Perceptions and experiences in Madagascar: Where do the gaps come from when measuring corruption, criminal violence, and discrimination

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Abstract. This article examines the indicators of perception and experience, frequently used in surveys to measure corruption, criminal violence, and discrimination. Focusing on Madagascar, we study the correlations between these two types of measurements, which are subject to some debates in the literature as they are not sufficiently understood. The results show that, apart from discrimination, there is little correlation between perceptions and experiences. In addition, we find that media exposure, education, trust, and contact with the administration are factors that significantly influence both experience and perception as measurements. These factors may exhibit a similar influence, showing convergence between the two measures, or opposite influences, dealing a difference between the measured phenomena. These results, mobilizing "Gouvernance, Paix et Sécurité" surveys (GPS-SHaSA), emphasize the relevance to always distinguish between perceptions and experiences when measuring, studying or treating with one of these concepts. For having identified variables that are captured (or not) by those two complementary indicators, this paper should be useful to both governments, practitioners, and researchers, if their aims are to address and better understand those governance phenomena.

Keywords: Governance indicators, perceptions, experiences, correlations, GPS-SHaSA surveys, corruption, crime, discrimination, madagascar, Praia Group

1. Introduction

The Mo Ibrahim Foundation has observed that almost half the goals in the African Union's Agenda 2063 cannot be directly quantified. Less than 20% of the goals include an indicator by which progress can be measured. Finally, only 40% of the United Nations' (UN) Sustainable Development Goals' (SDGs) indicators have sufficient data for rigorous monitoring in Africa [1]. These findings call for an examination of the informative nature of existing data in Africa, which is already making progress concerning governance. Indeed, with regard to the monitoring of SDG 16, Africa is notably a leader in the governance measurement strategy. The African Union's GPS-SHaSA tool is a prime example of this [2].

Two types of indicators are often used in assessing several aspects of governance, peace, and security: individuals' perceptions and, more recently, their self-reported experiences, which are considered a more objective measure and a way of moving from opinions to facts [3]. Nevertheless, there is insufficient understanding of the informative nature of these indicators, the correlations between them and their determinants. Debates on the subject still persist. In the economic literature, an underlying hypothesis is that perception

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would be a proxy for experience, particularly via its capacity to measure the unobservable (from an administrative standpoint) and to give a broader picture of the concept of interest [4]. Another hypothesis, which challenges the first one, argues that perception and experience rather measure two different, even complementary aspects. This last hypothesis is illustrated in particular by their weak correlation or their sometimes divergent effects on the same variable [5–7].

To date, it has not been possible to draw unequivocal conclusions as to the information contained in these two measurements. The hypotheses concerning perceptions (P) and experiences (E)[1] as proxy indicators have yet to be demonstrated with empirical data. This is all the more important as well-known perception indicators, such as Transparency International's Corruption Perceptions Index or the World Bank's Control of Corruption, are still used as a basis for decision-making by many funders, governments, investors, and even some researchers for their analyses.

If we accept the idea that perception and experience indicators measure the same aspects of a concept, then we should expect them to be strongly correlated with one another, and to have determinants in common. Hence, the first goal of this methodological article is to empirically study the linkages between perception and experience. The magnitude and direction of the correlations between them should show whether they can be considered equivalent proxies. In addition, we shall analyse the potential determinants of each indicator separately, in order to identify sources of deviation or convergence between the two measures. The main contribution of this article is that it simultaneously looks at three dimensions of governance, peace, and security – namely, corruption, discrimination, and criminal violence – and examines them all through the lens of these two types of measures (For the other possible measures, see Praia Group and UNSD [8]). For this purpose, we shall draw upon the data from GPS-SHaSA surveys, which offer a rich, nationally and regionally representative sample of 7,166 Malagasy adults surveyed in 2015.

The article is structured as follows: to begin with, we present a brief overview of the context in Madagascar and the literature associated with our subject. We then present the available data, estimations, and key descriptive statistics. Finally, we present and discuss the results, before drawing some conclusions.

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[1] In certain cases below, we shall use the notation P and E to refer to perceptions and experiences, respectively.

2. Literature review

Madagascar is characterised by its recessive economic trend since gaining its independence. Its recent history has been marked by four quasi-cyclical episodes of socio-political crisis, each one ending a brief period of growth. One of the consequences of this trajectory is that the poverty level has risen to 90% at the international threshold, with the informal sector at around 80% [9]. In 2019, its Human Development Index sat at 0.528, and Madagascar scored 24/100 on the Corruption Perceptions Index. 80.5% of the population live in rural areas according to the most recent census [10]. Another particularity of Madagascar, which makes it a relevant choice for this study, is the disconnection observed between the feeling of insecurity expressed by half the population and its low victimisation rate (less than 10%). This finding has led certain researchers to consider the country to exhibit a "taboo of violence" [9]. Finally, Madagascar has a non-negligible level (and history) of discrimination. The two most widespread types (as perceived by its citizens) are based on economic status (31%) and ethnicity (14%).

2.1. Corruption, crime and discrimination: Definition of concepts

This section defines the concepts of corruption, criminal violence, and discrimination. The definitions presented here draw inspiration mainly from the framework proposed by the UN in its recent guide on governance statistics [8].

There is no consensus as to a single definition of corruption, given the multitude of forms it can take (bribery, fraud, embezzlement, etc.). In general, though, it is defined as the abuse of a public or private position for personal gain. Corruption can be characterised by its nature (legislative/political corruption, as opposed to bureaucratic corruption), its extent (grand or petty corruption), and its sector (private or public). Thus, an E variable reflecting bribes paid to civil servants would correspond mainly to administrative corruption and petty corruption in the public sector.

Although there is not a universal consensus as to the definition of criminal violence, we mostly followed criminologists approach. Criminal violence can be defined as individual acts and behaviour, prohibited by criminal law, aimed at inflicting, threatening, or attempting to inflict physical harm on other individuals. The violence of these acts may be the criminal objective in itself, or be the means of achieving criminal ends (e.g.

homicide, assault, rape, robbery, burglary, vandalism, etc.). It is directly linked to the notions of safety and security. The former refers to the absence of threats and risks to individuals, households and, communities. The latter refers to activities, policies and institutions developed and implemented by the government to ensure citizens' safety. In this article, we focus solely on the safety aspect of threats related to criminal violence, as we consider the perception of crime and victimisation.

