. 4.3.

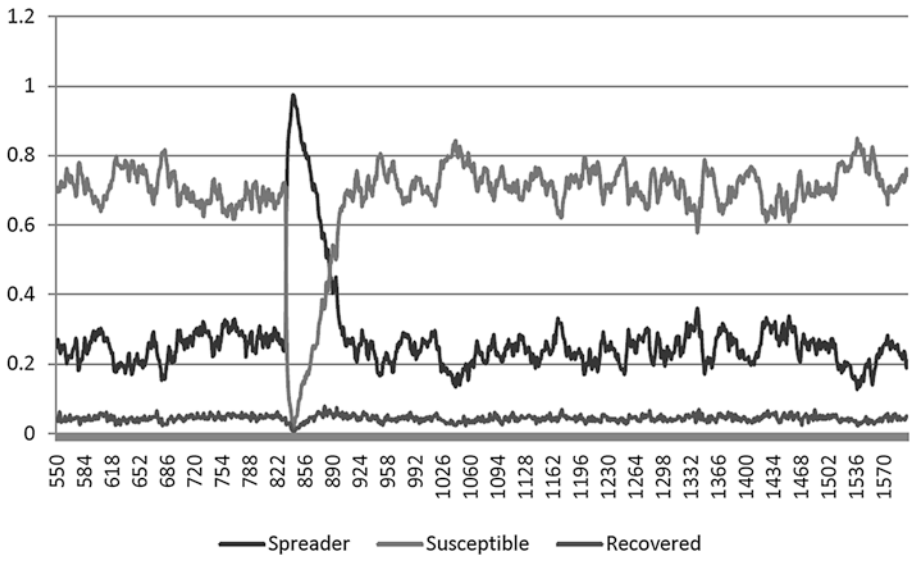

Fig. 4.3 General crisis: Crime

The sudden peak in the percentage of the population represented by the spreader state disrupted the state of equilibrium between time steps 833 and 843. The percentage of individuals within the recovered state remained at the level of the baseline model, but the percentage of spreaders increased by approximately 3%, subsequently reducing the percentage of susceptible individuals by the same value.

Four determinants of a general crisis were used: crime, global job opportunities, money and travel. The results held irrespective of the determinant causing the general crisis. For each case of general crisis, the equilibrium to which the model returned reflected a slightly higher proportion of spreaders and equally reduced susceptible individuals than that of the baseline model. With the increase in the number of infected individuals, the average number of successful exposures per day for the general determinant was higher than that of the baseline model.

Isolated Crises

The dynamics of the baseline model were also tested against isolated individual crises, where individuals were randomly exposed to a particular determinant of migration, introduced to the baseline model from day 833. The crisis resulted in an individual being exposed to a determinant of migration with probability 0.33 and probability 0.03 of actually receiving a dose. Each scenario was run for ten iterations for each determinant of migration, respectively. A single iteration of a general crisis occurring as a result of global job opportunities is illustrated in Fig. 4.4.

Once individuals started becoming exposed to random isolated crises (day 833); the gap between the percentage of spreader and susceptible individuals reduced. The percentage infected individuals increased, with the percentage of susceptible individuals decreasing. This trend persisted for the remainder of the simulation so that the percentage of spreaders in the population increased by approximately 7%. Again, four determinants of migration (crime, global job opportunities, money and travel) were used, and again the increase occurred irrespective of the determinant from which the isolated crises occurred.

Combined General and Isolated Crises

In reality, both general and isolated crises occur, thus a scenario was constructed incorporating both. A general crisis of crime coupled with isolated

