Seeking for tipping point in the housing market: evidence from a field experiment

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This study econometrically asses the presence of a tipping point on ethnic discrimination in the rental housing market. We measure discrimination and access to housing in New Caledonia by a large field experiment. Between 2015 and 2017, we sent six applications in response to 741 real-estate rental ads, for a total of 3,616 responses. Applicants have European, Kanak (the indigenous people) and Wallisian name and various signal of stability. Using data from the local census, we link the location of the offer and the neighbourhood composition. Probit random intercept regressions show that ethnic discrimination is stronger in neighbourhoods that are around the tipping point in ethnic composition.

Key words: discrimination, rental market, tipping-point

JEL Codes: J15 R23 C93

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Introduction

While there is a growing number of studies measuring discrimination in access to housing, there is still too little interest in the determinants of such discrimination, particularly the role played by the local composition of inhabitants in the local context. This effect could play a major impact on the segregation dynamic if discriminations affect more individuals belonging to ethnic minorities when they try to access a neighbourhood composed mainly of individuals from the major ethnicity. This phenomenon could occur if landlords have the will to maintain ethnic homogeneity in this type of neighbourhood in order to avoid outflows of individuals from the main ethnic group. Card, Mas, and Rothstein (2008) showed that in the United-States, white populations tend to leave cities with minority shares between 5% and 20%. As advocated by Hanson and Hawley (2011), landlords may want to prevent this phenomenon and, therefore, be more likely to discriminate in neighbourhoods which are close to the tipping point. While it is generally accepted that discrimination can reinforce residential segregation, the inverse link between local socio-ethnic composition and the intensity of discrimination is less explored. The question is whether discrimination amplifies the effect of segregating mechanisms or whether it reduces them.

To our knowledge, this article is the first to econometrically asses the presence of a tipping point of the ethnic discrimination in the rental housing market in an European context. We use a dataset of 3,616 observations created from a large field experiment to determine the relationship between ethnic discrimination in the rental housing market and the ethnic composition of the neighbourhood in New Caledonia. In this way, using a dataset coming from ISEE[6], each observation is linked to information on the composition of the neighbourhood in which the housing is located.

The scope of the study is the Greater Nouméa, the capital of the French territory of New Caledonia. Three types of profile are tested: the Kanak, the Wallisian and the European applicant. These ethnic groups represent respectively 23 percent, 12 percent and 34 percent of the population in the agglomeration.[7] New Caledonia and more particularly the Greater

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[7] The rest of the population of the Greater Nouméa agglomeration are methis (10%), other ethnic groups (17%) and undeclared (3%).

Noumea area, has several aspects that are particularly interesting for our research project. First of all, it is both a European and Pacific territory, an ultra-peripheral one. Discrimination in access to housing has been little studied in Europe in relation to the United States. Secondly, it is the only territory in the French republican space, with Polynesia, where we have ethnic statistics, which allow us to measure local ethnic distributions. We use these statistics to compare them with data from a discrimination test. Finally, the Nouméa agglomeration, where we are located, is a territory where the potentially discriminated population varies locally from a small minority to a large majority. We therefore have a wide spatial variety for our variable of interest, the local socio-ethnic composition. The high level of segregation in the Nouméa agglomeration means that it is perfectly suited for studying the link between ethnic environment and discrimination. In the southern part of this agglomeration, the share of the Kanak population is only 5 percent, whereas in the northern part of the agglomeration, which is only ten kilometers away, this proportion reaches 50 percent. Two signals of stability are also introduced, namely being civil servant and returning from Metropolitan France, in order to distinguish between the two core types of discrimination which are: discrimination based on information and discrimination based on preferences.

The results indicate a strong discrimination against the Kanak applicant and even more against the Wallisian applicant. A stability signals increase the response rate more substantially for the Kanak applicant than for the European applicant, suggesting that both mechanisms driving discrimination are relevant, i.e. preference and information. We show that the discrimination against the Kanak applicant is highest in neighbourhoods where the concentration of Europeans is between 60% and 72%. However, we find no statistically significant links between discrimination and the concentration of Wallisians or Kanaks.

The next section of the paper is a discussion of the previous research on the presence of a tipping point on the discrimination in the housing market. Section 2 describes the experimental protocol and the data collection. Section 3 presents the results of the experiment and section 4 discuss the robustness of the results. We conclude in the final section of the paper.