According to the international law on human rights, discrimination means "any distinction, exclusion, restriction or preference or other differential treatment that is directly or indirectly based on the prohibited grounds of discrimination (e.g. colour, sex, language, religion, national or ethnic origin, disability) which has the purpose or effect of nullifying or impairing the recognition, enjoyment or exercise, on an equal footing, of human rights and fundamental freedoms in the political, economic, social, cultural or any other field of public life". Discrimination may be formal (formalised by explicit laws or official documents) or substantial (resulting from behaviour, attitudes and conditions directed against certain individuals or groups). In addition, it may be direct (an individual is treated less favourably than another in a similar situation) or indirect (laws and policies which appear neutral, but are discriminatory against specific groups in practice). The experience of discrimination can thus be considered a measure of direct and substantial discrimination.

Corruption, criminal violence and discrimination share the properties of being abstract, illegal, clandestine and immoral. It is therefore difficult to observe them objectively without the risk of underestimating them. Today, they are all examined through the lenses of perception and experience, using national and international surveys (See ICVS, WBES, GCB, Afrobarometer, GPS-SHaSA, Latinobarómetro, Eurobarometer, TeO, etc.). These characteristics prove the interest and relevance of studying them simultaneously.

2.2. Perceptions and experiences: Advantages, drawbacks and differences

The measurement of these phenomena by perception and experience has fed into debates as to their uses. This section briefly presents the discussion about the data surrounding perception. It outlines their supposed advantages, disadvantages and offers some suggestions of interest regarding correlation with experience indicators.

Economists are sceptical with regard to some subjective data. This mistrust is linked to the traditional approach of believing only in what people do, not what they say [11]. However, the difficulty in measuring broad concepts that cannot be easily observed has led to the emergence of an underlying theory. When information from objective measurements is deemed to be limited (or unavailable), perceptions are assumed to be better reflections of reality. This is so because perceptions have the ability to measure unobservable phenomena and to give a broader view of the variable of interest [4,11]. The idea is that comparing countries on corruption, crime or discrimination using judicial and/or police records could risk simply comparing the effectiveness of the institutions, rather than the actual levels of the concepts of interest. In addition, administrative data is subject to the risk of selection bias, as it only reflects those individuals in contact with the administration. The production and use of perception indicators in economics have thus been found to be legitimate [4].

However, the increasing use of perceptions has been greeted with significant reservations by certain economists and researchers in other disciplines (such as psychologists and political scientists). The suspicion is that perceptions are influenced by a wide range of factors, such as social desirability, or other cognitive mechanisms such as judgmental heuristics [11,13]. It has also been claimed that they are influenced by ideologies, political beliefs and pre-existing opinions [14,15]. Recent studies have even concluded that individuals are poor judges of the true levels of inequality [16].

In addition, the correlations of perceptions with their objective counterparts are typically low, and in some cases insignificant or even negative [3,5]. The hypothesis holds that if two indicators actually measure the same phenomenon, they should be strongly correlated. Through comparison with rigorous audits, Olken [17] was among the first to demonstrate the limitations of using perceptions alone to measure corruption in Indonesia. However, he also demonstrated their informative value, as did Jahedi and Mendez [12]. The latter suggest that, while they may not be strongly linked, objective and subjective indicators contain additional information. The challenge is therefore also to better understand the origin of these weak correlations.

2.3. Corruption, criminal violence and discrimination: Weak correlations

The literature has revealed inconsistencies in the correlations between the two types of measurements (E and P). This has notably raised to debates over the causes

of these weak correlations. This section offers a literature review on each concept, the goal being to find any common determinants between these correlations.

With regard to corruption, the majority of studies find that numerous variables are more reliable predictors of perceptions than experiences [5,18,19]. These may include socio-demographic characteristics, in particular. Olken [17] found that men and those with a higher level of education reported higher perception of corruption as part of an audit on a road project in Indonesia. In a cross-country study, Donchev and Ujhelyi [19] show that young people, those with a higher level of education and students perceive more widespread corruption for a given experience. Age has been found to have a significant but non-linear effect, with a positive effect turning to a negative effect around the age of 50. Gutmann et al. [3] found the opposite effects to those observed by Donchev and Ujhelyi [19]. The Global Corruption Barometer data shows that men, Protestants, high earners and the unemployed perceive corruption less than others, but the level of education and age do not exhibit a significant effect. In addition, we must consider political factors and factors linked to social connections. Olken [17] observed that having social activities, living in the vicinity of a "corrupt" project and having personal relationships with the project owners were associated with less-perceived corruption of the infrastructure project among villagers. Agerberg [7] argues the existence of political biases in citizens' opinions about corruption in Romania (pro-government vs opposition). He also found that the self-reported experience of corruption was subject to a social desirability bias (under-reporting). In Russia, Rose and Mischler [18] found that the experiences were insignificant, as were age, education, social status, income quartile and contact with civil servants, in the prediction of perception. However, they found that the media and information from other sources than experiences, such as the community and social connections, could explain some of these differences.

The relation between the feeling of insecurity and the experience of criminal violence, even if positive, is generally weak [20]. Theoretical and empirical studies have been conducted to understand the determinants of the feeling of insecurity and the perception of crime (for an overview, see Doran and Burges [21]). There is a clear consensus that poor material conditions (graffiti, housing conditions, rubbish, etc.) and negative opinions about the police are associated with an increase in the feeling of insecurity. In addition, theories of physical and social vulnerability argue that feelings of insecurity are greater among people who are less capable of defending themselves, or who are less able to prevent and recover from crime. It has been proven many times that women, the elderly, those with low incomes, the unemployed and those with little education feel less secure than others [20,21]. Less tested than other theories, the social capital or social network theory emphasises the role of belonging to a community and to social networks in shaping perceptions of crime and feelings of insecurity. Among the few empirical studies on this theory, Barton et al. [22] found, in a spatial analysis, that individuals who are more socially integrated in their community, through trust in others and involvement in the local community, are more associated with a lower sense of insecurity.

When it comes to discrimination, the debate is much the same. It is increasingly recognised that perceptions of discrimination do not necessarily correspond with objective measurements [16,23,24]. However, there is no consensus as to why certain people feel themselves more victim of discrimination than others or are more likely to report discrimination in a survey [24]. Furthermore, compared to corruption and crime, discrimination is the concept in respect of which the relationship between experience and perception has been the least studied empirically. This is likely linked to the ambiguous interpretation of an "experience" of discrimination, which could be more strongly linked to emotion than to reality. Brimbaum et al. [25] seem to argue that the differences observed could also be attributed to the chosen measurement. That said, we could point to a number of determinants presented in the literature, in particular, cognitive and ideological factors.