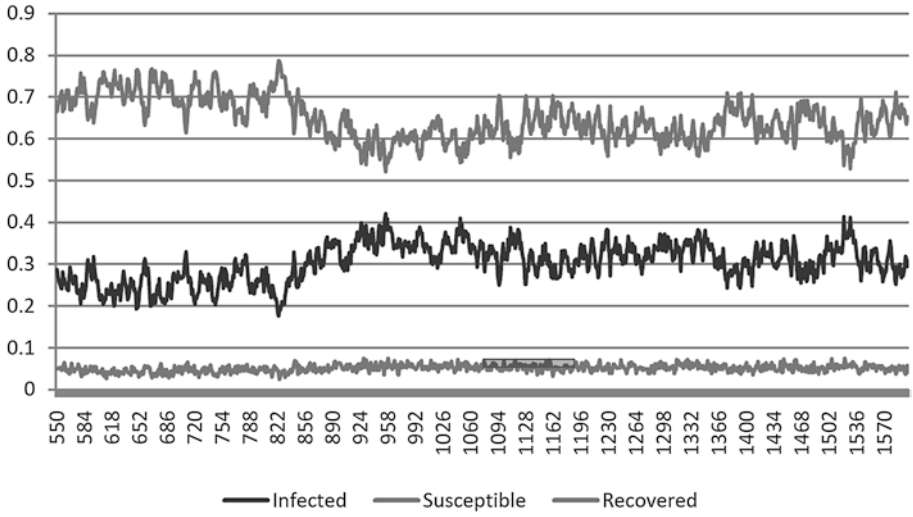

Fig. 4.4 Isolated crisis—Global job opportunities

cases of global job opportunities were introduced to the baseline model in the same manner that they were in previous scenarios. The scenario was run for ten iterations. As the system began to recover from the general crises, it reverted to a new equilibrium comprised of a substantially greater percentage of the population represented by the spreader state. Rather than 24% of the population being active spreaders as in the baseline model, the proportion increased to 34%, suggesting that general and isolated crises jointly contribute to a combined scenario. This is visually demonstrated in Fig. 4.5.

Stifling Messages about Migration

Given evidence that positives can also spread through processes of social contagion (Anglin et al., 2018; Peters et al., 2017), the effect of forces discouraging migration were analyzed by introducing a stifler state to the combined general and isolate crises scenario. The scenario was once again run for ten iterations with a general crisis pertaining to crime and isolated instances of global job opportunities affecting individuals within the population.

The stifler state was perpetuated using two mechanisms. Firstly, the parameter value γ was set to 0.05, thereby enabling individuals to disagree with an individual with whom they interact. Hence, a susceptible individual may

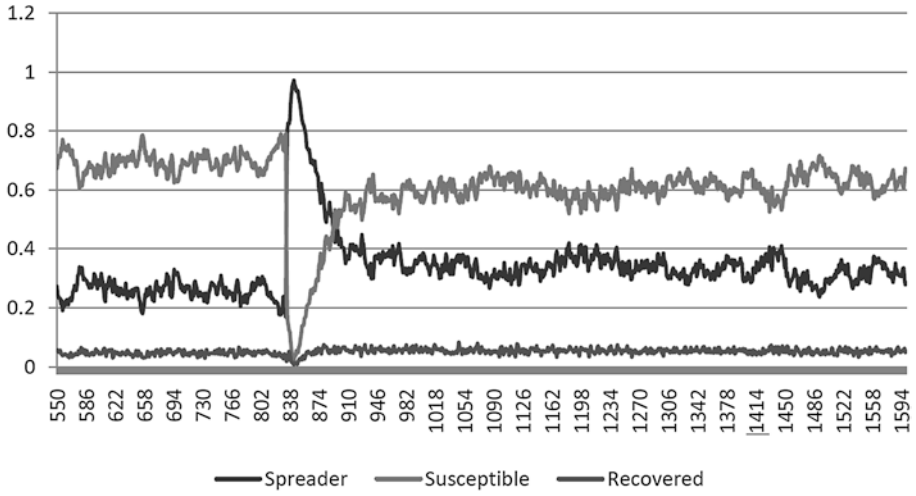

Fig. 4.5 General combined with isolated crises

interact with a spreader, receive a stifler dose, and vice versa. Secondly, individuals were deemed to have the same probability of being exposed to the stifler state as they were to isolated crises; thus, individuals were exposed with probability 0.33 and received a dose with probability 0.03. The threshold and doses with respect to the stifler state were of the same magnitude as the infected state, but with negative as opposed to positive values. Two versions of this scenario were analyzed.

First, the spreader's probability of infection p_1 was set as equal to that of the stifler's probability of infection p_2. Thus, it was assumed that an individual would be as likely to believe and spread rumors encouraging migration as they would be to those discouraging migration (Barsade, 2002). The stifler state was able to gain momentum over time despite the general and isolated crises unfolding. While the spreader state was not eliminated, it was drastically reduced. This scenario is shown in Fig. 4.6.