1. Overview of the literature

To objectively measure discrimination in access to housing, as well as in access to employment or other markets, the method used in the international literature is the testing method, which consists in comparing the responses obtained in response to a property advertisement by two candidates who are similar in all respects except for the characteristic whose effect is to be tested. This method has been applied in the United States since the 1980s and has provided multiple experimental evidence of discrimination in access to housing, particularly for the most studied ethno-racial discrimination (Yinger, 1986; Page, 1995; Choi et al., 2005; Hanson & Hawley, 2011). It has also been applied, to a lesser extent, in many European countries: first in Sweden by Ahmed et al, (2008 and 2010), Bengtsson et al, (2012) and Carlsson & Eriksson (2014), then in Spain by Bosch et al (2010), in Italy by Baldini & Federici (2011), in Greece by Drydakis (2011), in Norway by Beatty and Sommervoll (2012), in Belgium, by Heylen et al (2015), in France by Acolin, Bostic, and Painter (2016), and in Germany by Auspurg, Hinz, and Schmid (2017). With the widespread use of the Internet and real estate ad sites, the correspondence test, which consists of sending fictitious request emails, has emerged as the most effective way to conduct tests on the housing market. In a recent overview, Flage (2018) identifies 29 scientific studies that have applied this method in 15 different countries. It concludes that candidates who report a foreign origin by the sound of their surname are on average half as likely to be invited to visit rented accommodation as majority candidates.

In this field of research, there has been an impressive increase in the number of publications. Most of these publications focus on proving the existence and measuring the intensity of discrimination. They highlight that minorities are victims of differential treatment in the real estate market. Overall, visible minority candidates are contacted less often and the number and quality of assets referred to them is lower.

For economists, in particular, the identification of discrimination indicates an anomaly in the functioning of the housing market and the existence and extent of such an anomaly is an interesting subject in itself. But it is clear that we must go further and explain the origin and causes of this type of anomaly if we want to be able to propose actions to effectively combat this type of problem. In this perspective, too little work is done on the determinants, let alone on how to combat discrimination.

We focus here on an essential determinant: the local socio-ethnic composition. This corresponds to the proportion of potential discriminated persons in the local population,

which is frequently measured with segregation indices, such as Duncan and Duncan, which is one of the most widely used. Discrimination has multiple relationships with the local segregation thus measured. On the one hand, it is clear that strong discrimination on the basis of socio-ethnic origin can strengthen and amplify the processes that generate and maintain local ethnic segregation. On the other hand, local ethnic segregation can in turn influence the intensity of discrimination. We are interested in this particular meaning of causality, which ranges from segregation to discrimination. When the potentially discriminated minority is very present locally, does this promote or limit discrimination? It seems to us that the answer to this question is not obvious. However, this is an important question if we want to know whether discriminatory behaviour in access to housing is more a role as an amplifier or attenuator of socio-spatial segregation.

Three sets of determinants have been given by the literature applied to the question of the effects of segregation on discrimination. These determinants have been given successively by research studies that have analysed the existence of discrimination in the housing market. Early studies have generally shown that discrimination in the housing market can vary depending on the characteristics of the landlord, the type of property rented, the signal of social integration and/or economic stability transmitted by the applicant. The intensity of discrimination (D1) then depends on many factors that are not necessarily related to the local socio-ethnic composition of the neighbourhood of residence. Discriminated populations are discriminated against Becker-style by housing providers, to which Arrow-Phelps is added when minorities are presumed to be occupants of lower quality housing. These studies suggest that minorities can be discriminated against regardless of the social and ethnic composition of the neighbourhood. In line with Scheling's (1971) model of residential segregation without any discriminatory behaviour in the housing market, discrimination can be considered independent of the socio-ethnic composition of the territory.

> **Hypothesis 1.** *Ethnic minorities are discriminated against in the housing market for any social and ethnic composition of the neighbourhood of residence*

In the United States, the first studies to take into account the ethnic environment at a disaggregated level are those of Yinger (1986), Page (1995) and Roychoudhury & Goodman (1996). For Yinger, the root cause of discrimination is economic: real estate agents

discriminate to avoid racial prejudice for their white clients. This is the hypothesis of racial prejudice suffered by the clientele. Ondrich et al (1999) clearly indicate that "If an agent's customer base is largely white, he may discriminate in order to appease actual and potential customers, keeping the group that supplies most of his business feeling comfortable". This is customer discrimination as identified by Neumark et al. (1996) in the labour market. Landlords and real estate agents will discriminate less against minorities in neighbourhoods where they are strongly represented because they will consider that these spaces constitute neighbourhoods adapted to the lives of these minorities. According to this mechanism (D2), there is a mechanical link between the local socio-ethnic composition and the intensity of discrimination. The minority group will potentially be all the more discriminated against as the majority group represents a significant proportion of the local population.

> **Hypothesis 2.** *Due to racial prejudice, there is a growing monotonous link between the proportion of residents from the majority population and the intensity of discrimination in access to housing.*