Kraus et al.'s [26] review of economic racial inequalities in the United States finds that they are greatly underestimated in certain contexts. Among other factors, they found that motivated reasoning plays a part. Motivated reasoning can lead an individual to focus only on information that confirms their beliefs and ideals. Thus, rich and white Americans would be more motivated to perceive society as being fair and equitable than other groups. In accounting for their own social status, they would lean more heavily on the idea of individual merit, and play down the role of racial or class discrimination persisting in society. Flynn et al. [15] identify political party membership, education, the role of the media, and the elites as sources of motivated reasoning. Gründler and Köllner [27], as well as Gimpelson and Treisman [16], also found that governmental redistribution policies were more influenced by the perception of inequality than by the reality of inequality.

They point to the critical role of information channels, such as the media and the community, and the role of political preferences.

In addition to simultaneously analysing the three concepts, our article is set apart by its approach. The objective is to analyse perception and experience on the same scale. Qu et al. [28] also based their work on a similar principle. They chose to study the standard errors of corruption perception indices (CPI-TI and CoC-WB), rather than compare them to other proxies, whose distance from reality they find dangerous to rank hierarchically. Perceptions will therefore not be analysed through the lens of biases, as has often been the case. We hypothesise that if perceptions and experiences measure the same object, then we should expect them to be correlated and share common determinants.

3. Data: The GPS-SHaSA initiative

We are using the first-hand data drawn from the "*Gouvernance, Paix et Sécurité*" surveys (Governance, Peace and Security, or GPS-SHaSA). These modules were developed by the African Union Commission for the SHaSA initiative (*Stratégie pour l'Harmonisation des Statistiques en Afrique* – Strategy for the Harmonisation of Statistics in Africa). The surveys were conducted by the national statistical offices (NSO) with the academic assistance of researchers from the IRD's joint research unit *Développement, Institutions et Mondialisation* (DIAL – Development, Institutions and Globalisation).

These modules report citizens' perceptions and experiences of various aspects of the country's governance, peace and security. They are combined with surveys on the labour market and household living conditions. The methodology of these grafted surveys is based on previous experiences from Africa and Latin America, with Madagascar being the first initiator. In 2018, the surveys had already been carried out in over nine countries in Sub-Saharan Africa since 2012. Today, this number rose significantly across Africa (Razafindrakoto and Roubaud) [29]. They are representative both at a national and regional level. The diversity of individual and household characteristics allows for an in-depth analysis of the responses. Surveys on these subjects, except for corruption, are relatively rare in Africa. Indeed, most existing studies/surveys about crime and discrimination hinge primarily on western or Latin American countries. In this sense, the data we have is a valuable contribution to the empirical literature.

As to the quality of the data, Calvo et al. [30] found no bias linked to fear of the government. The authors compared the responses to GPS-SHaSA (NSO) with those of Afrobarometer (independent) on a set of similarly worded sensitive questions. They found no systematic positive bias in the GPS-SHaSA surveys, which belies the hypothesis of a desirability bias linked to the government. Therefore, the data may be considered reliable from this point of view.

In Madagascar, these modules were added onto phase 1 of the 1-2-3 surveys in 2015 (P1-E123). They provide a wide range of information on the living conditions of households and their formal and informal labour market situations. Thus, the survey opens up numerous avenues for investigation. The sample comprises 7,166 individuals over the age of 18. In 2015, a significant majority of the adult population of Madagascar lived in rural areas, and 51% were women (see Table 4 in the appendix). Over 66% of individuals were under 45 years of age, and the average household size was around five people. 20% had never been to school and only 3% had attended tertiary education. Finally, 90% were actively occupied, with 82% in the informal sector.

4. Descriptive statistics: Profiles and correlations of perceptions and experiences

The first objective of this paper is to confirm or not the trends observed in the literature on the correlations between perception and experience. For this purpose, we have constructed binary variables based on the following questions:

Corruption among civil servants

– E: "Have you (or other members of your household) ever been victim of civil servants' corruption over the past year?" (0 = No; 1 = Yes). The E of corruption of civil servants only relates to those who have already had contact with the administration (4877).

– P: "To what extent are the following groups [here, Civil servants (in general)] are involved in corruption?" (0 = None or Few; 1 = All or Often)

Criminal violence

– E: "Over the past 12 months, did the following happen to you? [...]"[2] (0 = None; 1 = At least one)

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[2]a) Someone got into your residence without permission and stole or tried to steal something; b) Someone deliberately destroyed or damaged your home, shop or any other property that you or your

Proportions of "Deviant" and "Complier" profiles (Compliers = individuals whose P and E have the same value; Deviant = when P and E have different values)

	E = 0	E = 1	Total
Corruption*			
P = 0	34.4%	3.5%	37.9%
P = 1	54.5%	7.6%	62.1%
Total	88.9%	11.1%	100% (4877)
Criminal violence			
P = 0	55.7%	4.2%	59.9%
P = 1	35.4%	4.7%	40.1%
Total	91.1%	8.9%	100% (7165)
Discrimination			
P = 0	51.7%	0.5%	52.2%
P = 1	32.4%	15.4%	47.8%
Total	84.1%	15.9%	100% (7166)

Sources: Authors' calculations. GPS-SHaSA, INSTAT, Dial-IRD. Notes: *For corruption, we only considered people who have had contact with the administration over the past 12 months. E.g.: E = 0 (or P = 0) means that the individual who has been in contact with the administration over the past 12 months has not experienced corruption (or do not perceive institutions as corrupted).

– P: "In your view, how likely is it that you may be a victim of some crime?" (0 = Not at all or Not very concerned; 1 = Highly or Rather concerned)

Discrimination

– E:"People are sometimes discriminated against on various grounds. In your country, have you ever been victim of discrimination due to your [. . .]?"[3] (0 = No; 1 = Yes)

– P: "People are sometimes discriminated against on various grounds. In your country, do you think there is discrimination related to . . . [same as above]?" (0 = No; 1 = Yes)

Table 1 shows the proportions associated with the perceptions and experiences for each concept. In addition, it specifies the positions of the "compliers" and "deviants". The term "compliers" refers to profiles where perceptions and experiences coincide. These are individuals who do not perceive a situation, and do not experience it, or those who perceive it and also experience it. "Deviant" profiles are those who perceive without experiencing, or who have an experience but do not perceive the situation.

The differences between them are noteworthy. Indeed, of those who had already had contact with the ad-

ministration, 62.1% of individuals believe that civil servants are corrupt, though only 11.1% report having an experience of corruption with them. In addition, 40.1% declare that they will likely be the victims of criminal violence within the next 12 months, while 8.9% have experienced criminal violence in the past year. Finally, with a smaller difference, 47.8% believe that discrimination exists in the country while 15.9% have experienced it themselves. As shown in the literature, perceptions do not significantly reflect experiences. We can see that out of the three concepts, corruption is the major problem, if we rank them on the basis of the level of perception of the phenomenon. If we do the same on the basis of experiences, however, it is discrimination that appears to be the most worrying problem. These figures are a further reminder of the sensitivity of the rankings to the indicators chosen.

