Disinformation and Mutual Trust: An Economic Model

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Abstract

Information or disinformation is more likely to be believed if it comes from a trusted person or source. This means that the impact of disinformation will greatly differ depending on the level of trust. Moreover, one person's judgement can be influenced by other people's judgements, which conversely means that one person's judgement can influence other people's judgements. To examine this relationship, I construct a model of uncovering disinformation and combine it with a model of disinformation dissemination. I show that as the level of mutual trust in an economy (society) increases, the probability of uncovering disinformation increases, and a high level of mutual trust greatly restrains disinformation from being believed and accepted, which will consequently considerably increase efficiency in various aspects of economic activities. That is, mutual trust is an important factor to achieve high levels of economic, social, and perhaps political activities.

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1 INTRODUCTION

People are generally more likely to believe information or disinformation if it is provided by a trusted person. That is, the probability that disinformation is believed and accepted will differ greatly depending on the level of trust in the person who provides the disinformation. Conversely, even if the information is true, it may not be easily believed and accepted if it is brought by a person who is not trusted. Therefore, the influence of disinformation will vary depending on the level of mutual trust among people. To examine the effect of disinformation, trust—particularly mutual trust—needs to be examined.

Harashima (2023a, 2023b) showed that disinformation decreases various aspects of economic efficiency (e.g., total factor productivity (TFP)) because it degrades the value of an information set that a person uses to make decisions about economic activities. As a result, a person is less likely to behave optimally. Such degradations occur at the level of the individual, organization, and entire economy. Hence, if mutual trust truly affects the probability that disinformation is believed and accepted, it will also affect economic efficiency at various levels through the channel of propagation of disinformation. Conversely, a high level of mutual trust will contribute to a high level of economic efficiency.

Trust is an important subject of research in psychology and business administration, and studies on trust have been made from various points of view. Many studies have shown that the levels of mutual trust among members of teams or organizations vary and that trust is beneficial to individuals, teams, and organizations and increases their performances (e.g., Kumar, 1996; Bstieler, 2006; Schumacher, 2006; Fulmer and Gelfand, 2012). Furthermore, some studies have concluded that trust plays an important role in economic and social transactions, and there is a positive correlation between population levels of trust and economic growth (e.g., La Porta et al., 1997; Fehr, 2009).

However, Fehr (2009) argued that economists still do not account for changes in trust, which can cause sustainable changes in important economic variables. As discussed above, if mutual trust truly restrains disinformation from spreading, it will increase efficiency in many aspects of economic activities. Mutual trust can play an important role for economic activities if it functions as an antidote against propagation of disinformation. The aim of this paper is to study the effect of trust on economic activities by examining the relationship between mutual trust and the propagation of disinformation.

I first examine the nature of uncovering disinformation. A person may change their opinion after knowing other people's opinions, and therefore may change their judgement of whether a piece of information is disinformation after learning the judgements of other people. Because these types of exchanges usually require no compensation, they have the nature of an externality. I construct a simple model of this externality, and then I combine it with the model of disinformation dissemination shown in Harashima (2023a, 2023b).

On the basis of the combined model, I show that, as the level of mutual trust in an economy (society) increases, the probability of uncovering disinformation increases for any person in the economy. In addition, for each piece of disinformation, there is a certain critical level of mutual trust such that if the level is higher than the critical level, any person can eventually uncover disinformation. Nevertheless, the results of the simulations I employ indicate that as the level of difficulty to uncover disinformation increases, the critical level of uncovering it also increases. In addition, if the fluid intelligences of people are lower, the critical level of mutual trust is higher.

In sum, a high level of mutual trust greatly restrains disinformation from spreading in an economy and consequently will considerably increase various aspects of economic efficiency. That is, mutual trust is important for achieving high levels of economic, social, and perhaps political activities.

2 DISINFORMATION

2.1 Ranked information

The model of disinformation in Harashima (2023a, 2023b) was constructed on the basis of the concept of ranked information presented in Harashima (2022). Hence, I first briefly explain this concept in this section.

I refer to a piece of information as an "Inf-piece". Let $IP_{i,w}$ be an Inf-piece with the serial number *w* for purpose *i*. I also refer to a set of Inf-pieces as an "Inf-set". All Inf-sets consist of *n* Inf-pieces. Let IS_i be the Inf-set that is selected for purpose *i* from among all existing Inf-pieces. Let $IS_{i,w}$ indicate that Inf-piece *w* (i.e., $IP_{i,w}$) is included in IS_i.

Let $y(\cdot)$ be the Inf-set production function, where the production function represents the probability to achieve a purpose. A higher value of *y* for an Inf-set corresponds to a higher probability that the Inf-set will achieve the purpose. For purpose *i*, if the Inf-pieces in $IS_{i,s}$ and $IS_{i,r}$ are identical except for IP_s and IP_r and $s < r$, then

$$y(IS_{i,s}) > y(IS_{i,r})$$

for any *s* and *r*.