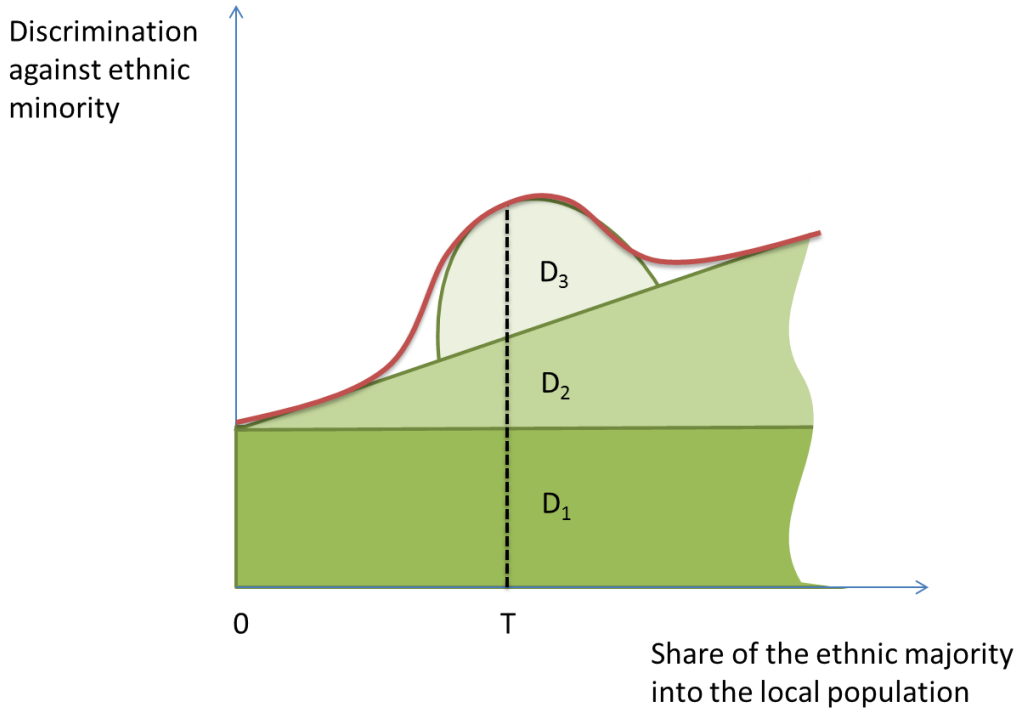
In Schelling's (1971) models, the location choices of socio-ethnic groups are not linear. There is a tipping point corresponding to a given proportion of the minority group beyond which members of the majority group will make the choice to leave the neighbourhood irreversibly. If landlords and real estate agents have this model in mind, they will try to protect themselves from the risk of losing their customers by discriminating more strongly against the minority when its proportion approaches the tipping point. Once the threshold is exceeded, it is no longer useful for owners to discriminate against minorities. This suggests a non-linear relationship around the tipping point. This hypothesis of non linearity (D3) has been confirmed by numerous empirical studies in the United States. Page (1995) showed that the relationship was non-linear, around a tipping point level of around 20%. Discrimination increases until the share of the African-American minority reaches this critical mass, then declines sharply. Ondrich et al (1999) use indicator sets for the proportion of households from the minority group of 0 to 20% and above 20% in the belief that real estate agents will change discriminatory behaviour around this threshold for fear of losing their clients from the majority white group. As soon as the proportion of residents from the black minority group

exceeds the threshold, the incentive to discriminate disappears. The study by Card et al (2008) is probably the one that most convincingly confirmed the discriminatory consequences of the tipping point hypothesis by using direct observations of household residential mobility. It places the tipping point at a variable level depending on the city, usually between 5 and 20%. This will be confirmed by the work of Hanson and Hawley (2011), for whom discrimination is becoming more pronounced around the "tipping points", corresponding to a share of the population from the majority group of between 80% and 95%. Hanson and Santas (2014) using larger samples will in turn confirm that landlords begin to discriminate strongly when the proportion of people from the minority group becomes too large for them.

> **Hypothesis 3.** *There is a Schelling tipping point beyond which the socio-ethnic composition of the neighbourhood can change. To protect themselves against this, suppliers discriminate significantly more below this threshold. The result is a local area of non-linearity in the relationship between segregation and discrimination.*

These three sets of determinants are perfectly compatible with each other. We represent them in the diagram below, assuming that they can be combined. The overall relationship between the majority group's share in a given neighbourhood and the intensity of discrimination. In a plan where the share of the majority group in the local population is shown on the abscissa and the extent of discrimination on the ordinate, the combination of the three hypotheses leads to a particular profile: the curve has a positive ordinate (D1), it is generally monotonous increasing (D2) with a local area of non-linearity in case of the presence of a tipping point (D3) (figure 1).

Figure 1. The segregation effect on discrimination



All this work is American. In European countries, there is much less evidence of a relationship between discrimination and the ethnic composition of the neighbourhood. Auspurg, Hinz, and Schmid (2017) found no significant discrimination toward Turkish applicants in Germany in area where the proportion of Turks is low. Bunel et al (2017) found no significant discrimination toward Kanaks in New Caledonia in neighbourhoods where the proportion of Kanaks is higher than 25%. Baldini and Federici (2011) in Italia, Carlsson and Eriksson (2014) in Sweden and Acolin, Bostic, and Painter (2016) show regional or local variations in the level of discrimination and suggest that these variations could be explained by the demographic composition of the places. To our knowledge, no study in the European context provides statistical proofs of a relationship between discrimination and the ethnic composition of the neighbourhood.