The analysis of "deviants" and "compliers" gives further details of the finding. Indeed, the "P without E" "deviant" profile is the most common in the case of corruption (54.5%). It is less common for criminal violence and discrimination, though still by no means insignificant (35.4% and 34.4%). As to discrimination, it should be noted that the "P with E" "complier" profile is the most common out of all three concepts. Indeed, 15.9% of Malagasy have been victims of discrimination, and 15.4% have experienced it and recognise that it exists in the country. This profile accounts for 96.9% of experiences of discrimination, more than half of experiences of criminal violence (4.7/8.9) and more than two-thirds of experiences of corruption (7.6/11.1). This would suggest that an experience of discrimination is better reflected in perception than is the case for other concepts. This could also be linked to the nature of discrimination, which is more difficult to detect, even for the victim. The experience of discrimination may be more subjective than the experience of corruption and crime, justifying its stronger link to the perception and importance of "complier" profiles. These possibilities merit further investigation.

The correlation matrix (Table 2) confirms and supplements the analysis. It shows significant correlations between expectations and perceptions (at 0.1%). This supports the hypothesis that the two indicators share common information. However, whilst they are significant, the correlation coefficients are weak, and sometimes even close to zero (0.05 for corruption and 0.08 for crime). These weak links suggest that experiences and perceptions capture mostly different aspects, especially for corruption and crime. The discrimination variables confirm the analysis in Table 1 by showing

household owns; c) Someone robbed you outside of your home; d) You have been the victim of an assault (hitting, slapping, shoving, punching etc.); e) You have been victim of sexual harassment (rape, attempted rape or other forms of harassment).

[3]Ethnicity; Region; Religion; Financial situation (poverty); Gender; Disability; Sexual orientation.

Table 2
Correlation matrix: Perceptions and experiences of corruption, crime and discrimination

	E_Corr corruption	E_Disc discrimination	E_Crim crime	P_Corr corruption	P_Discr discrimination	P_Crim crime
E_Corr	1.00					
E_Disc	0.10***	1.00				
E_Crim	0.13***	0.11***	1.00			
P_Corr	0.05***	0.06***	0.05***	1.00		
P_Discr	0.08***	0.43***	0.08***	0.16***	1.00	
P_Crim	0.09***	0.04**	0.08***	0.05***	0.02	1.00

$^*p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$. Sources: Authors' calculations. GPS-SHaSA, INSTAT, Dial-IRD. Notes: Pearson pairwise correlations. E = Experience; P = Perception.

a much higher correlation (0.43), although there is a difference.

A final interesting trend is that the three concepts (experienced and perceived) are also significantly correlated with each other, albeit at low levels.

5. Methodology

We showed earlier that the perceptions and experiences of the phenomena are significantly linked, albeit at a low level (except for discrimination). The second objective of this paper is to identify the sources of heterogeneity or convergence between the two indicators.

In terms of our approach, we shall not use the same, familiar model of P over E, as has often been used, particularly for corruption [3,19]. We believe it is more interesting, for the methodological aim of this study, to separately identify the predictive variables for each proxy so as to determine what information they have in common.

Our method involves two logistic regressions per phenomenon studied (see Eqs (1) and (2)), making a total of six regressions. For an individual i, in the region j, we estimate the effect associated with each predictive variable $X_{i,j}$ on the likelihood of perception $Perc_{c,i,i}$ or experience $Exp_{c,i,i}$ of the phenomenon c. Thus, it is an analysis in terms of correlations, but we make no inference about causal relations. Indeed, our interest focuses on the association of the variables with the variation of the proxies.

$$Perc_{c,i,j} = \alpha + \gamma * X_{i,j} + \mu_j + \varepsilon_{c,i,j} \tag{1}$$

$$Exp_{c,i,j} = \alpha + \gamma * X_{i,j} + \mu_j + \varepsilon_{c,i,j} \tag{2}$$

The predictive variables $X_{i,j}$ were chosen on the basis of the literature reviewed above. The socio-economic-demographic characteristics were put forward as potential factors behind the heterogeneity of perception and experience [15,21,31]. Thus, we include: the fact of being a woman (binary), living in a rural

area (binary), age (categorical), education (categorical), religion (categorical), income (quartiles), marital status (categorical), household characteristics (household size [semi-continuous]) and relationship with the head of the household (categorical).

We also added more specific characteristics, which we have identified in the existing body of literature. We shall pay particular attention to some of these. We have added: membership in at least one association (binary variable equals to 1 if the individual is a member or leader of at least one of the following types of association: local/neighbourhood, religious, professional, family, tontine, political party, other.); media exposure (binary variable equals to 1 if the individual has a television with at least one active channel a mobile phone or a computer with internet connection.); belonging to the public sector (binary); contact with the administration (binary); and trust in the administration (binary). In order to control for unobservable regional characteristics, we also apply regional fixed effects μ_j. All estimates are robust, with clusters at the enumeration area level.

6. Results

The results of the six regressions are shown in Table 3 in the appendix. We have estimated the P (Perc_) and E (Exp_) for each concept in the following order: (1) (2) corruption; (3) (4) criminal violence; (5) (6) discrimination.

Several characteristics emerged as significant predictors of both divergence and convergence between perceptions and experiences. We will first analyse the variables of interest that we considered to be the main ones, namely trust in and contact with the administration, media exposure and education. We shall then briefly look at other sources of heterogeneity.

6.1. Trust in the administration

Having trust in the administration is negatively as-

Table 3
Deviations and common predictors of perceptions and experiences (coefficients in odds ratio)

