

The roles of transparency and trust in the relationship between corruption and citizen satisfaction

Abstract

Reducing corruption and improving citizen satisfaction are important aims of government, yet the link between these two policy aims has rarely been explored. This article reports a study into the roles played by transparency and trust in the relationship between governmental corruption and citizen satisfaction with public services. The study was based on data gathered in South Korea to evaluate a specific initiative which had sought to reduce corruption and increase citizen satisfaction with public works programs. The data indicated that the relationship between corruption and satisfaction were moderated by transparency and partially mediated by trust.

Points for practitioners

The study sheds light on the roles of transparency and trust in the relationship between corruption and citizen satisfaction with public services, and thus provides insights for developing policy aimed at curtailing corruption and improving satisfaction.

Keywords: citizen satisfaction, corruption, transparency, trust

INTRODUCTION

The relationship between corruption and satisfaction is generally under-researched. The logical assumption is that corruption will have a negative impact on satisfaction, though one might argue that the ongoing electoral success of some old-style political bosses might indicate that the public will tolerate a degree of corruption in exchange for what they perceive to be a well-run city (cf. Manzetti and Wilson, 2006). Transparency and trust are seen to moderate or mediate the relationship between corruption and satisfaction (Driscoll, 1978; Heise, 1985; Jahansoozi, 2006; Rawlins, 2008; Pathak et al., 2008). Many societies believe that transparency will reduce governmental malfeasance through its ‘sunshine’ effect (Heald, 2006), and demand for transparency has grown rapidly, with organizations in both private and public sectors being encouraged to be more transparent – see Ball (2009) for a review of this development. Gaining citizens’ trust is similarly a high priority challenge for public organizations. The objective of this study was to increase our understanding of the relationship between corruption and citizen satisfaction, and the roles of transparency and trust in that relationship, providing

insights for research, and for practitioners seeking to develop policy for improving citizen satisfaction.

LITERATURE REVIEW

The relationship between corruption and citizen satisfaction

Corruption occurs as a form of behaviour violating the official ethics of public service. It can occur in the private sector or in the public sector and often occurs simultaneously in both (Klitgaard, 1988). One of the most widely cited definitions of corruption is offered by Nye (1967/2002: 284) who defines it as ‘behaviour which deviates from the formal duties of a public role because of private regarding (personal, close family, private clique) pecuniary or status gains; or violates rules against the exercise of certain types of private-regarding influence,’ succinctly defined by Rose-Ackerman (2008: 551) as ‘the misuse of public office for private gain.’ Barker and Carter (1994) define corruption in a more detailed way as acts containing three elements: violations of law, rules, regulations, or ethical standards; misuse of an officer’s position; and acceptance of some actual or expected material reward or gain. Corruption, regardless of its forms, undermines the performance of public services and decreases satisfaction with them, neatly captured in Rose-Ackerman’s description of corruption as ‘a symptom that something has gone wrong in the management of the state’ (1999: 9). Perceived corruption erodes public respect for the government as a service provider and disappoints citizens, thus fostering cynicism about government. We might therefore expect the relationship between corruption and satisfaction to be negative, yet despite its obvious importance this relationship has scarcely been investigated – see Manzetti and Wilson (2006) for an exception.

Customer satisfaction is of great importance to public agencies that function as service providers to their citizens. When public services are provided to citizens on demand, governments, particularly local governments, devote considerable resources to meeting the needs of their citizens. Levels of citizen satisfaction have been measured through various methods, broadly speaking either through measuring overall satisfaction or by measuring the attributes of service that make up satisfaction with it (Gustafsson & Johnson, 2004). Cumberford et al. (1999) analyzed citizen satisfaction using a scale which examined perception of service quality in terms of key drivers of satisfaction: courteous, knowledgeable, and competent staff, as well as timeliness, fairness, and getting the desired results. Similarly Giannoccaro et al. (2008) examined citizen satisfaction using a modified version of the SERVQUAL scale (Parasuraman et

al., 1988), which had been developed to measure those attributes of a service which impact on customer satisfaction. Outside of academic research, local governments have often used survey methods to evaluate levels of service and citizen satisfaction with a service and to identify opportunities for improvement.

The role of transparency

Transparency is generally defined as the open flow of information (Holzner & Holzner, 2006; Piotrowski, 2007), and the literature on transparency in the relationship between governments and citizens has strongly emphasized this concept of openness. Oliver argues that ‘transparency in an organization is not only about what’s communicated externally, but about what’s right on the inside, in the guts of its operations’ (2004: 37), and introduces the concept of ‘new transparency’ to describe the trend for organizations to face more active demands for disclosure of information. In the past many governments passively provided information only on request, and could do so at their own discretion, now they are being required to engage in more active disclosure. Piotrowski (2007: 10) states that ‘governmental transparency equates to open government.’ The oft-cited definition of transparency by the Asian Development Bank (1995) is ‘the availability of information to the general public and clarity about government rules, regulations and decisions.’ Transparency has become an important agenda in nearly every organization, public and private, large or small, with Hood (2006: 3) suggesting it has ‘attained quasi-religious significance in debate over governance and institutional design.’ Ball (2009) suggests transparency is starting to subsume accountability in public discourse about good governance. This sharply growing demand for transparency is based on many factors. First, transparency is one of the fundamental moral claims in democratic societies, with the people’s right to have access to government information being widely accepted in representative democracies (Pasquier & Villeneuve, 2007). Second, transparency is one of the practical measures taken to curtail corruption, acting as a deterrent against corrupt behaviour by promoting citizens’ vigilance, thus deterring public officials from misusing public service to attain private gain (Florini, 2007). O’Neill (2006) observes that it can thus serve as a strategy to deter corruption and correct poor performance. Third, transparency has a positive effect on trust and accountability (Heald, 2006). According to Holzner and Holzner (2006: 114), ‘transparency is linked with the values of accountability,’ as it allows citizens to monitor the quality of public services and encourages public employees to satisfy citizens. The literature on transparency advises that organizations should be transparent to increase the degree of trust (Rawlins, 2008), though some scholars urge

caution, citing the negative aspects of transparency, such as violation of privacy, direct cost of disclosure, and revelation of sensitive information (Prat, 2006: 91). Chambers (2004: 389, 392) reminds us that although publicity is an important principle in deliberative democracy, secrecy rather than publicity is often what is needed to ensure a high quality of deliberation. Heald (2006: 62) stresses that ‘transparency is expected to contribute positively to trust by building credibility,’ and it is to a consideration of the role of trust that we now turn.