Each Inf-piece has a particular value, and the value of an Inf-set is equal to the sum of values of the Inf-pieces of which the Inf-set consists. The value of $IP_{i,w}$ will likely be described by an exponentially increasing function of $N - w$. Here, let $\widetilde{IS}_{i,w}$ be the average value of Inf-sets in which the Inf-piece with rank *w* is included. The value of the Inf-set can be approximated by an exponentially increasing function of $N - w$; that is, $\widetilde{IS}_{i,w}$ increases exponentially as the rank of Inf-piece *w* rises.

The distance between each Inf-set and the correct Inf-set (i.e., the top-rank Inf-set) can be defined as follows. Let $\Theta_{i,h}$ be the Inf-set with the number $h(\in \mathbb{N})$ for purpose *i*. Here, let $IS_{i,w}\big|_{\Theta_{i,h}} = \sum_{IP_{i,w}\in\Theta_{i,h}} IP_{i,w}$ and $IS_{i,w}\big|_{w=1,2,\dots,n} = \sum_{w=1}^{n} IP_{i,w}$ The distance of Inf-set (DIS) of Inf-set $\Theta_{i,h}$ is defined by

$$D_{i,h} = 1 - \frac{y\left(IS_{i,w}\big|_{\Theta_{i,h}}\right)}{y\left(IS_{i,w}\big|_{w=1,2,\dots,n}\right)} = 1 - \frac{y\left(\sum_{IP_{i,w}\in\Theta_{i,h}} IP_{i,w}\right)}{y\left(\sum_{w=1}^{n} IP_{i,w}\right)} .$$

2.2 Disinformation

I define disinformation as a part of misinformation that is deliberately disseminated by a person to obtain utility by making other people's behaviors change, as presented in Harashima (2023a, 2023b). As a result of dissemination of disinformation, the Inf-pieces ranks are distorted.

Suppose that for purpose *i*, a person selects Inf-set *x* if a piece of disinformation *z* is not disseminated, but selects Inf-set *z* if it is. Disinformation will degrade the value of the Inf-set and increase DIS, and therefore,

$$D_{i,x} \leq D_{i,z} . \tag{1}$$

Inequality (1) means that the probability of achieving a purpose decreases because of disinformation, and therefore,

$$y\left(IS_{i,w}\big|_{\Theta_{i,x}}\right) \geq y\left(IS_{i,w}\big|_{\Theta_{i,z}}\right) . \tag{2}$$

Let $\boldsymbol{\Theta}_{i,m}$ be the set of all Inf-sets in which the highest rank Inf-piece is commonly $IP_{i,m}$. In addition, let $\boldsymbol{D}_{i,m}$ be the average DIS of $\Theta_{i,h} \in \boldsymbol{\Theta}_{i,m}$ such that

$$\boldsymbol{D}_{i,m} = E\left(D_{i,h}\big|_{\boldsymbol{\Theta}_{i,m}}\right) ,$$

where E is an operator and means that $\boldsymbol{D}_{i,m}$ is the average DIS of all Inf-sets that are included in $\boldsymbol{\Theta}_{i,m}$. Evidently, if $m > l$,

$$\boldsymbol{D}_{i,m} < \boldsymbol{D}_{i,l} \ .$$

That is, $\boldsymbol{D}_{i,m}$ is a decreasing function of the value of $IP_{i,m}$, which means that it is an increasing function of m.

Inequality (2) indicates that, because of disinformation, the levels of efficiency in not only individual economic activities but also the entire economy decrease. If the reductions in efficiency indicated by inequality (2) occur in the process of production, TFP decreases, and if they occur in the process of investment, the success rate of investment is lowered (see Harashima, 2021).

2.3 Dissemination of disinformation

A person who disseminates disinformation (i.e., the "disseminator") behaves to maximize rewards obtained by manipulating other persons (i.e., by distorting their inf-sets). Let m be the highest rank inf-piece in the inf-set of a person. Suppose that m is continuous ($0 \leq m$), and therefore, $m = 0$ indicates the top rank, and that initially $m = 0$ for any person. I define the level of manipulation such that the level of manipulation is ψ if the highest rank inf-piece m is aimed to be changed from 0 to ψ (> 0). A larger value of ψ means more manipulation.

As shown in Section 2.2, $\boldsymbol{D}_{i,m}$ is most likely an increasing function of m, and as $\boldsymbol{D}_{i,m}$ increases (i.e., as m increases), it is more apparent that disinformation is present. Hence, the probability a person becomes aware of the manipulation (i.e., the probability that disinformation is uncovered) will increase as ψ increases. Considering the nature of $\boldsymbol{D}_{i,m}$ shown in Section 2.2, the probability of uncovering disinformation (the "uncovering rate"; P) can be most simply modeled as

$$P = 1 - e^{-\delta\psi} \ , \tag{3}$$

where δ is a positive constant.

As ψ increases, the rewards obtained by a disseminator when he or she is successful (i.e., disinformation is not uncovered) will increase in proportion to the corresponding increase in probability that a person naively and wrongly believes the disinformation that is aimed to be included in the person's Inf-set. The reward to the disseminator per piece of disinformation when the dissemination of disinformation succeeds (R) can be most simply modeled as

$$R = \alpha\left(1 - e^{-\zeta\psi}\right) ,$$

where α and ζ are positive constants.