Variables	(1) Per_Corr	(2) Exp_Corr	(3) Per_Crim	(4) Exp_Crim	(5) Per_Discr	(6) Exp_Discr
Trust in the administration	0.288***	0.607**	0.427***	0.818	0.544***	0.563***
	(0.0438)	(0.119)	(0.0534)	(0.139)	(0.0748)	(0.0687)
Media exposure	1.210	1.289	1.358**	1.142	1.410***	1.118
	(0.171)	(0.256)	(0.200)	(0.217)	(0.186)	(0.169)
Contact with the administration	1.070		1.647***	1.498***	1.400**	1.534***
	(0.130)		(0.191)	(0.233)	(0.196)	(0.198)
Association membership	0.727***	1.659***	1.142	1.269*	1.157	1.206**
	(0.0795)	(0.242)	(0.139)	(0.183)	(0.117)	(0.107)
Public sector	1.191	1.971**	0.846	1.429	0.984	1.324
	(0.302)	(0.673)	(0.182)	(0.526)	(0.183)	(0.319)
Female	0.799	1.232	0.966	0.812	0.883	0.867
	(0.113)	(0.300)	(0.127)	(0.167)	(0.157)	(0.191)
Rural	0.668**	1.263	1.281	0.930	0.834	0.803
	(0.107)	(0.268)	(0.272)	(0.195)	(0.116)	(0.128)
Age [Ref: 18–24 years old]						
25–44	0.946	1.191	0.940	1.052	0.839	1.162
	(0.131)	(0.240)	(0.125)	(0.204)	(0.108)	(0.210)
45–59	0.883	1.101	0.886	1.009	0.783*	1.224
	(0.173)	(0.286)	(0.143)	(0.237)	(0.110)	(0.239)
60 or over	0.837	0.994	0.873	0.776	0.724*	0.735
	(0.158)	(0.270)	(0.163)	(0.188)	(0.131)	(0.187)
Education [Ref: No schooling]						
Primary	1.136	0.846	0.803*	0.964	1.098	0.964
	(0.136)	(0.172)	(0.0939)	(0.197)	(0.131)	(0.128)
Secondary	1.331*	0.774	0.767**	0.845	1.377**	1.162
	(0.199)	(0.190)	(0.102)	(0.197)	(0.192)	(0.191)
Tertiary	1.247	0.496**	0.412***	0.925	1.793**	0.507*
	(0.479)	(0.175)	(0.103)	(0.354)	(0.418)	(0.199)
Marital status [Ref: Married]						
De facto union	0.714	0.472**	2.816***	0.310**	0.363***	0.632**
	(0.190)	(0.177)	(0.755)	(0.142)	(0.0861)	(0.133)
Single	0.516***	0.215***	0.934	0.867	1.287	1.196
	(0.132)	(0.0713)	(0.206)	(0.297)	(0.298)	(0.372)
Divorced	0.971	0.661	0.864	0.807	0.953	1.083
	(0.190)	(0.219)	(0.149)	(0.230)	(0.201)	(0.256)
Widow(er)	1.131	0.913	1.004	0.723	1.325	2.315***
	(0.185)	(0.353)	(0.182)	(0.203)	(0.249)	(0.600)
Income quartile [Ref: Quartile 1]						
Quartile 2	1.295*	0.962	1.203	1.193	0.792**	0.824
	(0.175)	(0.217)	(0.143)	(0.214)	(0.0935)	(0.130)
Quartile 3	0.967	0.963	1.222*	1.374	0.821	0.809
	(0.129)	(0.214)	(0.145)	(0.265)	(0.113)	(0.152)
Quartile 4	1.143	1.277	0.911	0.862	0.810	0.754
	(0.167)	(0.304)	(0.127)	(0.184)	(0.128)	(0.136)
Size of household	1.013	0.910**	1.010	1.009	0.983	0.974
	(0.0238)	(0.0404)	(0.0262)	(0.0355)	(0.0226)	(0.0304)
Relation with HoH [Ref: Head of household]						
HoH's spouse	1.189	0.562**	1.015	1.020	1.089	1.178
	(0.189)	(0.162)	(0.135)	(0.234)	(0.205)	(0.276)
HoH's child	1.230	3.291***	0.897	1.524	0.925	1.267
	(0.229)	(1.127)	(0.215)	(0.487)	(0.199)	(0.283)
HoH's parent	0.846	1.274	0.907	1.101	0.483*	0.684
	(0.300)	(0.977)	(0.348)	(0.816)	(0.206)	(0.434)
Other family relation to HoH	1.821	2.757**	1.507*	0.741	0.726	0.961
	(0.723)	(1.329)	(0.370)	(0.326)	(0.244)	(0.375)
No blood relation to HoH	1.106	0.525	0.770	1.094	1.161	1.714
	(0.443)	(0.597)	(0.384)	(0.691)	(0.704)	(0.933)

Table 3, continued

Variables	(1) Per_Corr	(2) Exp_Corr	(3) Per_Crim	(4) Exp_Crim	(5) Per_Discr	(6) Exp_Discr
Religion [Ref: Protestant]						
Catholic	0.995	0.753	0.917	0.769*	1.098	1.021
	(0.129)	(0.135)	(0.0924)	(0.110)	(0.121)	(0.128)
Muslim	1.176	0.747	1.168	0.430	1.455	1.054
	(0.543)	(0.455)	(0.387)	(0.314)	(0.374)	(0.275)
Traditional beliefs	1.034	0.450**	1.119	0.731	0.877	0.892
	(0.161)	(0.151)	(0.195)	(0.274)	(0.147)	(0.217)
Other religion	0.758	0.566*	0.914	0.449***	1.291	1.476**
	(0.128)	(0.192)	(0.220)	(0.138)	(0.237)	(0.233)
Constant	4.942***	0.237***	0.560*	0.117***	2.659***	0.222***
	(1.853)	(0.116)	(0.195)	(0.0522)	(0.834)	(0.0888)
Region fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7,161	4,874	7,161	7,160	7,161	7,161
Prob > F	0	0	0	0	0	0
Pseudo R2	0.151	0.111	0.124	0.0925	0.209	0.108

Robust standard errors in parentheses. $***p < 0.01$, $**p < 0.05$, $*p < 0.1$. Sources: Calculations by the authors; GPS-SHaSA, INSTAT, Dial-IRD. Notes: This table displays logistic regressions where the dependent variables are the perception (columns 1, 3 and 5) or the experience (columns 2, 4 and 6) of the concept of interest (Corr = Corruption; Crim = Crime; Discr = Discrimination). The coefficients are presented in Odds Ratio.

sociated, *ceteris paribus*, with all indicators of corruption, criminal violence and discrimination, with a significance of 1% (not significant for the experience of criminal violence). Corruption, however it is measured and in accordance with the literature, is thus associated with a lower level of trust in the institutions. When we delve deeper, we observe that this negative association seems greater with perception (odds ratio 0.285) than with experience (odds ratio 0.593). These findings are in line with those of Lavallée, Razafindrakoto and Roubaud [32] and Morris and Klesner [33]. They recognise that experienced and (especially) perceived corruption can deteriorate the integrity of the government as seen by its citizens (trust), which itself could create the conditions for corrupt behaviour.