2. Experimental Protocol and Data Collection

The experiment is an extension of the one conducted by Bunel et al. (2017) in Greater Nouméa between October 2015 and February 2016. The second part of the experiment that took place one year later, between October 2016 and February 2017. It permits to collect more observations and to add new profiles.

The test is conducted to determine access to private housing for rent and therefore do not covers access to social housing and private homes which are indeed rare in the area. We tested all ads for apartments for rent in Greater Nouméa published on the reference site http://www.immobilier.nc/, which centralizes all real-estate offers in New Caledonia.[8] The applicants for rental housing were men, making their Kanak, Wallisian or European origin known through their surnames and first names. The choice of the surnames and first names corresponds to credible and realistic identities. They are among the most common first names for this age-group and for the community to which they belong. Surnames unambiguously indicate that a person is of Kanak, Wallisian or European background. The order of the response of each type of applicant was randomly changed daily throughout the data collection period. The test consisted of sending short and interrogative e-mails in response to ads published with a view to requesting a housing unit visit. The following messages were sent:

Dear Sir or Madam:

Your ad fits the requirement that I am seeking. I would like to arrange a visit to see the apartment. What documents do you require?

Thank you,

First Name and Surname (our translation)

In order to differentiate statistical discrimination from discrimination based on preference we crossed the ethnicity signal with a signal concerning the financial and professional stability of the applicant. The following sentence was added to certain messages sent by our fictitious applicants: "I am a civil servant and I have just moved to Nouméa." This unambiguously

[8] The internet is not the only channel through which housing offers are advertised. Other channels such as newspapers and social networks were not taken into account in this study. In addition, in the case of real estate agencies, we retained only one offer per agency.

signaled employment stability and on average a higher salary, given the indexation policy that exists in this area. To control for the implicit signal of the move from metropolitan France, we also add a Kanak profile that indicates a return from metropolitan France.

As such, four rental applicant profiles were created in the first wave of the experiment (A—European, B—European civil servant, C—Kanak, and D—Kanak civil servant). Two applicant profiles were added in the second wave of the experiment (E—Kanak back from metropolitan France and F—Wallisian). In the end, our base contained 3,762 responses to 741 real-estate ads (4 × 342 + 6 × 399).[9]

The geographical area we are considering is composed of the city of Nouméa and the municipalities of Païta, Mont-Doré and Dumbéa. Nouma is a relatively dense city composed of 8 sectors subdivided into 37 districts. We have grouped these neighbourhoods and the three neighbouring cities into 14 homogeneous units in size by grouping the least populated contiguous areas.

3. Results

Preliminary observations

Table 1 shows the results of landlord response to our applications for each wave of test separately and the aggregate result for the two waves. The ranking of applicants who receive the more responses is similar in both waves. The European civil servant receives the highest rate of positive responses (69%), followed by the European applicant without stability signal (66%), the Kanak civil servant (60%) and the Kanak without stability signal (50%). With regard to the new applicants of the second wave, we find that the Kanak who signals a recent return from metropolitan France receives a positive response rate of 52%. The Wallisian applicant is the least contacted of the applicants with a positive response rate of 43%.

[9] 12 ads for which the landlord call the applicants without leaving a message are excluded of the sample.

Table 1: Rate of Positive Responses by Type of Applicant

	(1) European		(2) European civil servant		(3) Kanak civil servant		(4) Kanak		(5) Kanak back from metropol		(6) Wallisian	
	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd
Positive response rate (first wave)	67.58	46.88	70.00	45.90	65.36	47.65	54.10	49.91				
Observations	330		330		332		329					
Positive response rate (second wave)	64.16	48.01	68.17	46.64	54.33	49.90	47.37	49.99	51.63	50.04	42.61	49.51
Observations	399		399		300		399		399		399	
Positive response rate	65.71	47.50	69.00	46.28	60.13	49.00	50.41	50.03	51.63	50.04	42.61	49.51
Observations	729		729		632		728		399		399	