The role of trust

The literature on trust is long-established and extensive. Rousseau et al. (1998: 394-395), having examined the definitions of trust used in various disciplines, defined trust as ‘a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behaviour of another’ and concluded that there are no significant differences between disciplines in their definitions of trust. From an organizational perspective, trust is ‘a collective judgment of one group that another group will be honest, meet commitments, and will not take advantage of others’ (Rawlins, 2008: 5; see also Cummings & Bromily, 1996), and in a similar vein Tschannen-Moran and Hoy (2000: 556) define trust as ‘one party’s willingness to be vulnerable to another party based on the confidence that the latter party is (a) benevolent, (b) reliable, (c) competent, (d) honest, and (e) open.’ Nooteboom, Berger, & Noorderhaven (1997: 318) explain that ‘trust is identified with a subjective probability that a partner will not be contrary to one’s expectations, and suggest that it is an instrument of good governance, even though not in itself a sufficient condition for cooperation. Examining the effects of trust on relational risk perceived, Nooteboom, et al. (1997) report that trust reduces the risk created by the subjective probability of loss. Describing trust as ‘a product of rational expectation without any moral residue’, Hardin (1996: 28) distinguishes trust from trustworthiness, the latter akin to a ‘moralized account of trust, ‘in which the potential truster is held morally accountable for a failure to trust.’

Welch, Hinnant, & Moon (2005) argue that trust in public institutions is enhanced through their administrative rules, standards, laws, and regulations relating to provision of services and information. Public agencies can improve such institutional trust by adopting new technologies such as government web sites, suggesting that ICT-based public service delivery can be one of the institutional enablers for enhancing trust in moral accountability, through making its process more transparent and reducing public officials’ discretionary power. Trust in government or public services is typically

measured in terms of citizens' subjective judgments based on their experience, suggesting that citizens' trust will arise when a government or its public service is viewed by citizens as competent, reliable and honest, whilst also meeting their needs. Exploring the reasons that public trust in government has declined in the United States, Thomas (1998) suggests three conceptions of trust, namely fiduciary trust, mutual trust, and social trust. Fiduciary trust is built upon under the highly asymmetric relationship between citizens and governments. Public trust in government agencies and their employees to work in their best interests is created when citizens sufficiently monitor and control governments' performance, suggesting that trust is in principle a precondition for citizen satisfaction.

Trust seems likely to enhance the public's satisfaction with services. Rawlins (2008) points out that trust, along with transparency, is an important indicator of a satisfactory relationship between a government and the public. Corruption, real or perceived, reduces citizens' perception of government performance in public services, negatively influencing citizens' trust. It frustrates the public, leading to reduced trust in governments. Note however that the observed decline in trust may not be simply caused by corruption but rather by a growth in cynicism. Whilst a government which is seen as corrupt will not be respected, it may still retain a sufficient level of trust to be able to function, for reasons such as 'soundness of the democratic system and a respect for technocracy and expertise' (Fieschi & Heywood, 2004: 21). By contrast, even when a government is seen as clean (not corrupt), citizens may not trust it due to cynicism arising from differences of political views, alienation, etc.

Research model and hypotheses

As we have seen, there are differing interpretations as to the likely relationship between corruption, citizen satisfaction, transparency and trust, and no obvious consensus emerges. The hypotheses presented below therefore represent the most likely relationships in the context of the present study. Welch et al. (2005: 377) argue that "the interaction between trust and satisfaction is recursive: trust leads to satisfaction, and vice versa." In our study, we hypothesize that trust is a mediating variable in the relationship between corruption and satisfaction, but we recognize that many scholars treat satisfaction as the independent variable and trust as the dependent variable (Van Ryzin, 2007). Our model is not necessarily at odds with this earlier work, since many theorists propose feedback loops from trust to satisfaction. Though not stated in these terms, such models appear to imply that satisfaction will precede trust, but that once trust is engendered it will have a positive impact on satisfaction. For example, although

Vigoda & Yuval (2003) report a linear relationship (quality → performance → trust), thus showing that trust increased citizen satisfaction, they found that the impact of satisfaction on trust was significant as well. The focus of prior research has been upon improvements in service, rather than reduction in corruption, and in developing our model we speculated that, in the case of services perceived as corrupt, the role of trust is likely to be as an influence on satisfaction. This implies that citizen satisfaction will not be fully improved without their trust in the process of producing public services although citizens' high satisfaction may contribute trust in governance. In simple terms, we speculate that government efforts to tackle corruption may well lead to more positive public perceptions (and thus greater satisfaction) long before any tangible improvements are experienced, and therefore increased trust will precede (and influence) increased citizen satisfaction. We therefore propose that the roles of transparency and trust in the relationship between corruption and citizen satisfaction are as shown in Figure 1.

Insert Fig 1 about here

Concerning the role of transparency and trust in the relationship between corruption and citizen satisfaction, the model indicates that transparency decreases corruption, but increases trust and satisfaction, thus:

H1: Transparency will play a significant role as a moderator in the relationship between corruption and citizen satisfaction; transparency will significantly curtail corruption, but increase satisfaction, while corruption reduces satisfaction.

Concerning the two roles of trust, the model shows that trust influences the relationship between transparency and satisfaction and the relationship between corruption and satisfaction. The roles of trust were hypothesized below:

H2: Trust will play a significant role as a mediator in the relationship between transparency and citizen satisfaction; transparency will significantly increase trust and satisfaction, and in turn, trust will increase satisfaction.

H3: Trust will play a significant role as a mediator in the relationship between corruption and satisfaction; corruption will significantly reduce trust and satisfaction, but trust will increase satisfaction.

METHOD

This study was based on survey data collected by the local government of Yeongdeungpo-gu (population c.408,000 as of April 2009), one of the sub-districts of Seoul, as part of their evaluation of its Public Project Quality Management OK System (hereafter, the OK system). Before detailing the survey methodology, it is important to outline the background to the OK system, in order to clarify why it represented an ideal case study for examining the hypothesized relationships, shown above, between citizen satisfaction, corruption, transparency and trust.

Public works construction services had been open to the criticisms of being most corrupt in the public sector for a long time. For that reason, the municipality developed the OK system in 2006, aiming at raising citizen satisfaction by reducing corruption and improving the quality of the construction service. It was expected that the system would effectively make the service provision transparent, and as a result, increase satisfaction. Through its use of ICT the OK system allows public officers in charge of the services to interact with private contractors, and residents to monitor the entire process from public project planning to completion in real-time via the internet. When visiting the municipality's homepage, a resident is guided by a menu of options such as Project, Technical, Contract, Design, Construction, Defect, and Reward, and can get full details of project status, technical administration, contract, construction, defect management, relevant documents, etc. Its most striking feature is that residents can directly observe all the process of constructing roads, bridges, parks, etc. through a web camera established on construction sites. Residents can also participate in the process as supervisors, to observe public work services and provide their opinions. It was expected that the greatly increased transparency would increase trust in the services, and in turn, enhance citizen satisfaction.