For criminal violence, this negative relation with trust is also observed (odds ratio 0.431), but is only significant with perception. There are two possible interpretations of this fact. Firstly, low levels of trust in the institutions' integrity and capacity to safeguard public security can lead to a feeling of insecurity. Indeed, this may result in a higher perceived risk of falling victim to crime, if we believe that these institutions do not present a strong enough disincentive to the emergence of crime and delinquency. The Broken Windows Theory, describing the effect of the environment (including the institutional environment) on the feeling of insecurity, is in line with this thinking [21]. On the other hand, we can also see how the feeling of insecurity could create the impression of the absence or ineffectiveness of the institutions in charge of public security, resulting in

a low level of trust in those institutions. Trust, which is not significantly linked with the experience of criminal violence, thus partly explains the difference between the two types of measurements.

Discrimination seems to stand out in the scope of the links. All other things being equal, the chances of believing that discrimination exists in the country (or reporting having been a victim of discrimination), in comparison to those who do not believe it to be present in the country (or claim not to have been discriminated against), are 0.54 (0.56) times lower for those individuals who do trust the administration than for those who do not. Perceiving or experiencing discrimination in the country could therefore be reflected by a loss of trust in the institutions. The reason likely lies in their perceived inability to prevent, eradicate, or (willingness to) pass judgment on the occurrence of discrimination. On the other hand, we could also imagine that citizens' pre-existing distrust in the institutions' integrity could lead them to judge the institutions more harshly. Their inability to curtail discrimination could thus encourage citizens to declare more discrimination in their survey responses. The coefficients are practically identical for perception and experience (respectively 0.54 and 0.56), compared to corruption and criminal violence. This could confirm that experienced discrimination is much better reflected in perception (see Table 4 in the appendix), and thus the associated effects of the two variables on trust would necessarily be similar. Alternatively, it could reflect our previous remark as to the subjective aspect of the experience of discrimina-

Table 4
Individual characteristics

Variable	Average	Standard deviation
Women (%)	0.51	0.50
Rural (%)	0.75	0.43
Age group (%)		
18–24	0.21	0.41
25–44	0.45	0.50
45–59	0.22	0.41
60+	0.12	0.32
Level of education (%)		
No education	0.20	0.40
Primary	0.49	0.50
Secondary	0.28	0.45
University	0.04	0.18
Contact with the administration in general	0.68	0.47
Trust in the administration in general	0.59	0.49
Earnings (Ariary)	80.44	161.22
Sector (%)		
Public sector	0.03	0.16
Formal private sector	0.04	0.20
Informal private sector	0.82	0.38
Domestic (e.g. housekeeper)	0.003	0.06
Unemployed or inactive	0.10	0.31
Participation in associations and social groups	0.51	0.50
Marital status (%)		
Married	0.62	0.49
De facto union	0.04	0.20
Single	0.18	0.39
Divorced	0.09	0.28
Widowed	0.07	0.25
Size of household (no. of people)	4.82	2.23
Blood relation (%)		
Head of household	0.46	0.50
HoH's spouse	0.32	0.47
HoH's son/daughter	0.16	0.37
HoH's parents	0.01	0.08
Other family relation to HoH	0.05	0.23
No family relation to HoH	0.002	0.04
Household helpers	0.002	0.05
Religion (%)		
FJKM (protestant)	0.23	0.42
FLM (Lutheran)	0.12	0.33
Anglican	0.01	0.10
Adventist	0.01	0.11
Other protestant	0.05	0.22
Catholic	0.33	0.47
Muslim	0.01	0.12
Traditional religion	0.16	0.37
Other religions	0.07	0.25
Media exposure (%)	0.38	0.48

Sources: Calculations by the authors. GPS-SHaSA, INSTAT, Dial-IRD.

tion. Indeed, the coefficients could be similar because the measurements are. This would be worth discussing and would contribute to the reflection of Brimbaum et al. [25].

In summary, the conclusion at this stage is that trust is a common predictor of the two measurements of discrimination. Such is also the case (to a lesser extent) with corruption. However, for criminal violence, it is a factor of heterogeneity.

6.2. Contact with the administration

Contact does not explain the perception of corruption. This effectively means that it is not necessary to interact with the administration to think it is corrupt, or that the perception of the administration's corruption does not influence contact with the administration. We believe it to be a reflection of the weak correlation with the experience of corruption, of which contact is an intrinsic component. Thus, this variable is a confirmed factor (and an obvious one) of divergence with experience, which is in line with the findings of Kaufmann et al. [4].

At 1% significance, *ceteris paribus*, contact with the administration is associated with the fact of: perceiving a higher probability of falling victim to crime within the next 12 months (1.649); having already been a victim of criminal violence (1.505); reporting the existence of discrimination (1.394); and reporting having been a victim of discrimination (1.544). The proximity and direction of the coefficients show that it is a common variable for the two indicators of each concept. Causal relations may be interpreted in both ways.

On the one hand, individuals who have been victims of crime could be more likely to make contact with the administration (the police or the judiciary), notably to report their experiences. The positive effect of contact on the experience of crime might also come from the fact that law enforcement, by tracking crime, could be more present in crime-prone areas. In addition, an individual who does not feel secure would be more likely to interact with the administration to ensure their own safety. It is also possible that an individual who has been in contact with the administration (e.g. the police) and has not been satisfied would consider the system less reliable and less competent to ensure their safety.

The positive relationship between discrimination (both perceived and experienced) and contact, in our view, reflects the presence of discrimination in the institutions in Madagascar. An individual who has witnessed (or been victim to) discrimination during contact with the administration would thus be more likely to report that the problem exists (effect of contact on perception or experience). The opposite interpretation would be that an individual having been a victim of or witness to discrimination would go to the administration to report the culprit. On this last possibility we are skeptical re-

garding the very little contact with the judiciary (3.3%) and the police (5.8%) according to our data.).

Ultimately, therefore, contact is a factor in the divergence of perceptions and experiences of corruption. But it is common to the perceptions and experiences of violence and discrimination, whose signs coincide.

6.3. Media exposure

Media exposure is associated neither with perceived nor with experienced corruption. From this point of view, our finding differs from that of Rose and Mischler [18], in Russia, who found a positive effect of the "Learn from media" variable on the perception and experience of corruption. The information sources which feed perceptions are probably different in Madagascar (word-of-mouth, other people's experiences, rumours, etc.).

In contrast, all other things being equal, an individual who is exposed to the media is significantly more likely to think they will fall victim to crime within the next 12 months, with a probability ratio of 1.363. They are also more likely to report the existence of discrimination in the country (odds ratio 1.416). This reflects the role of information obtained by means other than by personal experience in the formation of perceptions (in this case, through the media). The media variable, though, is not linked to any variable of personal experience. Notably, this confirms the literature and the theories about the role of indirect experience or the role of the media in shaping political opinions [15,21]).

The fact that the experience of discrimination is not related to media exposure tells us that the two measurements of discrimination ultimately have some differences in the dimensions they reflect, despite their strong correlations. Here, then, media exposure is a factor of divergence for perceptions and experiences of crime and discrimination.