Second, it could be that the stifler's probability of infection p_2 is greater than that of the spreaders probability of infection p_1. We set it at $p_2 = p_1 + 0.05$. This case describes the situation where individuals are potentially more patriotic and are more likely to believe and spread messages discouraging rather than encouraging migration. Figure 4.7 shows the results of a simulation with such a strong stifler effect.

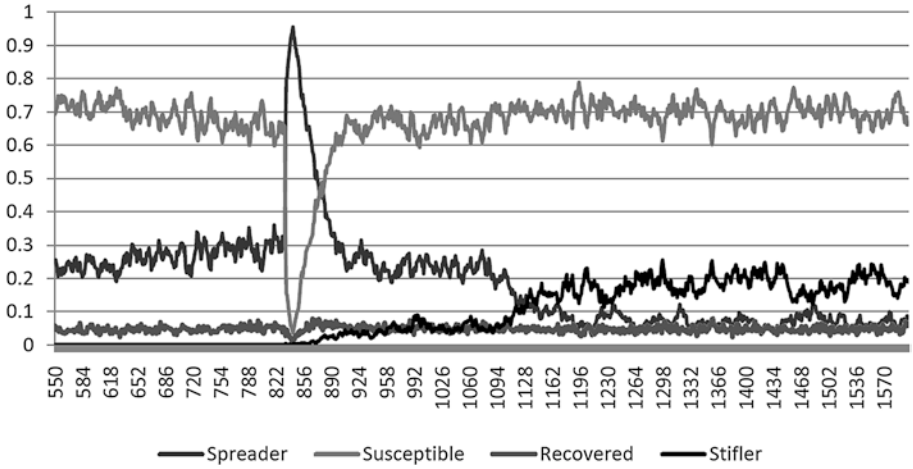

Fig. 4.6 Stifler and spreader with equivalent effects ($p_2 = p_1$)

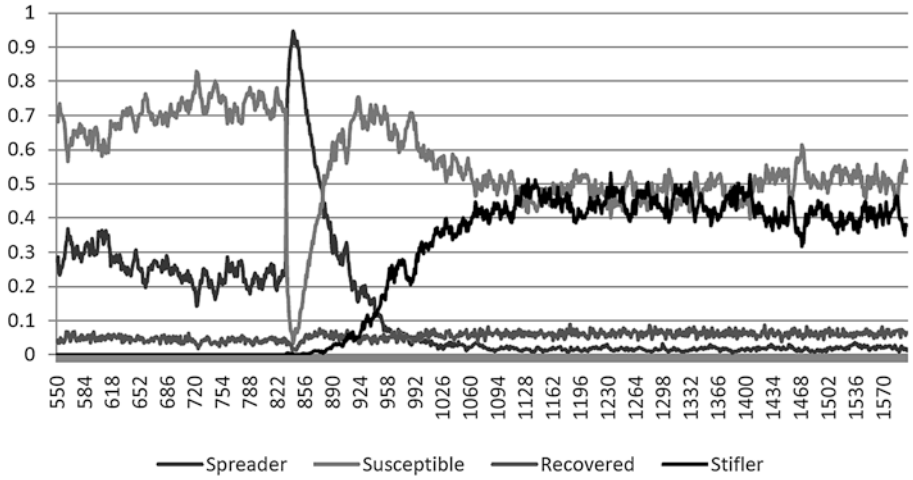

Fig. 4.7 Stifler effect greater than that of spreader ($p_2 > p_1$)

In both versions of the success versus crisis scenario, $p_2 = p_1$ and as expected as $p_2 > p_1$, the stifler discouraging migration more than counteracts the spreader state, and the number of successful exposures attributed to general discussion drops to below that of the baseline. Table 4.2 summarizes the results of the simulations.