Figure 2: Positive Response Rates by Type of Applicant

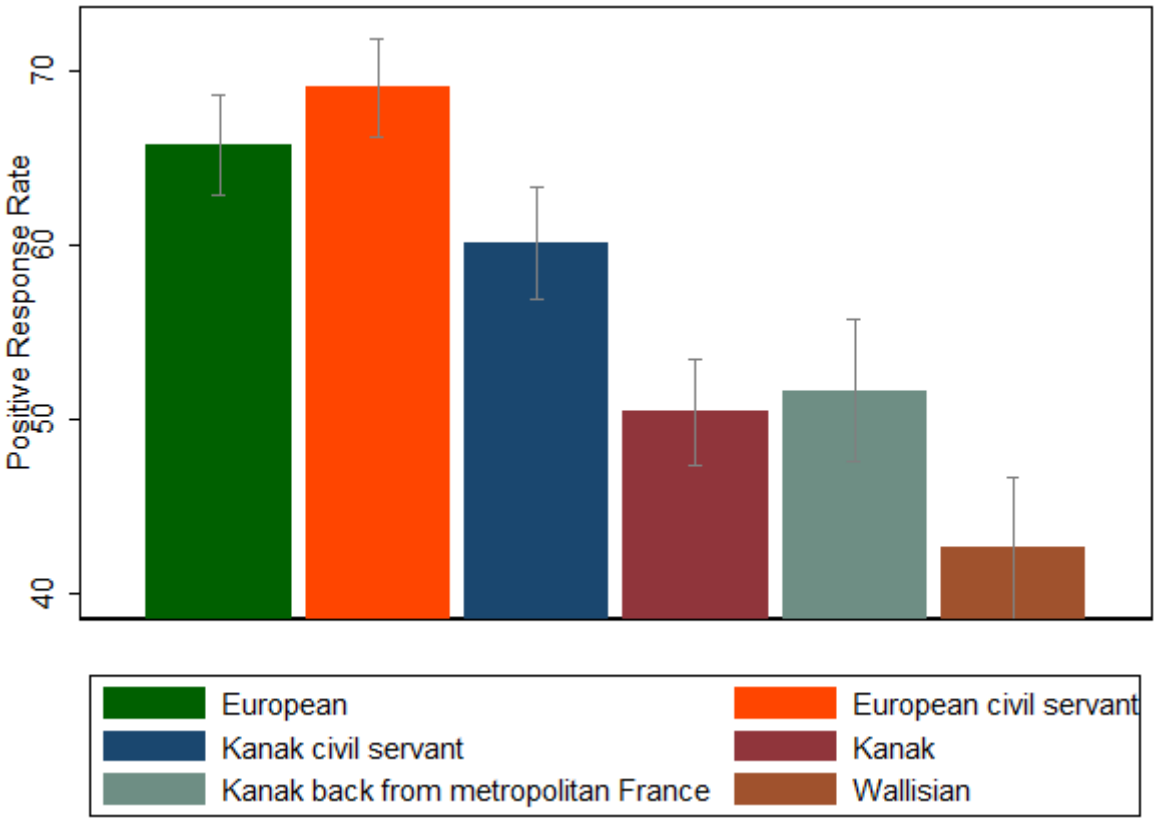


Table 2 compares the response rates received by the different types of applicants. As Bunel et al. (2017) show, the effect of the stability signal appears to be more valued by landlords for a Kanak than for an European applicant: the difference in response rate is 3 percentage points between the two European applicants against 10 percentage points between the two Kanak

applicants. The Kanak civil servant has then a 9 percentage point lower rate of response than his European counterpart. It is a smaller difference than the 15 percentage point difference between the European and Kanak applicants without stability signals.

These results are in line with the coexistence of two types of discrimination. The difference of response rate between Europeans and Kanaks that decreases sharply with the stability signal, such as being civil servant, indicates the presence of statistical discrimination. The significant difference between the European and the Kanak civil servant applicant suggests the presence to a less extent of a discrimination based on preference.

The Kanak applicant who signals a recent return from metropolitan France gets a small increase in his response rate compared to the Kanak applicant without any signal. The response rate of the Wallisian applicant is 26 percentage points lower than that of the European civil servant and 23 percentage points lower than that of the European applicant. The response rate of the Wallisian is also 8 percentage points lower than the response rate of the Kanak applicant.

We thus find high levels of discrimination in line with works of Carpusor Adrian G. and Loges William E. (2006) who find a 33 percentage point lower response rate for African-Americans in the US or Ali M. Ahmed and Hammarstedt (2008) who find a 24.8 percentage point lower response rate for Arabic/Muslim male names compared to Swedish male names in Sweden.