Three years after the OK system was put into operation, the municipality conducted a questionnaire survey of the performance of public works projects. The survey was designed to answer three key questions: How successfully has the OK system achieved its goals? How effective is the system in improving transparency and trust? And what roles do transparency and trust play in the relationship between corruption and satisfaction? The survey was conducted in January 2008. Twenty-two resident investigators, representing each of the 22 smallest administrative units of the

municipality, were employed to conduct the survey. They met residents randomly selected in advance for the survey by the evaluation team of the OK system and asked them to complete the survey. Where the resident agreed to participate the researcher would wait to collect the completed survey, thus ensuring the highest possible completion rate. The questionnaire was accompanied by a covering letter, which contained a brief introduction to the purpose of the survey. Out of 400 questionnaires distributed, 368 were returned and after excluding incomplete questionnaires we were left with a valid sample of 348 for analysis.

Measurement

The survey comprised four scales (corruption, citizen satisfaction, transparency and trust) totalling 26 items, each item being a statement to which participants were invited to respond on a five-point Likert-scale, where ‘strongly agree’ was coded as 5 and ‘strongly disagree’ as 1. After performing a confirmatory factor analysis on all items to look for patterns of similarity between items and searching a structural equation model best fitted to the data, 9 items (1 for corruption, 8 for transparency) were deleted, leaving 17 items for subsequent analysis.

Corruption was measured by five items relating to the three elements of corruption proposed by Barker and Carter (1994): violations of law, rules, regulations, or ethical standards; misuse of public employees’ position; and direct or indirect benefits received or expected from such a wrongdoing. The question and items for corruption and the Cronbach's alpha statistic for the scale are shown in Table 1. The mean score for all items was computed to serve as a measure of corruption.

Insert Table 1 about here

Citizen satisfaction can be subdivided into satisfaction with public services as a whole and satisfaction with its specific elements, so residents’ satisfaction with public works projects was surveyed in terms of the quality of the service, the municipality’s competence for the service, and its performance. The question and items are shown in Table 2.

Insert Table 2 about here

The alpha value of .904 for the scale indicates very close correlation between overall satisfaction and satisfaction with specific items, and we therefore used the mean score

of the three items as a single measure of satisfaction. For transparency thirteen items were originally developed; four for overall transparency of public works project services, three for residents' accessibility to the information, and six for information disclosure by the municipality and quality of the information. Through a confirmatory factor analysis, only the first five items were selected for the analysis. The question and items are shown in Table 3. As with satisfaction, the high alpha value (.917) indicates it would be valid to use an average of all the items to serve as the measure of transparency.

Insert Table 3 about here

The level of perceived trust was assessed using four items, based on the operational definition that residents' trust is a subjective judgment on a government's integrity, goodwill, and competence. The items are shown in Table 4. The Cronbach's alpha value was .896, showing high consistency among individual items in the scale, so the average of the four items was used for statistical analysis.

Insert Table 4 about here

Table 5 below shows the results of a confirmatory factor analysis conducted on all the items above for a structural equation modeling. The four factors explain 78.147% of the total variance, supporting our treatment of the key variables as conceptually distinct and empirically distinguishable.

Insert Table 5 about here

Finally, demographic data was collected on gender, age, and level of education. The gender composition of the respondents was 197 (56.6%) males and 151 (43.4%) females. The age profile was: 'less than 30' (50, 14.3%), '30-39' (80, 24.7%), '40-49' (122, 35.1%), '50 or over' (90, 25.9%). Educational levels of the respondents were 'less than high school degree or equivalent' (131, 37.6%), 'junior college degree' (75, 21.6%), '4-year university degree' (132, 37.9%), 'post graduate degree' (10, 2.9%).

RESULTS

Description of statistics and correlation

Table 6 shows the means, standard deviations, and correlations for all of the variables, including an interaction term, COR*TRA, created in order to calculate the moderating effect of transparency on the relationship between corruption and satisfaction.

Insert Table 6 about here

The results indicate a fairly strong correlation between corruption and resident satisfaction with public works projects ($r = -.508, p < .001$), transparency ($r = -.535, p < .001$) and trust ($r = -.483, p < .001$). Satisfaction also shows a strong relationship with transparency ($r = .663, p < .001$) and trust ($r = .637, p < .001$). Thus, consistent with expectations, corruption is negatively related to transparency, trust, and citizen satisfaction, while satisfaction is positively related to transparency and trust.

The structural equation model

A structural equation modeling method was used to estimate the relationship between the response variable (satisfaction) and the three predictor variables (corruption, transparency and trust), using the Amos 17.0 software package. The structural model ($N=348$) as best fitted to the data and standardized path coefficients are suggested at Figure 2 below. The relationships significant at $\alpha \leq 0.05$ are presented by a solid line and the one non-significant relationship (between corruption and trust) by a dotted line.

Insert Fig 2 about here

The results of the structural model analysis were $\chi^2 = 231.322$, degrees of freedom=113, $p=0.000$, CMIN/DF=2.047. GFI=0.929, AGFI=0.903, RMR=0.023, NFI=0.953. In evaluating the fitness of the model, generally it is desirable that P value for χ^2 is $\geq \alpha=0.05$, GFI(Goodness-of-Fit Index), AGFI(Adjusted Goodness-of-Fit Index), and NFI(Normed Fit Index) $\geq .90$, and RMR(Root Mean Square Residual) ≤ 0.05 . For CMIN/DF, in that its value is not greatly more than 2, the model is considered as fitted although the P value of χ^2 is smaller than $\alpha=0.05$. In the analysis above, although χ^2 was significant at $\alpha \leq 0.05$, the other indices show that the model is satisfactorily fitted to the data. Accordingly, the model was accepted as fitted to the data. Most of the relationships between the important variables were significant at $\alpha \leq 0.001$, except for the path between TRU and SAT ($p=0.002$) and the path between COR and TRU ($p=.213$). Only the path between COR and TRU appeared as not significant. The standardized

coefficients indicate that the effect of transparency on corruption is considerably strong (regression weight=-.58), and its effect on satisfaction is greater than that of trust or corruption.