A disseminator sets a level of manipulation ψ so as to maximize the expected reward. Harashima (2023b) showed that the expected reward is maximized if ψ is set to satisfy

$$\psi = \zeta^{-1}\ln\left(1 + \frac{\zeta}{\delta}\right)(> 0) .$$

3 EXTERNALITY

3.1 Externality of uncovering disinformation

A person may change his or her opinion after becoming aware of other people's opinions, and furthermore, they often will want to know the opinions of others before forming their own opinions. Such will be the case when a person is judging whether a piece of information is disinformation. In other words, one person's judgement can be influenced by other people's judgements, which conversely means that one person's judgement can influence other people's judgements. Moreover, these types of exchanges of opinions among people usually do not require any compensation. In this sense, each person's judgement or opinion has the nature of an externality. They can have an impact on the judgement or opinion of others even though they are not directly involved with the information or disinformation.

If each person's value of δ in equation (3) is affected by other people's judgements, each person's uncovering rate P, which represents the judgement result, has the nature of an externality because a change in δ changes P. On the other hand, unlike δ, ψ in equation (3) is indifferent to this externality because it is determined through the reward-maximizing behavior of disseminators as shown in Section 2.3 (also see Harashima, 2023b). Hence, ψ is an exogenous variable for each person and expresses the level of difficulty in uncovering disinformation.

Suppose that a person makes a judgement about whether a piece of information is disinformation by observing other people's judgements. One of simplest models that describes the externality of uncovering disinformation is

$$\delta = \delta_0(1 - \eta)^{-\lambda} , \tag{4}$$

where λ (> 0) is a parameter (see Section 4.1.1), η ($0 < \eta \leq 1$) is the ratio of the number of people who uncover disinformation to all people (the "uncovering person ratio"), and δ_0

is the value of δ when a person judges a piece of information is disinformation without considering other people's judgements (thereby, $\eta = 0$). Equation (4) means that as η increases (i.e., as more people uncover disinformation), the value of δ increases. When combined with equation (4), equation (3) is transformed to

$$P = 1 - e^{-\psi \delta_0 (1-\eta)^{-\lambda}} . \tag{5}$$

δ_0 will differ depending on the intelligence (particularly fluid intelligence) of each person. However, it may be also affected by the accessibility of information. For example, after a disaster like a huge earthquake or hurricane, the value of δ_0 may become very low if a communication blackout occurs and accessible pieces of information are very limited. In such a situation (i.e., $\delta_0 \cong 0$), an unusually large number of people may believe and accept disinformation because $P \cong 0$ for $\delta_0 \cong 0$ by equation (5). On the other hand, a sudden large increase in the amount of information may also decrease δ_0 because a person may become confused due to the limited capacity to process so much information.

3.2 Eventual state

Suppose for simplicity that all persons equally have equation (5) in their minds with the same values of ψ, δ_0, and λ, and they equally initially guess that $\eta = \eta_0$. Hence, their initial uncovering rate is equally $P = 1 - e^{-\psi \delta_0 (1-\eta_0)^{-\lambda}}$ by equation (5). Because all people have the same equation (5) in their minds, the observed uncovering person ratio should be equal to the uncovering rate when all of them equally guess that $\eta = \eta_0$ (i.e., $P = 1 - e^{-\psi \delta_0 (1-\eta_0)^{-\lambda}}$). Let η_1 be $1 - e^{-\psi \delta_0 (1-\eta_0)^{-\lambda}}$.

Because the observed uncovering person rate is not η_0 but η_1, each person suspects that the true uncovering person ratio is not the initially guessed value η_0 but η_1. Hence, each person will reset and increase their guessed value of η from η_0 to η_1 if $\eta_0 < \eta_1$, decrease it if $\eta_0 > \eta_1$, and leave it unchanged it if $\eta_0 = \eta_1$. After repeating this process, all persons eventually reach a state that satisfies

$$\eta = P = 1 - e^{-\psi \delta_0 (1-\eta)^{-\lambda}} . \tag{6}$$

4 MUTUAL TRUST

4.1 Mutual trust and stable state

4.1.1 Meaning of λ

As shown in Section 3.3, a change in the guessed value of η changes the uncovering rate P. However, even if the same information on η is obtained, this information is utilized differently if the value of λ is different because of the same change in η, P changes differently if the value of λ is different. Because $0 < \eta \leq 1$, equation (5) indicates that, if the value of λ is larger, P increases more for the same increase in η (i.e., the behavior of a person changes more).

Trust is an essential factor that allows people to more positively utilize information. If a piece of information is provided by a person who is more trusted than others, it will be more likely to be believed, accepted, and positively utilized. A larger value of λ means that a person believes and accepts other people's opinions with less doubt and believes that it is less likely they are being deceived or intentionally told disinformation. If a greater level of mutual trust exists between two persons, each of them will be less likely to doubt what the other says. If the level of mutual trust is higher, each member will more often believe and accept information provided by other members.

After repeatedly experiencing states that satisfy equation (6) for many pieces of disinformation, most people in an economy (society) will be able to roughly correctly know, estimate, guess, or feel the value of λ (i.e., the level of mutual trust) in the economy. Hence, the expected or guessed values of λ in an economy will become roughly identical among people (or the variance of the guessed λ in the economy will not be large), which means that the level of mutual trust of an economy can be represented by λ. If an economy's mean value of λ is larger, its level of mutual trust is higher and vice versa.