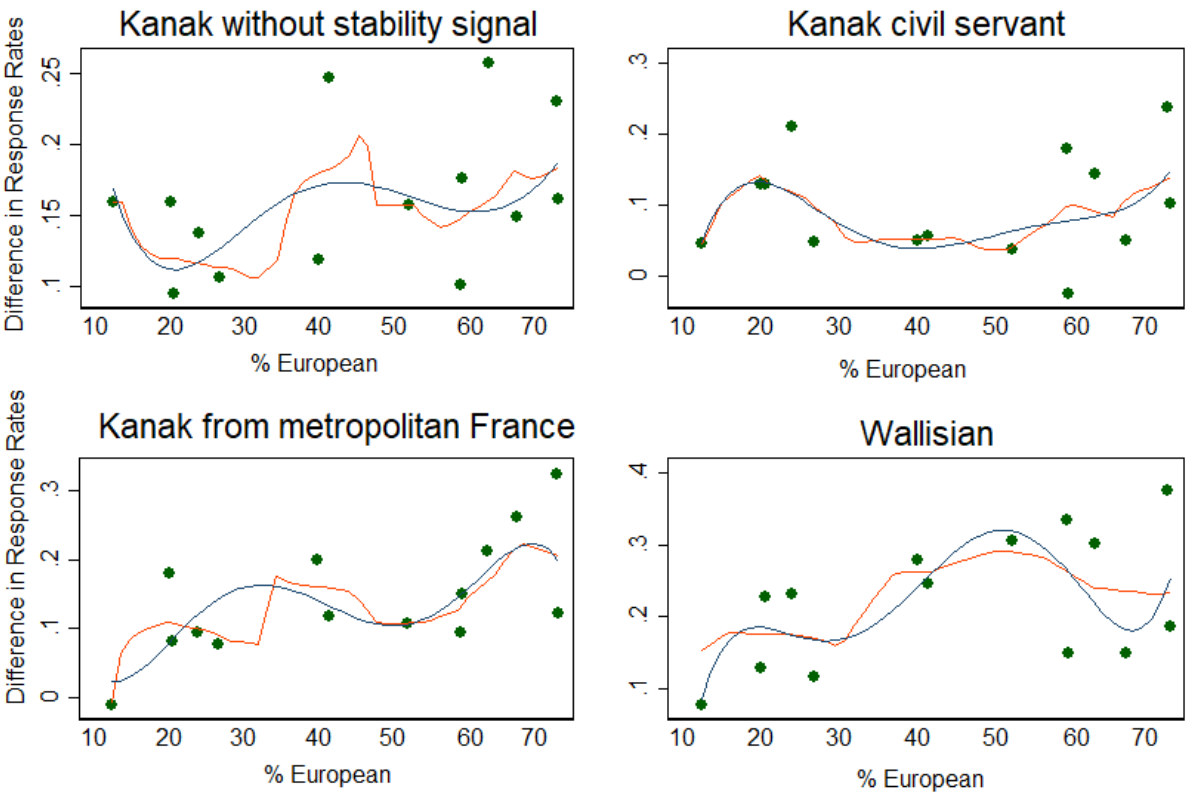
Table 2: Differences in the Success Rates of Fictitious Applicants

	Deviation (in Percentage Points)	Standard-Error	Student	P-value
European civil servant versus				
European	3.29**	1.37	2.40	0.016
Kanak civil servant	8.87***	1.83	4.85	0.000
Kanak back from Metropolitan France	17.37***	2.45	7.09	0.000
Kanak	18.58***	1.79	10.39	0.000
Wallisian	26.39***	2.56	10.33	0.000
European versus				
Kanak	15.29***	1.79	8.55	0.000
Wallisian	23.09***	2.56	9.04	0.000
Non-euro (Kanak or Wallisian)	18.06***	1.75	10.33	0.000

**** Significant at the 1%, ** de 5%, * de 10% levels. Standard errors are clustered at the landlord level.*

We are now interested in the effect of the neighbourhood's composition on discrimination. Graphics of figure 2 plot the relationship between the difference in response rates between ethnic minority applicants and European applicants with the same stability signal and the concentration of European in the neighbourhood. Despite the low number of points, there seems to be an increase of the discrimination towards the different profiles of non-European applicants when the concentration of Europeans increases.

Figure 3: Discrimination and concentration of Europeans



Notes: Differences in response rates between each profiles and the European applicant without stability signal are presented except for the Kanak civil servant whose response rate is compared to the European civil servant.

Econometric results: causes of variation in discrimination

We first estimate the simple model:

$$P(Y = 1|\alpha_a, E, S_1, S_2, W, X, C) = \Phi(\alpha_a + \beta_1 E + \beta_2 S_1 + \beta_3 E S_1 + \beta_4 S_2 + \beta_5 W + \beta_6 X + \beta_7 E\, C + \beta_8 C)$$

Where Y equals 1 if the individual receive a positive response.

$$E = \begin{cases} 1 & if\ the\ individual\ is\ European \\ 0 & otherwise \end{cases}$$

Φ is the standard normal cumulative density function. α_a is a fixed effect that accounts for factors unique to each landlord that influences Y. S_1 is the civil servant stability signal and S_2 the back from metropolitan France stability signal. W equals 1 if the individual is Wallisian and 0 otherwise. X is a vector of landlord and housing characteristics. C is a vector of neighbourhood characteristics thought to affect minority treatment.

Hypothesis 1 is tested by estimating β_1 and β_5 and hypotheses 2 and 3 are tested by estimating β_7. Outcomes that are related to a same offer are not independent which is taken into account into the random effects probit. Intraclass correlation is around 0.8 which means

that 80% of the variance of the probability of any of the fictitious applicants being contacted by the landlord is due to the behaviour of the landlord. The relevance of using random effects probit models are confirmed by likelihood ratio tests that reject the nullity of intraclass correlation at the 5% level.

Results presented in column (2) of table 3, indicate that a Kanak has a 14 percentage point lower probability of obtaining a positive response compared to an European. The response probability of a Wallisian is even lower with a 4 percentage points reduction compared to the probability of a Kanak and a 19 percentage points reduction compared to the probability of an European applicant. Stability signals increase the probability for a Kanak to obtain a positive response of 7 percentage points for the quality of civil servant and by 4 percentage points for the recent return form metropolitan France. The stability signal affects to a lesser extent the European for whom the signal increases the probability of obtaining a positive response by 3 percentage points.