The moderating role of transparency

The effect of transparency as a moderating variable was examined by the parameter estimate for the interaction term COR*TRA. To test a moderating effect, the three regression equations below were examined.

$$(1) y = b_0 + b_1x_1$$

$$(2) y = b_0 + b_1x_1 + b_2x_2$$

$$(3) y = b_0 + b_1x_1 + b_2x_2 + b_3(x_1*x_2)$$

If $b_2 \neq 0$, but $b_3 = 0$, x_2 is not a moderator but simply another independent variable. If $b_2 = 0$, but $b_3 \neq 0$, x_2 is a pure moderator. If $b_2 \neq 0$ and $b_3 \neq 0$, the equations, i.e., (1), (2) and (3) are different with each other, x_2 is a quasi moderator. To test Hypothesis 1, that transparency will play a significant role as a moderator in the relationship between corruption and citizen satisfaction, hierarchical regression analysis was performed taking satisfaction as the dependent variable. The results are shown in Table 7.

Insert Table 7 about here

One independent variable in a regression model SAT1, corruption explains about 26 percent of the variance of resident satisfaction (Adjusted $R^2 = .256$, $p < .001$), two independent variables in SAT2 explain 47 percent (Adjusted $R^2 = .469$, $p < .001$), and three independent variables in SAT3 including the interaction term, COR*TRA, explain 48 percent of the variance of resident satisfaction (Adjusted $R^2 = .478$, $p < .001$).

Regression coefficients $b_2 \neq 0$ and $b_3 \neq 0$ are confirmed. Therefore, H1 is accepted. When

the interaction term is added to the regression model of resident satisfaction, the explanatory power of the regression model of resident satisfaction is slightly strengthened, changing the size of Adjusted R^2 from .469 to .478. However the effect of corruption on satisfaction greatly changed from $b_1 = -.186$ ($p = .000$) to $b_1 = .229$ ($p = .167$) and its effect became non-significant. Although it was not significant, its direction also changed, indicating that transparency very strongly moderates the relationship between the two variables.

The mediating role of trust

Hierarchical regression analysis and the Sobel test are commonly used to test the effect of a mediating variable. Four steps should be also completed to infer the influence of a mediator between the two variables (Baron & Kenny, 1986; Kenny et al., 1998) by checking: first, that the independent variable predicts the dependent variable; second, that the independent variable predicts the mediator; third, that the mediator predicts the dependent variable; finally, that the independent variable does *not* predict the dependent variable while controlling for the mediator. The fourth step is used to judge whether the role of a mediator is pure or quasi. We outlined above the four conditions which must be met for a mediation model, and regression analysis was conducted to test whether these conditions were satisfied – see Table 8 below.

Insert Table 8 about here

The results of analyzing the relationships between the relevant variables indicate that they are significantly correlated, showing that the first three conditions for testing a mediating role of trust were met; transparency significantly increases trust, trust has a significant impact on satisfaction, and transparency significantly increases satisfaction. This confirms that the first three steps for Hypothesis 2 were satisfied. The first three steps for Hypothesis 3 were also met: corruption significantly decreases trust, but trust significantly increases satisfaction, and corruption significantly decreases satisfaction (As for corruption → satisfaction, see Table 7). To test whether a mediating role of trust is significant or not, a Sobel test was conducted (see Table 9 below). The test results of the fourth step are suggested in Table 10 and 11 respectively.

Insert Table 9 about here

The results indicate that the mediating roles of trust in the relationship between transparency and satisfaction, and between corruption and satisfaction are significantly supported. The pure or quasi role of a mediator is evaluated by the extent to which the mediator accounts for the relation between the predictor and the dependent variables. To evaluate whether the mediating effect of trust in the relationship between transparency and the satisfaction is significant, hierarchical regression analysis was conducted. Table 10 shows the results.

Insert Table 10 about here

The effect of transparency on satisfaction reduced but did not become zero when trust was introduced in the regression model (from $b = .667$ to $b = .426$, both results significant at $p < .001$). The contribution of transparency to satisfaction shrank after controlling for the effect of trust on satisfaction, but the unique effect of transparency remains significantly different from zero. This indicates that trust is a partial rather than complete mediator in the relationship between transparency and satisfaction. In sum, Hypotheses 2 was accepted while the fourth condition was partially met. This indicates that trust plays as a quasi mediator between transparency and satisfaction. The mediating effect of trust in the relationship between corruption and resident satisfaction is shown in Table 11.

Insert Table 11 about here

The predictors, corruption and trust, explain about 46% of the variance in resident satisfaction (Adjusted $R^2 = .455$, $p < .001$). In the first regression analysis, corruption is negatively related with satisfaction ($b = -.441$, $p < .001$). In the second analysis, the effect of corruption on the satisfaction is greatly reduced ($b = -.227$, $p < .001$), upon the addition of the mediator to the model. However, the effect of corruption remains significant, and different from zero. This indicates that Hypothesis 3 is significantly accepted but the fourth condition is also partially met, i.e. trust is a quasi mediator in the association of the two variables.

DISCUSSION

Before considering the implications of our findings, it is important to acknowledge certain limitations. As the literature review demonstrated, there is little consensus

concerning the measurement of important variables such as corruption, transparency, trust, and satisfaction. The definition of corruption in particular varies widely, hindering the progress of understanding it. While suggesting an integrated theory of governmental corruption, Nas et al. (1986) confess that ‘one of the difficulties with this topic stems from the lack of a widely accepted definition of corruption’ – see also Doig et al (2006). Transparency is similarly problematic, Florini (2007: 4) noting that ‘there is no consensus on what the definition should be or how transparency should be measured,’ whilst Heald (2006: 40) suggests that ‘the multiple directions and varieties of transparency and the mediating effects of habitat hinder defining and constructing indexes of transparency.’ The definitions of trust also show some variation, although at least here we can reassure ourselves with the Rousseau et al (1998) finding that the variation is not significant. The *measurement* of trust may however remain an issue – many studies (ours included) rely upon survey data gathered by others, typically government, and as there are no commonly used scales, this inhibits comparison of results from different studies. In addition, Bouckaert & Van de Walle (2003) note a trend to use measures of trust and measures of citizen satisfaction as proxy measures for good governance, which risks conflating variables which the present study has treated as distinct. Despite these issues, the scales used in the present study were clearly robust, and the findings can therefore be seen to shed light on the roles of transparency and trust in the relationship between corruption and citizen satisfaction. Transparency was found to serve as a significant moderator, increasing satisfaction while reducing corruption, through its role in the process by which corruption reduces satisfaction. Trust was also revealed as a significant mediator in the relationship between transparency and satisfaction, as well as between corruption and satisfaction.