4.1.2 State that satisfies equation (6)

If $\eta = 1$, equation (6) is satisfied for any value of λ. That is, the state at which all persons uncover disinformation satisfies equation (6) regardless of value of λ. However, is there any other state that satisfies equation (6)?

By equation (6),

$$\lim_{\lambda \to 0} P = \lim_{\lambda \to 0} \left[1 - e^{-\psi \delta_0 (1-\eta)^{-\lambda}} \right] = 1 - e^{-\psi \delta_0} = \eta \quad ; \qquad (7)$$

thus, if $\lambda \to 0$,

$$\eta = 1 - e^{-\psi \delta_0} < 1 \ .$$

That is, there is a state that satisfies equation (6) other than the state at $\eta = 1$. On the other hand, by equation (6),

$$\lim_{\lambda \to 0} P = \lim_{\lambda \to \infty} \left[1 - e^{-\psi\delta_0(1-\eta)^{-\lambda}}\right] = 1 = \eta \,. \qquad (8)$$

Hence, if $\lambda \to \infty$, there is no state that satisfies equation (6) other than the state at $\eta = 1$. Because $P = 1 - e^{-\psi\delta_0(1-\eta)^{-\lambda}}$ is a continuous function of λ, by equations (7) and (8), there is $\underline{\lambda}$ such that if $\lambda < \underline{\lambda}$, then there is at least one state that satisfies equation (6) other than the state at $\eta = 1$. This means that if the level of mutual trust in an economy is lower than the level that $\underline{\lambda}$ indicates, some people in the economy cannot uncover disinformation; thus, they eventually believe and accept disinformation at a state that satisfies equation (6).

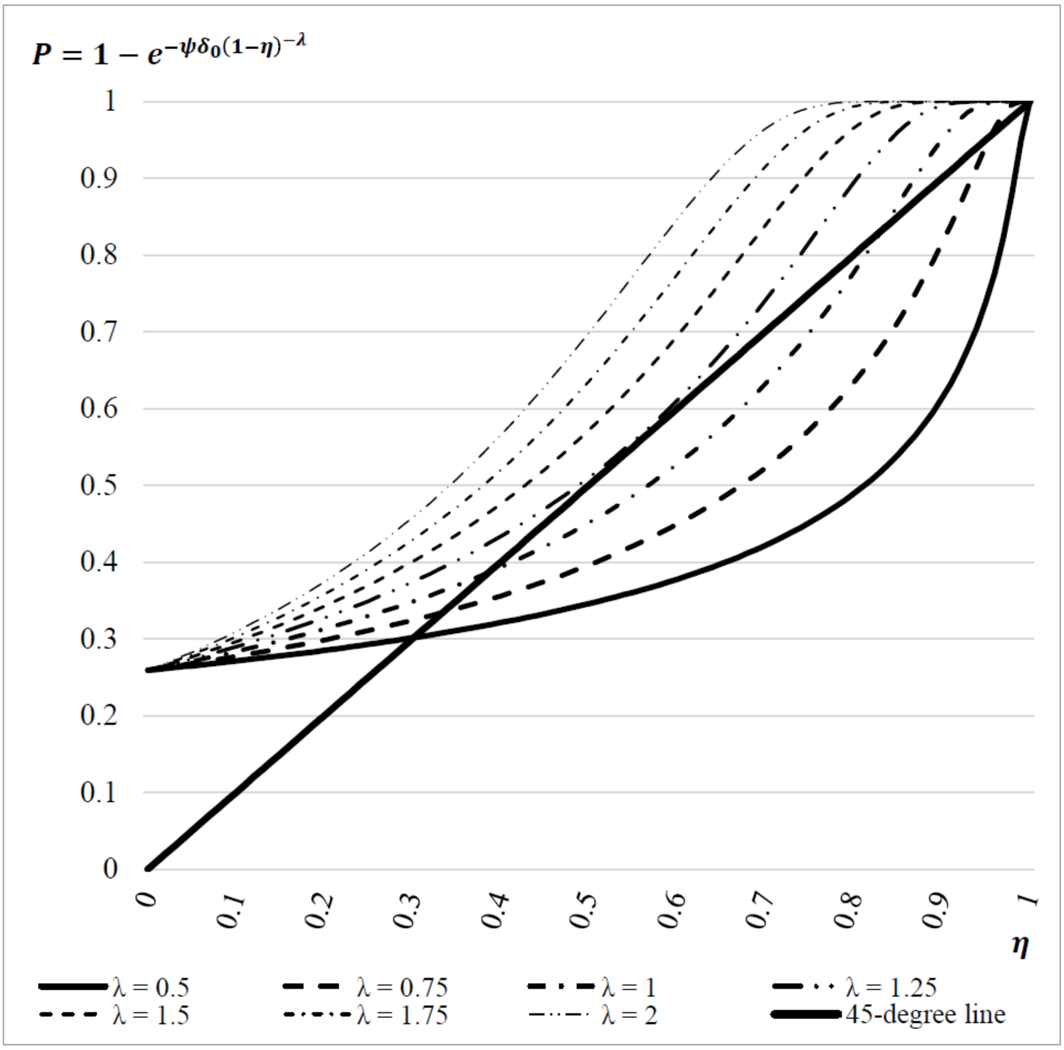

Figure 1: Simulations of *P* for λ = 0.5, 0.75, …, 2 where $\psi = 1$ and $\delta_0 = 0.3$.