In column (3), we test the presence of a linear relationship between discrimination and concentration of Europeans (hypothesis 2). The variable % European which measures the location proportion of European in each neighbourhood is then introduced in vector C. In column (4), we test for an increase of the discrimination around the tipping point (hypothesis 3). This effect is caught by introducing the variable Dum % European >60 in vector C. We observe no significant linear relationship between discrimination and the concentration of Europeans. However results in column (4) indicate a significant increase of 7 percentage points of the discrimination in neighbourhoods where the proportion of Europeans is higher than 60%.[10]

In order to verify that the relationship is not due to a correlation between the concentration of Europeans and some other characteristics of the neighbourhood as the average rental price, we add in column (5) the log of the average rental price and its interaction with discrimination.

[10] We may note that a model that includes a break in the trend at 60% (not shown) indicates a change in the relationship around the tipping point: discrimination does not vary significantly with the neighbourhood composition before 60% but increases significantly above this point. Based on the information criteria we keep column (2) and thus a shift in the discrimination at the tipping point as our preferred specification. We may also note that a model that includes both a shift in the discrimination and a break in the trend at 60% (not shown) does not perform better in term of information criteria.

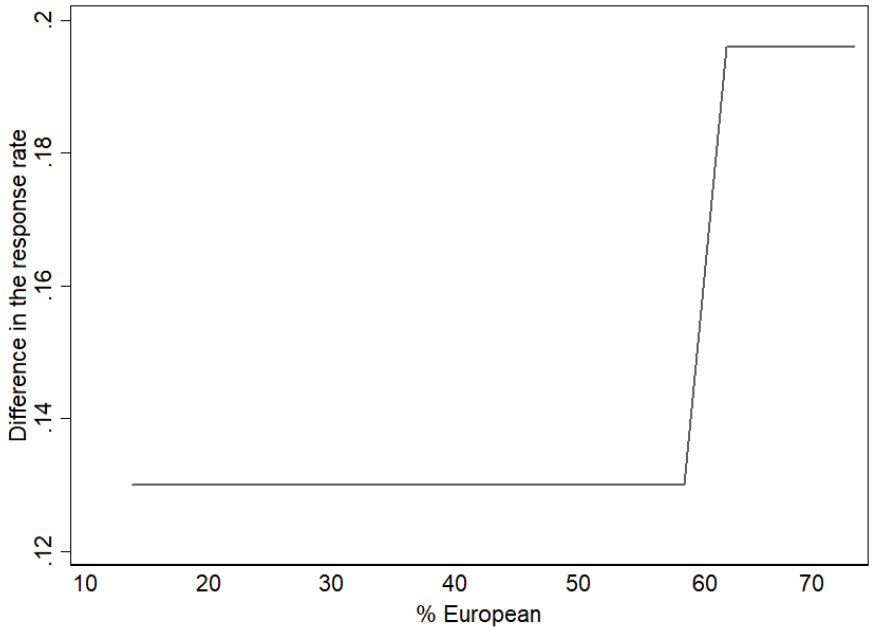
The results are not dramatically modified by this introduction. The estimated coefficient on European ×Dum % European >60 is still significant at the 10% level. The decrease in significance is due to an increase of the standard errors but not to a decrease of the estimated coefficients which can be explained by the collinearity between the average rental price and the concentration of Europeans. The parametric relationship that exists between discrimination and concentration of Europeans is shown in figure 3.

Table 3: Effect of the composition of the neighbourhood on discrimination (average marginal effects)

	(1)	(2)	(3)	(4)	(5)
European	0.143***	0.145***	0.114**	0.130***	0.313
	(0.017)	(0.017)	(0.036)	(0.019)	(0.986)
Civil servant	0.077***	0.074***	0.074***	0.074***	0.074***
	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)
European ×Civil servant	-0.041*	-0.039*	-0.039*	-0.038*	-0.038*
	(0.022)	(0.023)	(0.023)	(0.023)	(0.023)
Metropolitan	0.036*	0.040**	0.039**	0.038**	0.039**
	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)
Wallisian	-0.044**	-0.042**	-0.043**	-0.043**	-0.043**
	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)
% European			-0.088**	-0.074	-0.073
			(0.043)	(0.046)	(0.046)
European ×% European			0.024		
			(0.024)		
Dum % European >60				-0.038	-0.041
				(0.053)	(0.055)
European ×Dum % European >60				0.066**	0.072*
				(0.032)	(0.043)
Control variables	NO	YES	YES	YES	YES
Log(average rental price in the neighbourhood)	NO	NO	YES	YES	YES
European ×log(average rental price in the neighbourhood)	NO	NO	NO	NO	YES
AIC	3444.898	3267.672	3270.135	3264.298	3266.247
Number of observations	3,616	3,453	3,453	3,453	3,453

Notes: Standard errors clustered at the landlord level in parentheses. Control variables are: type of landlord (agency or individual), gender of the landlord, log of the average rent price in the neighbourhood, kitchen in the housing, type of housing (F1,F2…), order of the e-mail, e-mail game, wave of the test (first or second wave).