Table 4.2 Summary of results

	Baseline	General crisis[a]	Isolated crises[a]	Combined general & isolated crises[b]	Stifling equal to promoting	Stifling greater than promoting
Infected	24.35%	27.17%	31.43%	34.10%	19.4%	12.5%
Susceptible	71.27%	68.50%	63.40%	60.80%	67.9%	55.8%
Recovered	4.38%	4.33%	5.17%	5.10%	4.6%	5.5%
Stifler	0%	0%	0%	0%	8%	26%

[a] The effect is shown for global job opportunities, but is very similar whether the driver relates to crime, travel or money

[b] Values reflect crime as general crisis and global job opportunities as isolated crises. Values for different permutations vary somewhat, but are within a similar range to that of this combination

Discussion

Our evidence suggests that the decision to emigrate could indeed be described in terms of contagion. There are sharp increases in people considering leaving South Africa when crises occur, with the rate slowing thereafter. 'Spreaders' of a message that migration is appropriate also increased and remain at high levels as the rate of especially specific events related to the primary drivers of migration increased in frequency and intensity. This included both push factors like crime and pull factors like opportunities for travel or global work opportunities. Although the latter would be a typical motive for a skilled person to migrate, it is also telling that even the lure of global work opportunities faded to the extent that positive discussion within the country became a greater feature of interactions. However, persistent isolated 'successes' were required to perpetuate and sustain discussion focusing on reasons not to leave the country, and subsequently lower levels of migration.

There are three main implications of our research. The first is theoretical: We show the benefit of applying social contagion as a theoretical base for understanding an important international business concept, migration. A core characteristic of both contagion and migration is that they do not reflect rational processes, but deal with complex layers of perceptions and beliefs. Research on management and business has a strong preference for theoretical models that offer rational explanations (Marsden, 1998), but as our work shows, some processes are not even boundedly rational (Simon, 2000), but non-rational. This is not a purely theoretical nuance, because of the profound practical implications of managing a process to which people may not even

believe they are subjected. This is particularly the case when considering how to manage migrants in a workplace, leading to our second implication.

It has long been known that people who decide to emigrate have a largely perception-based and non-rational expectation that their new country will be 'better' than their country of birth (Lee, 1966). The ethnographic work of Jagtenberg among Afrikaans-speaking white South Africans in Australia captures some implications of these dynamics: Although Afrikaans migrants reported being forced to leave by negatives like job discrimination by the black-dominated government in South Africa, none of her respondents had actually experienced those negatives (Jagtenberg, 2017). And once in Australia, they reported disappointment at their lack of access to job opportunities (Jagtenberg, 2019). It is known that migrants face discrimination in the workplace (Esses, 2021), but South African migrants in Australia have long been acknowledged as particularly successful (Louw & Mersham, 2001). Jagtenberg (2019: 38) reports her findings:

> Australians are thought to specifically dislike Afrikaans immigrants due to their relatively high qualifications. Perceivably, this makes Australians feel threatened and insecure, scared that these foreigners will bypass them or take their jobs.

In a sense, it is immaterial whether these experiences are 'real' or perceived—unless migrants opt to become entrepreneurs, these disengaged and potentially divisive views need to be understood and managed in the workplace. Thus, such views represent a challenge to managers. Moreover, although migrants do not receive the support that expatriates do, they face similar adjustment challenges. This likely means that the challenge of creating functional workgroups will be discovered by (and become the responsibility of) the individual manager. How migrants experience the workplace or whether and why they see the workplace as place worth investing in are important areas for future research.

The final implication of our work is at the country level. We found the rumor transmission model useful to show how narratives that circulate in a country are amplified and eventually acted on. But these narratives have a basis in fact. Migrants do take on the tough task of resettling, at their own expense, away from family and friends, in a new country because they are dissatisfied with what is happening in the country of their birth. For countries struggling with waves of migration, the challenge is to change those narratives. This does not happen through a few isolated successes, but requires of leaders to change the underlying conditions in the country.

There are a number of limitations to the work. In addition to limitations to computing power, questions can be asked about the values assigned in the model. Specifically, the absence of a sampling frame, the under-presentation of South Africans of color (black, Asian/Indian and "Coloured") in the survey conducted, as well as the fact that the questionnaire was sent out by an organization with a name ("Homecoming Revolution") that suggests a specific stance toward migration all mean that we cannot rule out the possibility of inappropriate weightings. Moreover, although our work clearly indicates that many migrants decided to migrate on the basis of a collective perception rather than informed, rational criteria, we did not examine how they respond to workplaces in their adopted country. Although we believe that the basis for the migration decision is likely to result in some ambivalence, more work is needed to understand if and how this takes place, and plays out in the workplace. We thus join Hajro et al. (2019) in calling for more research on how skilled migrants adjust and acculturate in their adopted country.

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