Figure 1 shows the result of simulations for various values of λ where $\psi = 1$ and $\delta_0 = 0.3$. In the figure, a point at which the curve of $P = 1 - e^{-\psi\delta_0(1-\eta)^{-\lambda}}$

intersects the 45-degree line indicates a state that satisfies equation (6). Except for the state at η = 1, there is no intersection that satisfies equation (6) if $\lambda > \underline{\lambda}$, there is one point of contact if $\lambda = \underline{\lambda}$, and there are two if $\lambda < \underline{\lambda}$. That is, theoretically, if $\lambda > \underline{\lambda}$, there is no state that satisfies equation (6) other than the state at η = 1, but there are two if $\lambda < \underline{\lambda}$.

4.1.3 Stability of intersections

Of the two intersections in the case of $\lambda < \underline{\lambda}$, the intersection with the smaller value of η (point E_L in Figure 2) is stable in the sense that even if there is a deviation from this state, it will soon be restored. As shown in Section 3.3, if $\eta < P = 1 - e^{-\psi\delta_0(1-\eta)^{-\lambda}}$, a person increases the guessed value of η, and if $\eta > P = 1 - e^{-\psi\delta_0(1-\eta)^{-\lambda}}$, a person decreases it. Hence, even if η deviates from the value at intersection E_L on the curve of $P = 1 - e^{-\psi\delta_0(1-\eta)^{-\lambda}}$ in Figure 2, it will return to the value at E_L (as indicated by the orange arrows in the figure), and therefore the intersection E_L is a stable state. The other intersection (E_H in Figure 2), however, is not stable. Once η deviates from the value at intersection E_H on the curve of $P = 1 - e^{-\psi\delta_0(1-\eta)^{-\lambda}}$, it continues to deviate from the value at E_H. Therefore, the intersection E_H is not a stable state. In addition, Figure 2 indicates that the state at η = 1 is a stable state, and the point of contact in the case of $\lambda = \underline{\lambda}$ is not a stable state.

The instability of intersection E_H means that if the initially guessed value of η (i.e., η_0) is sufficiently large (e.g., η_0 is close to unity), the state at η = 1 that is a stable state can be reached even if $\lambda < \underline{\lambda}$ as shown in Figure 2. Nevertheless, if the initially guessed value of η (i.e., η_0) is not sufficiently large, E_L is the only stable state for $\lambda < \underline{\lambda}$.