Figure 4: Difference in positive response probability between the Kanak and the European applicant and neighbourhood composition.



4. Robustness

In this section we check for the relevance of alternative tipping points and specifications. In column (1) of table 5 we try to delimit more precisely the tipping point. Card, Mas, and Rothstein (2008) have shown that the tipping point was generally situated between 5% and 20% of Afro-Americans in the United-States. Neighbourhoods where the concentration of Europeans is very high may not be affected by a high level of discrimination because their diversity is not important enough so that a newcomer of a different ethnicity might lead the departures of individuals of the major ethnic group. We thus test for a lower level of discrimination in the 10% neighbourhoods with the highest levels of Europeans' concentration relatively to the 15% following neighbourhoods.[11] Results support a lower level of discrimination in the more concentrated neighbourhoods compared to those that are slightly more diversified. We also test in columns (2), (3) and (4) for shifts in the discrimination at different level of concentration (proportion of European of 25%, 35% and 50%). No significant shifts in the discrimination are observable at these levels.

[11] This distinction is, however, limited by the few number of neighbourhoods.

Table 4: Test for different tipping points

	(1)	(2)	(3)	(4)
European	0.130***	0.157***	0.140***	0.137***
	(0.019)	(0.030)	(0.026)	(0.022)
Civil servant	0.074***	0.074***	0.074***	0.074***
	(0.016)	(0.016)	(0.016)	(0.016)
European ×Civil servant	-0.039*	-0.039*	-0.039*	-0.039*
	(0.023)	(0.023)	(0.023)	(0.023)
Metropolitan	0.038**	0.040**	0.039**	0.039**
	(0.019)	(0.019)	(0.019)	(0.019)
Wallisian	-0.043**	-0.042**	-0.042**	-0.043**
	(0.019)	(0.019)	(0.019)	(0.019)
% European	-0.078*	-0.202**	-0.130**	0.014
	(0.046)	(0.067)	(0.062)	(0.060)
60 < Dum % European < 72	-0.066			
	(0.059)			
European ×60< Dum % European < 72	0.081**			
	(0.040)			
Dum % European >=72	0.013			
	(0.068)			
European ×Dum % European >= 72	0.046			
	(0.047)			
Dum % European > 25		0.139**		
		(0.059)		
European ×Dum % European > 25		-0.016		
		(0.031)		
Dum % European > 35			0.066	
			(0.061)	
European ×Dum % European > 35			0.008	
			(0.028)	
Dum % European > 50				-0.160**
				(0.068)
European ×Dum % European > 50				0.018
				(0.027)

AIC	3266.760	3264.632	3268.888	3264.681
Number of observations	3,453	3,453	3,453	3,453

Notes: Standard errors clustered at the landlord level in parentheses. Control variables are: type of landlord (agency or individual), gender of the landlord, log of the average rent price in the neighbourhood, kitchen in the housing, type of housing (F1,F2…), order of the e-mail, e-mail game, wave of the test (first or second wave).

Conclusion

The aim of this article is to analyse ethnic discrimination in the housing market. More specifically, our objective is to give empirical evidence on the effect of neighbourhood composition on these discriminations. The analyses use the results of correspondence tests for European, Kanak and Wallisian applicants on more than 700 ads in the greater Noumea. Linking this data set to information about the neighbourhoods in which the rental properties are located, we are able to econometrically test, for the first time in an European context, the effect of the ethnic composition of the area on discrimination.

Our results show significant discrimination by landlords against e-mail inquiries from Kanak and Wallisian applicants in the rental housing market. Discrimination diminishes but does not disappear when the European applicant and the Kanak applicant give signals of stability. This result confirms the presence of statistical discrimination but also indicates, to a lesser extent, the presence of preference based discrimination.

We reject at the 5 percent level the homogeneity of discrimination according to the ethnic composition of the neighbourhood. We find that discrimination is higher in neighbourhoods where the share of Europeans is over 60%. In consequence, we provide new evidence of the presence of a tipping point in the composition of neighbourhoods and its impact on the level of discrimination.

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Annexe

Table A1: Characteristics of Offers

Characteristics of the offer and the company	First wave		Second wave	
	In % of Offers	Standard deviation	In % of Offers	Standard deviation
Type of landlord				
Agencies	19		11	
Individuals	81		89	
Size of apartments				
F1	16		20	
F2	38		39	
F3	30		26	
F4	16		15	
LOFT	0		0	
Game A	44		50	
Male landlord	51		50	
Kitchen in the house	92		99	
Rent	133,803	57,392	116,172	41,290
Surface	65	29	63	34
Average price per m2 (CFP franc)	2,192	548	2,089	694
Observations	1,368		2,394	