The findings highlight several crucial issues for the improvement of citizen satisfaction. First, the roles of transparency and trust need to be taken into account as important factors in developing policy aimed at reducing corruption and improving citizen satisfaction. One of our most important findings is that the effect of corruption on reducing citizen satisfaction was largely generated by the moderating or mediating role of transparency and trust, i.e. indirectly by the two variables rather than directly by corruption itself. Transparency clearly plays a key role in the relation between corruption, trust, and citizen satisfaction, and Holzner and Holzner (2006: 114) go as far

as to argue that transparency is 'a value likely to change the relation between citizens and authorities', making it necessary for governments to strengthen their disclosure of information.

Second, the role of transparency in the relationship between corruption and citizen satisfaction might differ depending upon varieties of transparency. Some scholars point out that there might be various types of transparency and that the benefits and costs of transparency depend on their characteristics and consequences (Heald, 2006; Hood, 2006). Tackling the case of leaking information to the press, de Jong and de Vries (2007) report that transparency is not desirable in all situations. Heald (2006) conceptualises transparency in terms of three dichotomies: event versus process transparency, transparency in retrospect versus in real time, and nominal versus effective transparency, referring to the gap between perception and reality. In respect of the latter distinction, Heald (2006) identifies the risk of a 'transparency illusion' arising from a divergence between nominal and effective transparency, such that even when transparency appears to be increasing, the opposite may be true in reality. Following Heald's typology, we might categorise the transparency created by the OK system as being 'process' and 'real time,' as the whole process of public works construction is disclosed to residents in real time, mediated through ICT applications. The important question is whether it is 'effective' or 'nominal' transparency. We suggest that it might be categorised as 'nominal', not in the sense that it is illusory or ineffective, but in the sense that when an e-government system like OK provides disclosure of a large quantity of information in real time to the public, there is a risk that the actual transparency created may be relatively nominal, not least because very few citizens will actually have the time or expertise to scrutinise the information in a manner which might lead to greater accountability.

Third, it is important to note that, in the potential gap between expectations and reality, influences such as mass media and culture play an important role in how citizens think about an ICT-based system for transparency such as OK. For example, if improved transparency leads to residents becoming aware of a higher level of corruption than they expected, transparency may actually cause reduced citizen satisfaction. Likewise even disclosure of a high level of corruption could lead to increased satisfaction if it is lower than expected. There may also be an important difference between public reactions to overall levels of corruption and specific high-profile cases. These cases may not affect trust if it already high, but the recent scandal in the UK

regarding corruption by Members of Parliament over their expenses suggests that where public trust and confidence in government is low, such episodes (even though the scale of the corruption was tiny in monetary terms) can have a significant impact. It is interesting to note that one of the proposed solutions has been the adoption of transparent online system for claiming expenses. Further research is required to explore the complex role of ICT-based transparency in the perceptual relationship between corruption and citizen satisfaction.

CONCLUSION

Many efforts on the part of governments have failed to prevent corruption and stem the loss of trust caused by scandals. Despite the important roles played by transparency and trust in reducing corruption and improving citizen satisfaction with public services, little systematic analysis has been undertaken to understand the relationship between them. Our findings show that transparency and trust play a substantial role, as moderator and mediator respectively, in curtailing corruption and enhancing citizen satisfaction. In this respect, this study holds great promise for giving insights for increasing satisfaction. The data allowed us to test our proposed model, and this provides a basis for future studies across a range of settings to examine systematically the roles of transparency and trust in the relationships between corruption and citizen satisfaction.

We acknowledge there may be limits on the generalization of this study, so often a crucial issue for application, as it was carried out as a case study of the specific situation of a local authority in Seoul and its public works construction services, so its main utility is in terms of providing a test of our proposed model. However, it is worth noting that the specific of the case, namely a situation in which e-government was introduced to address issues of corruption and low citizen satisfaction in respect of processes with which the citizens do not directly engage (public works in this instance), are sufficiently common that they may be applicable to many potential e-government projects.

The study highlights some of the ambiguities regarding the benefits of transparency, which need further exploration. Some scholars are critical of the argument that governments should be in favour of complete disclosure of their information. Prat (2006: 91) acknowledges that 'more information about the agent's behaviour makes the agent more accountable', but argues that 'it is not necessarily true that more disclosure makes the agent behave better', while O'Neill (2006) claims that 'mere transparency

may worsen communication by spreading confusion'. Transparency has limits to its scope of application in practice, with full transparency undesirable in a number of areas in the public sector for various reasons, including the right to privacy, heavy costs of disclosure, and the risks of unauthorized disclosure of sensitive information (Prat, 2006; Heald, 2006). The benefits of transparency may also be limited, with Birkinshaw (2006) noting that transparency might present obstacles to efficient government or representative democracy. Heald (2006: 60) argues that lack of transparency may actually 'contribute positively to social functioning,' and concludes that there may be 'an optimal level of transparency that is less than maximum transparency.' Consequently, transparency might have clear limits to its utility as a method for deterring corruption and improving citizen satisfaction.

The impact of transparency on corruption is clearly an important issue for public administration, but the issues of trust in government and citizen satisfaction are also hugely important, and our findings suggest a complex interplay between these four variables. An important recommendation from our findings would therefore be that researchers focusing on the relationship between any of these variables (e.g. transparency and corruption) would do well to examine the other relationships at the same time. This provides for the development of more robust theory, but also has important implications for policy. For example, evaluating a particular transparency intervention designed to decrease corruption might show that it has only marginal anti-corruption effects, and is therefore not worth pursuing. However, if we also evaluate its impacts on improving trust in government and citizen satisfaction, this would provide policymakers with a holistic view of the value of the intervention from which to judge its worth.

A number of important questions remain to be addressed. Is there reciprocity between transparency and trust? Is the relationship between transparency and trust linear? More transparency is likely to be beneficial at a very low level of trust. On the other hand, when a high level of trust in government exists, increasing transparency may actually reduce trust (Oliver, 2004; Meijer, 2009). In addition, as we noted above, although trust influences citizen satisfaction it is also the case that satisfaction can improve trust in public services. More research is needed to our understanding of the impact of transparency and trust on corruption and citizen satisfaction, and the present study provides a platform for this.