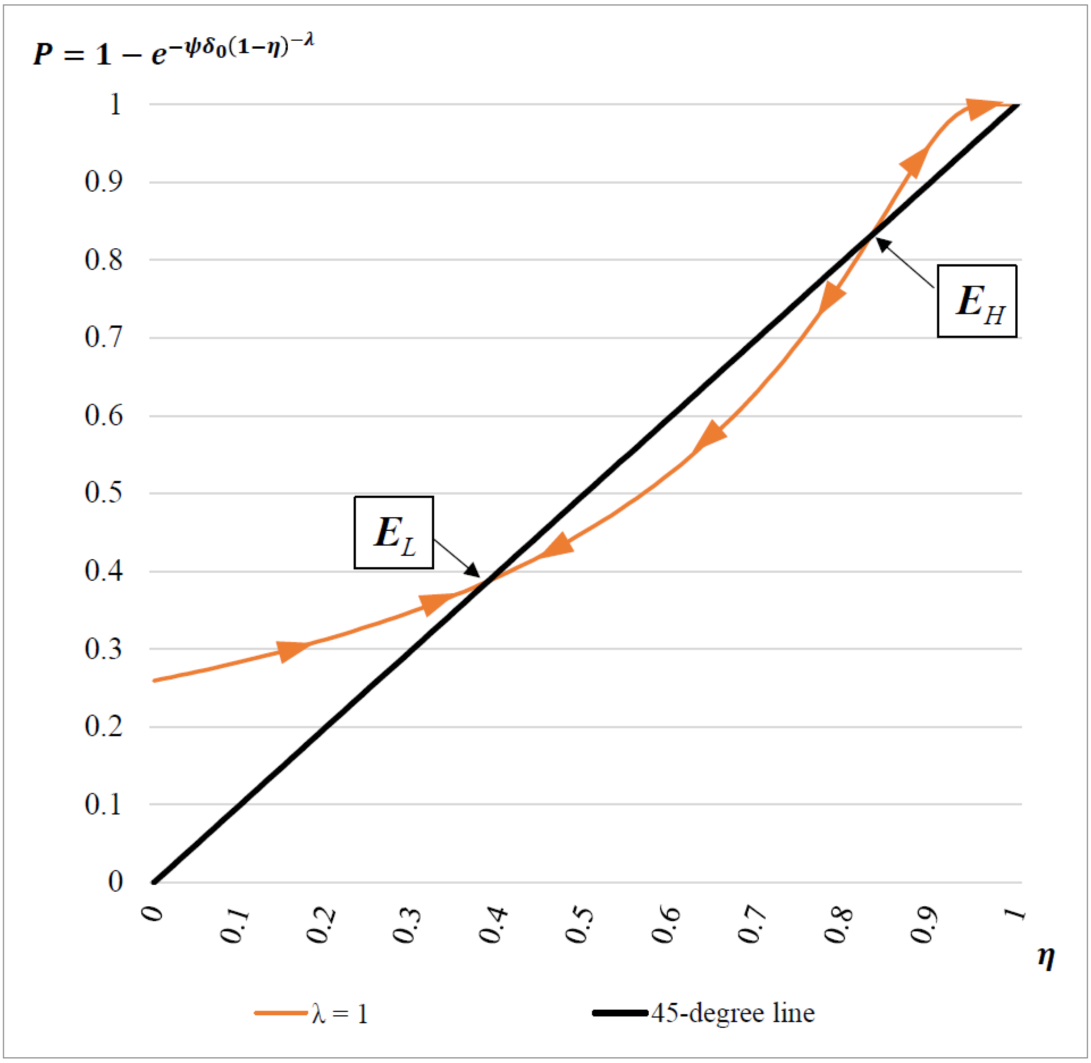

Figure 2: Stability of intersections between P and η where $\psi = 1,\ \delta_0 = 0.3$, and $\lambda = 1$.

4.1.4 λ and the stable state

Figure 1 indicates that when $\lambda < \underline{\lambda}$, the uncovering person ratio (η) at a stable state is smaller as the value of λ is smaller (i.e., as the level of mutual trust is lower). That is, as the level of mutual trust in an economy (society) is lower, the spread of disinformation is greater and more influential in economic, social, and perhaps political activities.

On the other hand, if $\lambda > \underline{\lambda}$ (i.e., if the level of mutual trust is sufficiently high), nobody is deceived by disinformation thanks to a high level of mutual trust. Note that if ψ is small (i.e., if a piece of disinformation is difficult to uncover), the threshold value $\underline{\lambda}$ for this piece of disinformation becomes large. Therefore, many economies cannot necessarily easily reach the stable state at η = 1 even if their values of λ are large, as will be shown in Section 4.1.5.

4.1.5 δ_0, ψ, and the stable state

Equation (6) indicates that not only λ but also δ_0 and ψ affect stable states. A larger value of δ_0 indicates a higher level of fluid intelligence, and a larger value of ψ indicates a lower level of difficulty in uncovering disinformation.