6.4. Other sources of heterogeneity: Education and other sociodemographic variables

Another set of characteristics – most of them sociodemographic – also account for the potential differences. We shall briefly touch on them in this subsection.

We observe that education is differently associated with perception and experience. It is associated with a greater perception of corruption (odds ratio of 1.353 for secondary education), as well as a greater perception of discrimination (odds ratios of 1.365 and 1.763 for secondary and tertiary education). However, having reached tertiary education is associated with a lower likelihood of experiencing corruption (odds ratio 0.488) and discrimination (0.520, but low significance). As for corruption, its negative relationship with education, often found in literature, has been confirmed, but only with experience and not perception. This is also true for discrimination. Furthermore, having reached a higher level of education reduces the perceived probability of being a victim of criminal violence in the next 12 months (odds ratio 0.412). There are numerous possible interpretations. Another example is that, by developing a capacity for rational and critical analysis, education would lead to more refined perceptions and less tolerance of immoral behaviour. It would drive people to report corruption and discrimination and to have a more moderate opinion as to the likelihood of falling victim to a crime. Whatever the interpretation to draw is, it can already be established that education is a strong factor in the heterogeneity between perception and experience.

Finally, we find that marital status also has an effect, particularly when in a de facto union. This status has opposite effects associated with the experience (−) and perception (+) of criminal violence; similar to those of discrimination (−); and only explains the experience of corruption (−). Association membership has divergent effects on experience (+) and perception (−) of corruption, and only on experience of crime (+) and discrimination (+). Working in the public sector is associated (+) with the experience of corruption. Finally, rural dwellers are less likely to find the administration corrupt.

7. Limitations and prospects

In this section, we outline some of the limitations to our study and possible expansions of our approach. Though it is encouraging in terms of understanding the differences between perception and experience, this study focuses on a single country. However, Abramo [5] argues that there are country-specific factors, which notably play a role in shaping perceptions. Thus, our intention is to expand this analysis to other countries in sub-Saharan Africa in order to test the external validity of our results. In addition, in order to refine the understanding of these differences, we also intend to analyse the determinants of the "complier" and "deviant" profiles for each concept. It would also be interesting to see the extent to which the identified variables interact with one another.

Reverse causality between the dependent variables and the variables of interest is highly probable, as

demonstrated by the multiple interpretations of each result. However, as outlined, the purpose of this study is only to examine the correlations, in that our goal was to identify the variables with which the two indicators are linked. Also, with respect to any errors in measurement, the choice of variables of E as an objective counterpart may be subject to debate. They could be suspected of being influenced by social desirability bias, as demonstrated by Agerberg [7]. However, our response to that criticism is that there are few alternative measurements for these phenomena, and that originally, the semi-objective experience data was used to compensate for this lack of reliable factual indicators [3]. In addition, Calvo et al. [30] show that the answers from GPS-SHaSA surveys (State-run) were not necessarily more positive than the responses from Afrobarometer surveys (independent). Thus, these authors rule out the idea of biases linked to fear of the government. However, with regard to the experience of administrative corruption, it is possible that our measurement only reflects petty corruption and that the origin of the differences could also lie there. Perception may reflect grand corruption better than experience.

Finally, with respect to any bias stemming from omitted variables, it would be interesting to be able to control for unobserved individual characteristics, such as the individual's personality. Indeed, each individual may have a different way of forming a judgement or perceiving a risk. However, such a variable is, once again, difficult to obtain in the context of this study. Future studies could, notably, look at integrating personality into their models, along with a temporal aspect to test the persistence of these findings over time.

8. Conclusion

This methodological article has confirmed the weak correlations between perceptions (P) and experiences (E) of corruption, criminal violence and, to a lesser extent, discrimination (correlation coefficients: respectively 0.05; 0.08; and 0.43). Similarly, it has revealed variables that could potentially explain the origins of these differences. We have also shown that these measurements share certain points of information. This means, therefore, that the indicators are both valid and complementary. Indeed, we find that variables are either oppositely associated with perceptions and experiences, or similarly associated, or not associated with one or either indicators. We analysed contact with and trust in the administration, media exposure and educa-

tion. Trust is a common predictor of both measures of discrimination (negative relationship). This is also the case for corruption, with a stronger negative relationship with perception. However, for criminal violence, trust in the administration is a factor of heterogeneity between the two proxies (significantly negative with perception only). Contact with the administration is a factor leading to a divergence between these measurements of corruption (not significant with perception). However, contact is common to the perceptions and experiences of violence and discrimination, whose positive signs coincide. Media exposure is only positively related to perception of crime and discrimination. Like education, whose effects associated with the proxies are divergent, media exposure appears to be a robust factor accounting for the differences observed.

Our results thus lead to several recommendations. The first is to always distinguish between perception and experience when studying the concepts under examination. Indeed, we have seen that these indicators are not always associated with the same variables. This means that the phenomena that they capture are partly different, and certainly complement one another. This recommendation also serves as a warning to the various actors (governments, funders, researchers, etc.) who focus only on perception indicators (or only experience indicators) when making their decisions, producing rankings or writing articles. Thus, any study using perception as a proxy for corruption, crime or discrimination (or any other concept) should be presented as an analysis of perceptions (the same goes for experience). This article is also an invitation to take into account the variables identified in the design of the questionnaires and in the analysis of citizens' opinions and experiences. The trends observed here merit further and more in-depth examinations. For example, the strong correlations between perceived and experienced discrimination call for a discussion on its measurement and its particularity compared to other concepts. Finally, other contributing factors (some of them surprising) have also emerged, such as marital status or association membership, among others. We believe that they could be the subject of further investigations into their role in shaping opinions.

References

[1] Mo Ibrahim Foundation. African Governance Report. Agendas 2063 & 2030: Is Africa on track? Mo Ibrahim Foundation; 2019; 96.

[2] Cling JP, Razafindrakoto M, Roubaud F. L'ODD16 sur la gouvernance et sa mesure. L'Afrique en tête. Afrique Contemporaine. 2016; 258(2): 73–93.

[3] Gutmann J, Padovano F, Voigt S. Perception vs. experience: Explaining differences in corruption measures using microdata. European Journal of Political Economy. 2020 Dec 1; 65: 101925.

[4] Kaufmann D, Kraay A, Mastruzzi M. Measuring Governance Using Cross-Country Perceptions Data [Internet]. International Handbook on the Economics of Corruption. Edward Elgar Publishing; 2006 [cited 2023 Jan 15]. Available from: https://www.elgaronline.com/display/1845422422.00008.xml.