REFERENCES

- Asian Development Bank (1995). *Governance: Sound development management*. WP1-95.
- Ball, C. (2009). What is transparency? *Public Integrity*, 11(4), 293-308.
- Barker, T., & Carter, D.L. (1994). *Police deviance* (3rd ed.). Cincinnati, OH: Anderson.
- Baron, R.M., & Kenny, D.A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173-1182.
- Birkinshaw, P.J. (2006). Freedom of information and openness: Fundamental human rights. *Administrative Law Review*, 58(1), 177-218.
- Bouckaert, G., & Van de Walle, S. (2003). Comparing measures of citizen trust and user satisfaction as indicators of 'good governance': Difficulties in linking trust and satisfaction indicators. *International Review of Administrative Sciences*, 69(3), 329-344.
- Bovens, M., & Zouridis, S. (2002). From street-level to system-level bureaucracies: How information and communication technology is transforming administrative discretion and constitutional control. *Public Administration Review*, 62(4), 174-184.
- Chambers, S. (2004). Behind closed doors: Publicity, secrecy, and the quality of deliberation. *Journal of Political Philosophy*, 12(4), 389-410.
- Cumberford, J., Gordon, G., & Sinha, M.N. (1999). The creation of a national citizen satisfaction index. *Annual Quality Congress*, 53, 595-600.
- Cummings, L.L., & Bromily, P. (1996). The Organizational Trust Inventory (OTI): Development and validation. In R. Kramer & T. Tyler (Eds.), *Trust in organizations* (pp.302-330). Thousand Oaks, CA: Sage.
- de Jong, J., & de Vries, M.S. (2007). Toward unlimited transparency? Morals and facts concerning leaking to the press by public officials in the Netherlands. *Public Administration and Development*, 27(3), 215-225.
- Doig, A., McIvor, S., & Theobald, R. (2006). Numbers, nuances and moving targets: converging the use of corruption indicators or descriptors in assessing state development. *International Review of Administrative Sciences*, 72(2), 239-252.
- Driscoll, J.W. (1978). Trust and participation in organizational decision making as predictors of satisfaction. *Academy of Management Journal*, 21(1), 44-56.
- Fieschi, C., & Heywood, P. (2004, April). *Trust, cynicism and populist anti-politics*. Paper presented at the Workshop of the European Consortium for Political Research, Uppsala, Sweden.

- Florini, A.M. (2007). The battle over transparency. In A. Florini (Ed.). *The right to know: Transparency for an open world* (pp.1-16). New York: Columbia University Press.
- Giannoccaro, R., Costantino, N., Ludovico, A., & Pietroforte, R. (2008). Measuring citizen satisfaction with aspects of public services from a local authority and determining their Importance: a case Study. *Public Organization Review*, 8(1), 1-15.
- Gustafsson, A., & Johnson, M.D. (2004). Determining attribute importance in a service satisfaction model. *Journal of Service Research*, 7(2), 124–141.
- Hardin, R. (1996). Trustworthiness. *Ethics*, 107(1), 26-42.
- Heald, D. (2006). Varieties of transparency. In C. Hood & D. Heald (2006). *Transparency – The key to better governance* (pp.25-43). New York: Oxford University Press.
- Heise, J.A. (1985). Toward closing the confidence gap: An alternative approach to communication between public and government. *Public Affairs Quarterly*, 9(2), 196-217.
- Holzner, B., & Holzner, L. (2006). *Transparency in global change – The vanguard of the open society*. Pittsburgh, PA: University of Pittsburgh Press.
- Hood, C. (2006). Transparency in historical perspective. In C. Hood & D. Heald (2006). *Transparency – The key to better governance* (pp.3-23). New York: Oxford University Press.
- Jahansoozi, J. (2006). Organization-stakeholder relationships: Exploring trust and transparency. *Journal of Management Development*, 25(10), 942-955.
- Kenny, D.A., Kashy, D.A., & Bolger, N. (1998). Data analysis in social psychology. In D. Gilbert, S. Fiske & G. Lindzey (Eds.), *The handbook of social psychology* : Vol. 1 (4th ed.) (pp.233-265). Boston, MA: McGraw-Hill.
- Klitgaard, R. (1988). *Controlling corruption*. Berkeley, CA: University of California Press.
- Manzetti, L., & Wilson, C.J. (2006). Corruption, economic satisfaction, and confidence in government: Evidence from Argentina. *Latin Americanist*, 49(2), 131-139.
- Meijer, A. (2009). Understanding modern transparency. *International Review of Administrative Sciences*, 75(2), 255-269.
- Nas, T.F., Price, A.C., & Weber, C.T. (1986). A policy-oriented theory of corruption. *American Political Science Review*, 80(1), 107-119.
- Nooteboom, B., Berger, H., & Noorderhaven, N.G. (1997). Effects of trust and governance on relational risk. *Academy of Management Journal*, 40(2), 308-338.
- Nye, J.S. (1967/2002). Corruption and political development: A cost-benefit analysis. In

- A.J. Heidenheimer & M. Johnston (Eds.), *Political corruption: Concepts and contexts* (pp.281-302). New Brunswick, NJ: Transaction Publishers.
- Oliver, R.W. (2004). *What is transparency?* New York: McGraw-Hill.
- O'Neill, O. (2006). Transparency and the ethics of communication. In C. Hood & D. Heald (Eds.), *Transparency – The key to better governance* (pp.75-90). New York: Oxford University Press.
- Parasuraman, A., Zeithaml, V.A., & Berry, L.L. (1988). SERVQUAL: a multiple-item scale for measuring consumer perception of service quality. *Journal of Retailing*, 64(1), 12–40.
- Pasquier, M., & Villeneuve, J-P. (2007). Organizational barriers to transparency: A typology and analysis of organizational behaviour tending to prevent or restrict access to information. *International Review of Administrative Sciences*, 73(1), 147-162.
- Pathak, R.D., Singh, G., Belwal, R., Naz, R., & Smith, R.F.I. (2008). E-governance, corruption and public service delivery: A comparative study of Fiji and Ethiopia. *Journal of Administration & Governance*, 3(1), 65-79.
- Piotrowski, S.J. (2007). *Governmental transparency in the path of administrative reform*. Albany, NY: State University of New York Press.
- Prat, A. (2006). The more closely we are watched, the better we behave. In C. Hood & D. Heald, *Transparency – The key to better governance* (pp.91-103). New York: Oxford University Press.
- Rawlins, B.L. (2008). Measuring the relationship between organizational transparency and employee trust. *Public Relations Journal*, 2(2), 1-21.
- Rose-Ackerman, S. (1999). *Corruption and government – Causes, consequences, and reform*. New York: Cambridge University Press.
- Rose-Ackerman, S. (2008). Corruption. In C.K. Rowley & F.G. Schneider (Eds.). *Readings in public choice and constitutional political economy* (pp.551-566). New York: Springer.
- Rousseau, D., Sitkin, S.B., Burt, R., & Camerer, C. (1998). Not so different after all: A cross-discipline view of trust. *Academy of Management Review*, 23(3), 393-404.
- Thomas, C.W. (1998). Maintaining and restoring public trust in government agencies and their employees. *Administration and Society*, 30(2), 166-193.
- Tschannen-Moran, M., & Hoy, W.K. (2000). A multidisciplinary analysis of the nature, meaning, and measurement of trust. *Review of Educational Research*, 70(4), 547-593.
- Van Ryzin, G. (2007). Pieces of a puzzle: Linking performance, satisfaction, and trust in government. *Public Performance and Management Review*, 30(4), 521-535.