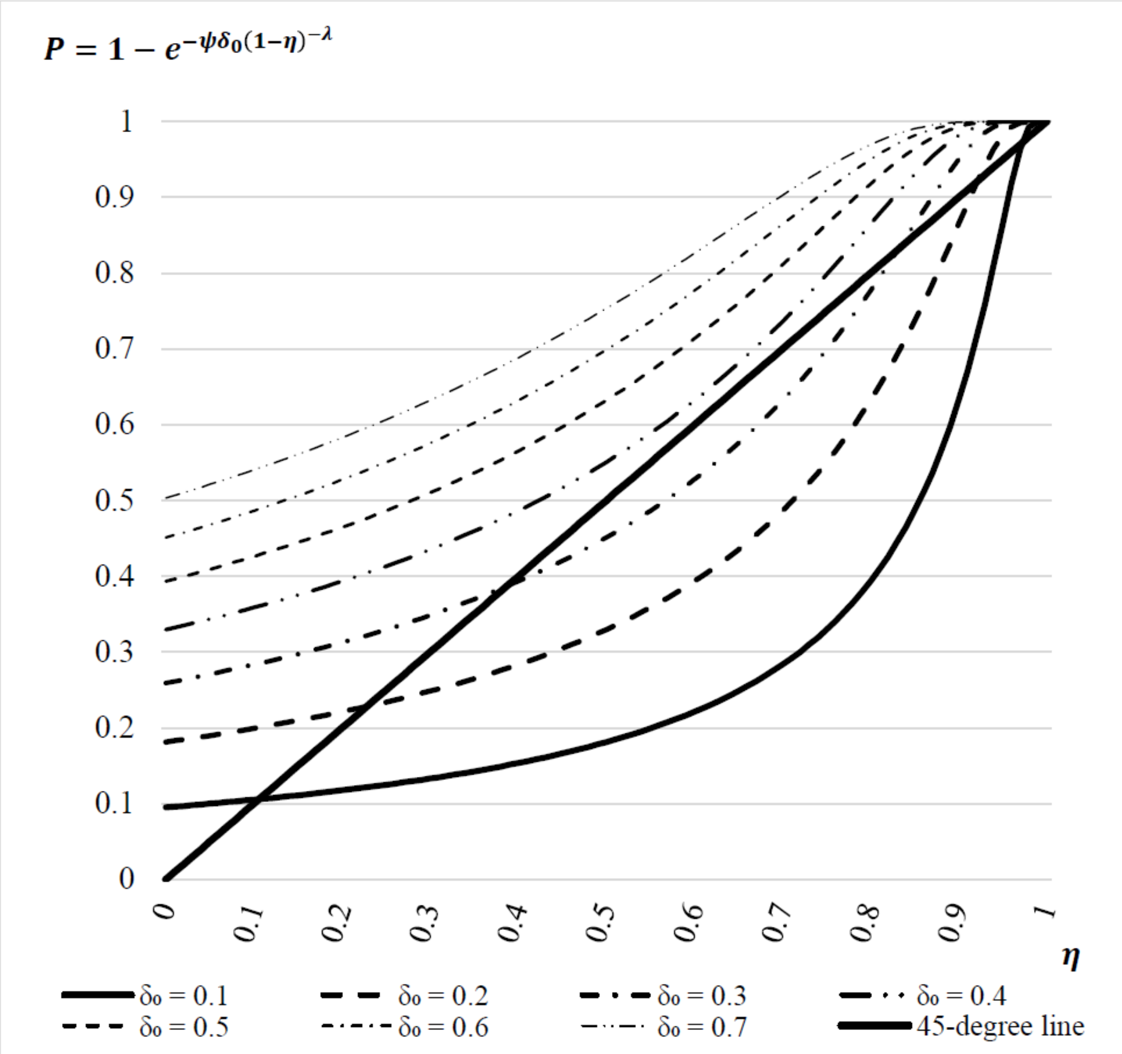

Figure 3: Simulations of *P* for δ_0 = 0.1, 0.2, …, 0.7 where ψ = 1 and λ = 1.

Figure 3 shows the results of simulations for various values of δ_0 where ψ = 1 and λ = 1. The results indicate that as δ_0 increases (i.e., as the level of fluid intelligence increases), the value of η at the stable state increases, and if $\delta_0 \geq \underline{\delta}_0$ where $\underline{\delta}_0$ is a certain threshold value, the state at η = 1 is the only stable state. Figure 4 shows simulation results for various values of ψ where δ_0 = 0.3 and λ = 1. Here, the results indicate that as the value of ψ increases (i.e., as the level of difficulty of uncovering disinformation decreases), the value of η at the stable state increases, and if $\psi \geq \underline{\psi}$ where $\underline{\psi}$ is a certain threshold value, the state at $\eta = 1$ is the only stable state.