[5] Abramo CW. How Much Do Perceptions of Corruption Really Tell Us? [Internet]. Rochester, NY: Social Science Research Network; 2008 [cited 2020 Jun 9]. Report No.: ID 1726825. Available from: https://papers.ssrn.com/abstract=1726825.

[6] Ambrey CL, Fleming CM, Manning M. Perception or reality, what matters most when it comes to crime in your neighbourhood? Soc Indic Res. 2014 Nov 1; 119(2): 877–96.

[7] Agerberg M. Corrupted Estimates? Response Bias in Citizen Surveys on Corruption. Polit Behav [Internet]. 2020 Jul 6 [cited 2020 Aug 4]; Available from: doi: 10.1007/s11109-020-09630-5.

[8] UNSD, Praia Group. Handbook on Governance Statistics [Internet]. UNSD: New York; 2020. 272 p. Available from: https://www.ohchr.org/sites/default/files/Documents/Issues/HRIndicators/handbook_governance_statistics.pdf.

[9] Razafindrakoto M, Roubaud F, Wachsberger JM. Puzzle and Paradox: A Political Economy of Madagascar. Cambridge University Press; 2020. 303 p.

[10] INSTAT. Troisième recensement général de la population et de l'habitation-RGPH-3. [Internet]. Antananarivo, Madagascar: Institut National de la Statistique Madagascar (INSTAT); 2020; 192. Available from: https://www.instat.mg/p/resultats-definitifs-du-rgph-3-2018-troisieme-recensement-general-de-la-population-et-de-lhabitation.

[11] Bertrand M, Mullainathan S. Do people mean what they say? Implications for Subjective Survey Data. 2001; 91(2): 6.

[12] Jahedi S, Méndez F. On the advantages and disadvantages of subjective measures. Journal of Economic Behavior & Organization. 2014 Feb 1; 98: 97–114.

[13] Kahneman D. Thinking, fast and slow. New York, NY, US: Farrar, Straus and Giroux; 2011. 499 p. (Thinking, fast and slow.).

[14] Razafindrakoto M, Roubaud F. Are international databases on

corruption reliable? A comparison of expert opinion surveys and household surveys in sub-saharan africa. World Development. 2010 Aug 1; 38(8): 1057–69.

[15] Flynn DJ, Nyhan B, Reifler J. The nature and origins of misperceptions: Understanding false and unsupported beliefs about politics. Political Psychology. 2017; 38(S1): 127–50.

[16] Gimpelson V, Treisman D. Misperceiving inequality. Economics & Politics. 2018 Mar 1; 30(1): 27–54.

[17] Olken BA. Corruption perceptions vs. corruption reality. Journal of Public Economics. 2009 Aug 1; 93(7): 950–64.

[18] Rose R, Mishler W. Experience versus perception of corruption: Russia as a test case. Global Crime. 2010 Apr 28; 11(2): 145–63.

[19] Donchev D, Ujhelyi G. What do corruption indices measure? Economics & Politics. 2014 Jul 1; 26(2): 309–31.

[20] Perdomo V, J C. Determinant Factors in the Perception of Crime-Related Insecurity in Mexico [Internet]. Inter-American Development Bank; 2013 Mar [cited 2020 Jun 9]. (IDB Publications (Working Papers)). Report No.: 4237. Available from: https://ideas.repec.org/p/idb/brikps/4237.html.

[21] Doran BJ, Burgess MB. Putting Fear of Crime on the Map: Investigating Perceptions of Crime Using Geographic Information Systems [Internet]. New York: Springer-Verlag; 2012 [cited 2020 Jun 9]. (Springer Series on Evidence-Based Crime Policy). Available from: https://www.springer.com/gp/book/9781441956460.

[22] Barton MS, Weil F, Jackson M, Hickey DA. An investigation of the influence of the spatial distribution of neighborhood violent crime on fear of crime. Crime & Delinquency. 2017 Dec 1; 63(13): 1757–76.

[23] Duncan A, Mavisakalyan A, Tarverdi Y. Self-assessed vs. statistical evidence of racial discrimination: The case of indigenous Australians. Applied Economics. 2019 Mar 9; 51(12): 1232–47.

[24] Auer D, Ruedin D. Who Feels Disadvantaged? Reporting Discrimination in Surveys. In: Steiner I, Wanner P, editors. Migrants and Expats: The Swiss Migration and Mobility Nexus [Internet]. Cham: Springer International Publishing; 2019 [cited 2020 May 22]. pp. 221–42. (IMISCOE Research Series). Available from: doi: 10.1007/978-3-030-05671-1_9.

[25] Brinbaum Y, Safi M, Simon P. Discrimination in France: Between Perception and Experience. In: Beauchemin C, Hamel C, Simon P, editors. Trajectories and Origins: Survey on the Diversity of the French Population [Internet]. Cham: Springer International Publishing; 2018 [cited 2020 Jun 10]. pp. 195–222. (INED Population Studies). Available from: doi: 10.1007/978-3-319-76638-6_8.

[26] Kraus MW, Onyeador IN, Daumeyer NM, Rucker JM, Richeson JA. The misperception of racial economic inequality. Perspect Psychol Sci. 2019 Nov 1; 14(6): 899–921.

[27] Gründler K, Köllner S. Determinants of governmental redistribution: Income distribution, development levels, and the role of perceptions. Journal of Comparative Economics. 2017 Dec 1; 45(4): 930–62.

[28] Qu G, Slagter B, Sylwester K, Doiron K. Explaining the standard errors of corruption perception indices. Journal of Comparative Economics. 2019 Dec 1; 47(4): 907–20.

[29] Razafindrakoto M, Roubaud F. Responding to the SDG16 measurement challenge: The governance, peace and security survey modules in africa. Global Policy. 2018; 9(3): 336–51.

[30] Calvo T, Razafindrakoto M, Roubaud F. Fear of the state in governance surveys? Empirical evidence from African countries. World Development. 2019 Nov 1; 123: 104609.

[31] Treisman D. What have we learned about the causes of cor-

ruption from ten years of cross-national empirical research? Annual Review of Political Science. 2007; 10(1): 211–44.

[32] Lavallée E, Razafindrakoto M, Roubaud F. Corruption and trust in political institutions in sub-Saharan Africa. In 2008 [cited 2023 Jan 15]. p. 21. Available from: https://hal.science/hal-01765960.

[33] Morris SD, Klesner JL. Corruption and Trust: Theoretical Considerations and Evidence From Mexico: Comparative Political Studies [Internet]. 2010 Apr 27 [cited 2020 Jun 8]; Available from: https://journals-sagepub-com-s.proxy.bu.dauphine.fr/doi/abs/10.1177/0010414010369072.