Vigoda, E., & Yuval, F. (2003). Managerial quality, administrative performance and trust in governance: Can we point to causality? *Australian Journal of Public Administration*, 62(3), 12-25.

Welch, E.W., Hinnant, C.C., & Moon, M.J. (2005). Linking citizen satisfaction with e-government and trust in government. *Journal of Public Administration Research & Theory*, 15(3), 371-391.

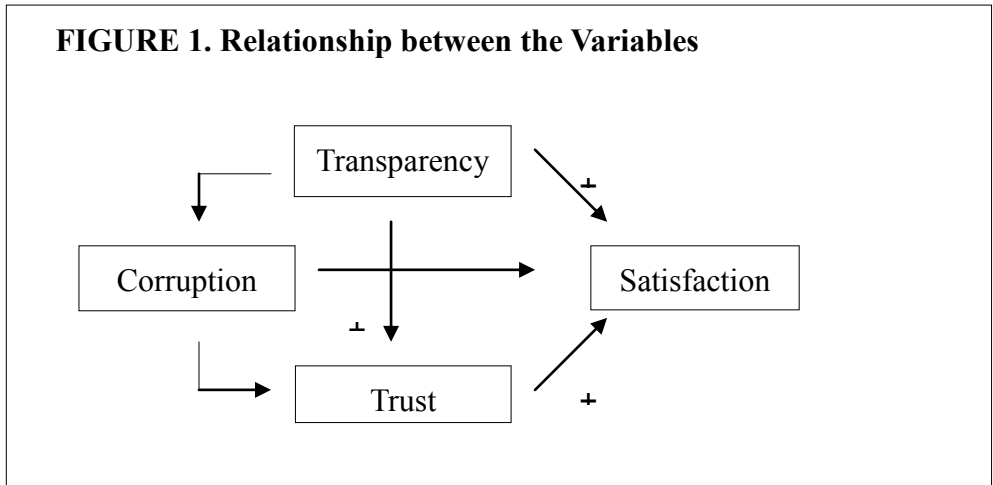


TABLE 1
Scale Items, and Alpha for Corruption (N= 348)

Scale/Item	Scale Alpha
Corruption (COR) Cronbach's Alpha = .930	
<i>Question: What do you think of the public works of the municipality?</i>	
c1. There are malpractices associated with sub-contracts in managing the construction and engineering of public works.	
c2. There is inappropriate participation of contractors who are under required standards in public works projects.	
c3. There is an atmosphere that something valuable has to be given to public officials in charge to smoothly complete public works construction.	
c4. The works of projects aren't fair in some senses.	
c5. There is partiality via personal relations in public works projects.	

TABLE 2
Scale Items, and Alpha for Citizen Satisfaction (N= 348)

Scale/Item	Scale Alpha
------------	-------------

Satisfaction (SAT) Cronbach's Alpha = .904

Question: To what degree are you satisfied with the municipality's public work construction projects?

s1. I am satisfied with the municipality's public works projects.

s2. I am satisfied with the municipality's competency to implement public works projects.

s3. I am satisfied with the results of public works projects.

TABLE 3
Scale Items, and Alpha for Transparency (N= 348)

Scale/Item	Scale Alpha
-------------------	--------------------

Transparency (TRA) Cronbach's Alpha = .917

Question: How transparent do you think the municipality's public work projects are?

tr1. The municipality's public works projects are implemented transparently.

tr2. The entire process of the municipality's public works projects is transparently disclosed.

tr3. The residents can clearly see into the progress and situations of public works projects.

tr4. The works of public works projects are transparently done.

tr5. The municipality discloses sufficient information to the residents on its public works projects.

TABLE 4
Scale Items, and Alpha for Trust (N= 348)

Scale/Item	Scale Alpha
-------------------	--------------------

Trust (TRU) Cronbach's Alpha = .896

Question: How much do you trust in the municipality's public work projects?

tu1. The municipality will not deceive its residents in its public works projects.

tu2. The municipality will first consider the interest of the residents before its self-interest in public works projects.

tu3. The municipality will not do harm to the residents by its negligence on public works projects.

tu4. I trust in the municipality's public works projects.

TABLE 5
Results of Factor Analysis on the Question Items (N=348)

Variables\Items		Factors			
		F1	F2	F3	F4
Corruption (COR)	c1	.831	-.158	-.132	-.166
	c2	.857	-.122	-.187	-.123
	c3	.816	-.199	-.143	-.162
	c4	.838	-.179	-.170	-.189
	c5	.836	-.268	-.146	-.148
Satisfaction (SAT)	s1	-.253	.323	.285	.733
	s2	-.225	.245	.237	.838
	s3	-.217	.272	.248	.827
Transparency (TRA)	tr1	-.206	.718	.369	.247
	tr2	-.213	.706	.370	.248
	tr3	-.199	.768	.256	.273
	tr4	-.289	.705	.357	.215
	tr5	-.212	.786	.256	.182
Trust (TRU)	tu1	-.204	.345	.768	.175
	tu2	-.177	.289	.795	.232
	tu3	-.200	.325	.739	.204
	tu4	-.183	.347	.707	.296
Eigenvalues		9.258	2.154	1.056	.817
Cumulative Percents		54.458	65.128	73.341	78.147

- 1) Extraction method: Principal component analysis.
- 2) Rotation method: Varimax with Kaiser normalization.