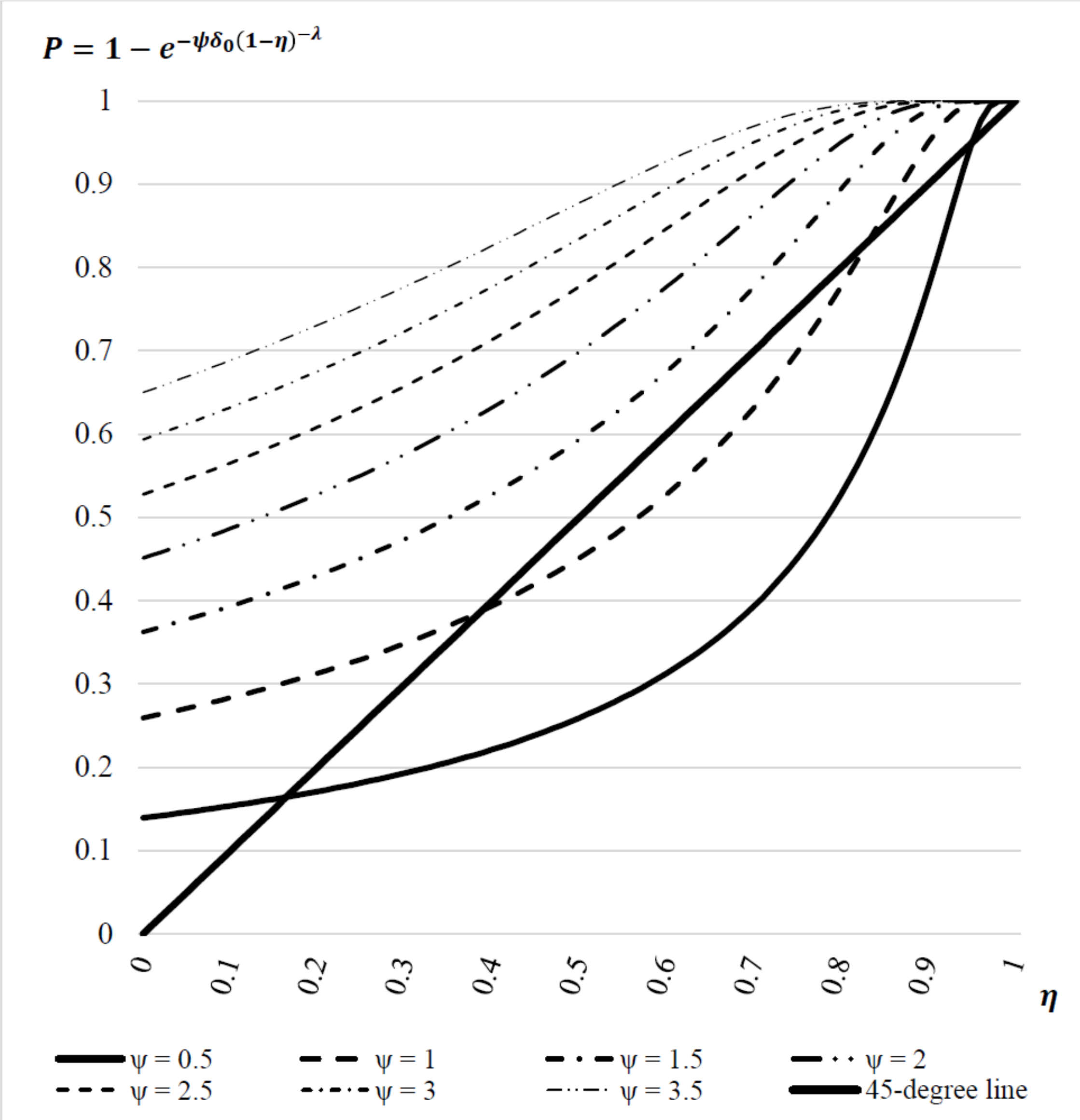

Figure 4: Simulations of *P* for ψ = 0.5, 1, …, 3.5 where δ_0 = 0.3 and λ = 1.

4.2 Mutual trust and efficiency

4.2.1 Disinformation and efficiency

As shown in Section 2, Harashima (2023a, 2023b) showed that disinformation decreases economic efficiency in various aspects. Because of disinformation, the levels of efficiency (productivity) in not only individual economic activities but also the entire economy decrease.

In the model of TFP developed in Harashima (2009, 2012)[1], the production function is described as

$$Y = \bar{\sigma}\omega_A\omega_L A^{\alpha}K^{1-\alpha}L^{\alpha} , \tag{9}$$

where Y is output, K is capital input, L is labor input, α is a constant and indicates labor share, A indicates technologies, ω_A and ω_L indicate productivities of laborers for technology and labor inputs, respectively, and $\bar{\sigma}$ represents the efficiency of various kinds of economic and social institutions and systems. Equation (9) indicates that TFP can be divided into three elements: A, ω_A and ω_L, and $\bar{\sigma}$.

Of these elements, ω_A, ω_L, and $\bar{\sigma}$ are significantly influenced by fluid intelligence as shown in Harashima (2009, 2012), and therefore, they are affected by ranked information and thereby disinformation (see Harashima, 2022). That is, because of disinformation, ω_A, ω_L, and $\bar{\sigma}$ (and therefore TFP) can decrease. Therefore, the levels of production and consumption at steady state or on a balanced growth path can be lowered.

In addition, Harashima (2023a, 2023b) showed that disinformation decreases the success rate of investment, and “bad” financial speculations that can generate large-scale economic fluctuations are undertaken by utilizing disinformation. Furthermore, disinformation increases economic rents that are generated by distorting ranked information (Harashima, 2022).

4.2.2 Importance of mutual trust

As shown in Section 4.1, the level of mutual trust and the spread of disinformation are negatively correlated. Because disinformation decreases economic efficiency as shown in Section 4.2.1, as the level of mutual trust in an economy is higher, its productivity $\bar{\sigma}$, TFP, and success rate of investment are higher (i.e., a higher level of mutual trust increases economic efficiency). Furthermore, a higher level of mutual trust will reduce economic rents resulting from disinformation. Therefore, a high level of mutual trust is an important factor to achieve high levels of economic, social, and perhaps political activities.

4.2.3 Mutual trust and intelligence

As Harashima (2012) showed, $\bar{\sigma}$ is an important element in TFP in the production function described by equation (9) and is affected by fluid intelligence, but as indicated in Section 4.2.2, it is also affected by mutual trust. Mutual trust and fluid intelligence may be positively correlated to some extent, but it seems likely that they basically represent

[1] Harashima (2009, 2012) are also available in Japanese as Harashima (2016, 2020), respectively.

different kinds of human abilities or natures and are generally independent of each other. Indeed, even a dog and a human can trust each other even though the levels of intelligence are quite different. Hence, even though the average fluid intelligence in an economy is high, TFP may be low if the level of mutual trust is low. Mutual trust will therefore be as important as intelligence to achieve high levels of economic, social, and perhaps political activities.

5 CONCLUDING REMARKS

Disinformation decreases economic efficiency as shown in Harashima (2023a), but its influence will greatly differ depending on the level of mutual trust among people because mutual trust will affect the probability that disinformation is believed and accepted. Trust is an important subject of research in psychology and business administration. Many studies have concluded that trust is beneficial to individuals, teams, and organizations and increases their performances (e.g., Kumar, 1996; Bstieler, 2006; Schumacher, 2006; Fulmer and Gelfand, 2012). Furthermore, some studies have concluded that there is a positive correlation between population levels of trust and economic growth (e.g., La Porta et al., 1997; Fehr, 2009). In this paper, I studied the effect of trust on economic activities by examining the relationship between mutual trust and disinformation.

I first constructed a simple model of uncovering disinformation. Then I combined this model with the model of disinformation dissemination shown in Harashima (2023a, 2023b). On the basis of the combined model, I showed that as the level of mutual trust in an economy (society) increases, the probability of uncovering disinformation increases for any person in the economy. A high level of mutual trust greatly restrains disinformation from spreading in an economy and consequently will increase efficiency in various aspects of economic activities. That is, a high level of mutual trust is an important factor to achieve high levels of economic, social, and perhaps political activities.

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