TABLE 6
Means, Standard Deviations, and Correlations (N=348)

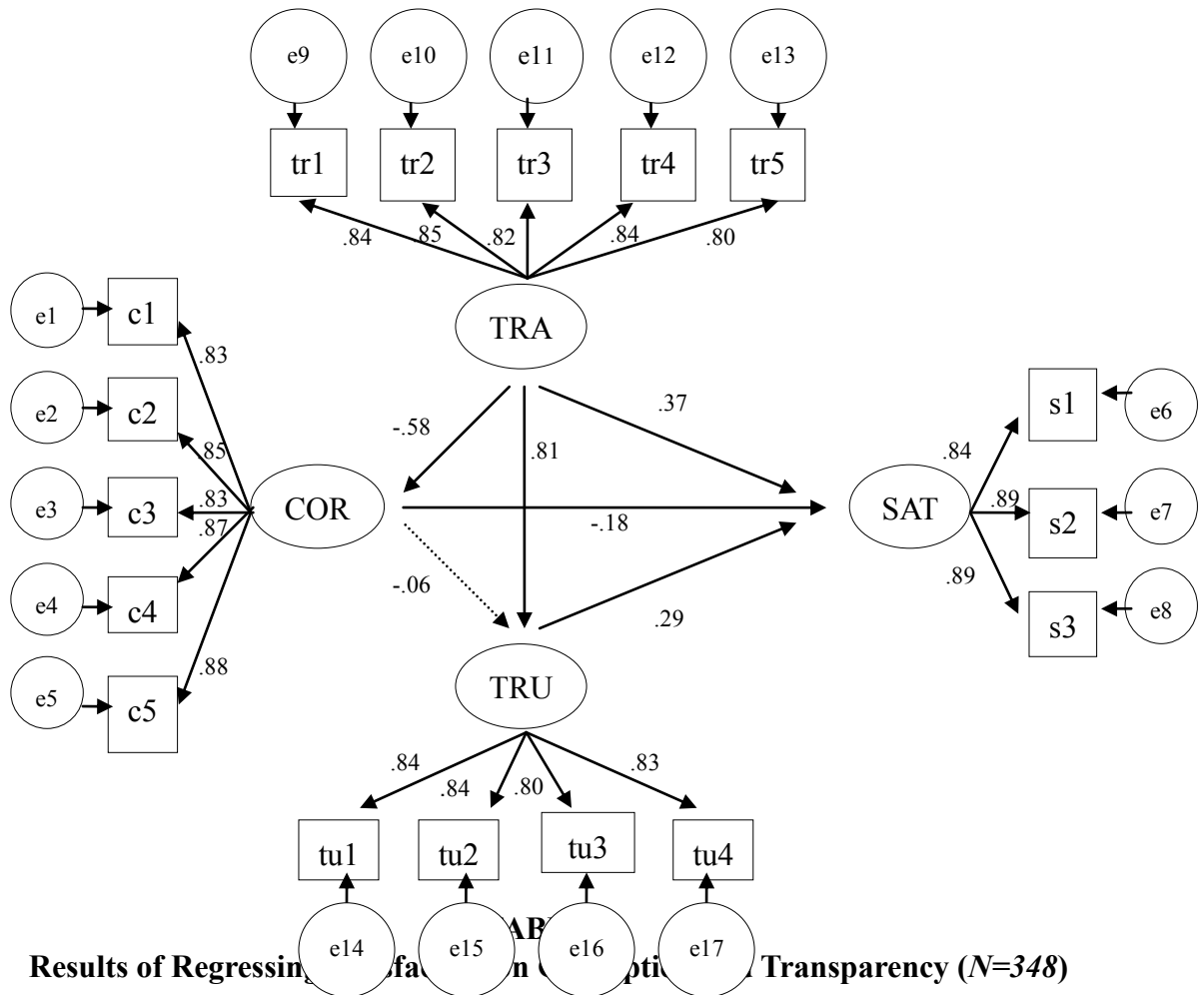
	MEAN	SD	COR	SAT	TRA	TRU	COR*TRA	GEN	AGE	EDU
COR	2.45	.88	1.00							
SAT	3.55	.75	-.508***	1.00						
TRA	3.50	.75	-.535***	.663***	1.00					

TRU	3.63	.71	-.483***	.637***	.761***	1.00				
COR ² IRA	4.11	1.35	.799***	-.175***	.037	-.056	1.00			
GEN	1.43	.50	.285***	-.285***	-.307***	-.293***	.134*	1.00		
AGE	2.72	1.00	.016	-.034	-.022	.016	.006	-.129*	1.00	
EDU	2.06	.93	-.140**	.044	.066	.072	-.121*	-.156**	-.269***	1.00

1) * p<.05. ** p<.01. *** p<.001; two tailed tests.

2) See Table 1-4 for variable abbreviations. The others are: GEN=gender, AGE= age, EDU=levels of education.

FIGURE 2. Path Coefficients for the Structural Equation Model



Predictors	Dependant Variable: Satisfaction		
	SAT1	SAT2	SAT3

	B	Beta	T	B	Beta	T	B	Beta	T
Constant	4.631		44.266***	2.077		8.906***	1.060		2.327*
COR	-.441	-.508	-10.963***	-.186	-.214	-4.630***	.229	.263	1.386
TRA				.551	.548	11.839***	.824	.819	7.171***
COR*TRA							-.232	-.416	-2.591**
F Value		120.192***			154.344***			106.839***	
Adjusted R ²		.256			.469			.478	

*p<.05; **p<.01; ***p<.001; 2-tailed tests.

TABLE 8
The relationship Between the Relevant Variables (N=348)

Paths(Predictors →Dependent Variables)	B	Std. Error	T	Adjusted R²	F Value
TRA→TRU	.725	.033	21.815***	.578	475.882***
TRA→SAT	.667	.040	16.469***	.438	271.224***
COR→TRU	-.587	.057	-10.271***	.231	105.501***
TRU→SAT	.673	.044	15.369***	.404	236.194***

***p<.001; 2-tailed tests.

TABLE 9
Results of the Sobel Test (N=348)

Paths	Test Statistics	Std. Error	P Value
COR→TRU→SAT	-8.543	.046	.000
TRA→TRU→SAT	12.553	.039	.000

TABLE 10
Regression Analysis of Impact of Transparency on Satisfaction,
Controlling for Trust (N=348)

Predictors	Dependant Variables				
	SAT				
	B	Beta	T	Adjusted R ²	F Value
Constant	1.216		8.391 ^{***}		
TRA	.667	.663	16.469 ^{***}	.438	271.224 ^{***}
Constant	.853		5.481 ^{***}		
TRA	.426	.423	7.083 ^{***}		
TRU	.333	.315	5.267 ^{***}	.478	159.964 ^{***}

*** p<.001; 2-tailed tests.

TABLE 11
Regression Analysis of Impact of Corruption on Satisfaction,
Controlling for Trust (N=348)

Predictors	Dependant Variables				
	SAT				
	B	Beta	T	Adjusted R ²	F Value
Constant	4.631		44.266 ^{***}		
COR	-.441	-.508	-10.963 ^{***}	.256	120.192 ^{***}
Constant	2.148		9.040 ^{***}		
COR	-.227	-.261	-5.759 ^{***}		
TRU	.540	.511	11.281 ^{***}	.455	145.661 ^{***}

*** p<.001; 2-tailed tests.