Customer Discrimination and Employment Outcomes: Theory and Evidence from the French Labor Market: Online Appendix

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Probit results

Table 1 presents the results of the first-step unemployment regression when we use a probit model instead of a linear probability model. Table 2 presents the second-step results.

Probit	
(1)	(2)
yes	yes
0.09^a (0.001)	0.10^a (0.001)
	[-0.21 - 0.31]
	146~(50%)
	144~(50%)
	[-0.20-0.35]
	144~(50%)
	139~(48%)
0.10	0.12
82.0%	82.2%
$1,\!411,\!278$	$1,\!411,\!278$
	P (1) yes 0.09 ^a (0.001) 0.10 82.0% 1,411,278

Table 1: Probability of unemployment: First-step results

Notes: (i) Standard errors in brackets; Significance levels a, b, c: 1%, 5%, 10%, respectively; (ii) Individual controls are age and age squared, education dummies, marital status, presence of children. All of these controls are also interacted with the African dummy.

	Differential unemployment gap			
	(1)	(2)	(3)	
%Contact	$\begin{array}{c} 0.061 \\ (0.259) \end{array}$		-0.496 (0.432)	
%French		1.396^a (0.332)	2.022^a (0.413)	
$Contact \times \%$ French			11.021^b (4.846)	
Constant	1.485^a (0.020)	1.368^a (0.031)	1.344^a (0.035)	
$\overline{\mathrm{R}^2}$	0.00	0.06	0.08	
Observations	289	289	289	

Table 2: Probability of unemployment: Second-step results

Notes: (i) Weighted least squares regressions using as weights the inverse of estimated variance of coefficients from first-step regression reported in Table 1; (ii) Continuous variables are centered with respect to Africans' means; (iii) Standard errors in brackets; Significance levels a, b, c: 1%, 5%, 10%, respectively.

A one-standard-deviation increase in the proportion of French natives widens the ethnic unemployment gap by .21-.30 of its standard deviation. These figures are very similar to the ones displayed in the paper.

Single-step estimations

	Probability of being unemployed			
	(1)	(2)	(3)	(4)
$A frican \times \% Contact$	-0.155^a (0.046)	-0.086 (0.053)	$\begin{array}{c} 0.120^{a} \\ (0.012) \end{array}$	$\begin{array}{c} 0.160^{a} \ (0.014) \end{array}$
$A frican \times \% French$	0.992^a (0.045)	0.954^a (0.047)	0.448^a (0.012)	$\begin{array}{c} 0.431^{a} \\ (0.012) \end{array}$
$African \times \% Contact \times \% French$		2.202^a (0.847)		$ \begin{array}{r} 1.148^a \\ (0.215) \end{array} $
Constant	$\begin{array}{c} 0.516^{a} \ (0.030) \end{array}$	$\begin{array}{c} 0.517^{a} \ (0.030) \end{array}$	$0.601^a \\ (0.007)$	$\begin{array}{c} 0.601^{a} \\ (0.007) \end{array}$
Controls	yes	yes	yes	yes
$\overline{\mathbb{R}^2}$			0.11	0.11
Predictions correctly classified	82.2%	82.2%		
Observations	$1,\!411,\!278$	$1,\!411,\!278$	$1,\!411,\!278$	$1,\!411,\!278$

Table 3: Probability of being unemployed

(i) Standard errors in brackets; Significance levels a, b, c: 1%, 5%, 10%, respectively; (ii) Individual controls are age and age squared, education dummies, marital status, presence of children. All of these controls are also interacted with the African dummy; (iii) EA fixed-effects are included; (iv) Columns (1) and (2) are estimated using a Probit model, and columns (3) and (4) are estimated using a LPM model; (v) Continuous variables are centered with respect to their means.

Estimated EA fixed-effects and labor market outcomes

Figure 1 depicts the relationship between the estimated EA fixed effects $\hat{\psi}_{k(i)}^1$ and the unemployment rate in the first-step unemployment regression (20). Similarly, Figure 2 depicts the relationship between the estimated EA fixed effects $\hat{\psi}_{k(i)}^2$ and the contact job proportion in the first-step contact job regression (21). Without surprise, both relationships are very strong.

	Probability of being in contact			
	(1)	(2)	(3)	(4)
$A frican \times \% French$	-0.137^a (0.008)	-0.125^a (0.009)	-0.142^a (0.008)	-0.135^a (0.009)
Constant	$\begin{array}{c} 0.384^{a} \ (0.005) \end{array}$	$\begin{array}{c} 0.257^{a} \ (0.005) \end{array}$	$\begin{array}{c} 0.379^{a} \ (0.005) \end{array}$	0.244^a (0.005)
Controls: Age & education Controls: Occupations	yes yes	yes	yes yes	yes
$\overline{\mathbb{R}^2}$	0.25	0.08	0.25	0.08
Observations	$1,\!130,\!837$	$1,\!130,\!837$	$1,\!130,\!837$	$1,\!130,\!837$

Table 4: Probability of being in contact with the public

Notes: (i) Standard errors in brackets; Significance levels a, b, c: 1%, 5%, 10%, respectively; (ii) Specifications are corrected for sample selection bias, using column (1) of Table 1 to compute the inverse of Mill's Ratio; the Wald test indicates that the correlation coefficient between error terms is significant at 1%; (iii) Individual controls are age, a quadratic in age and education dummies. Occupations correspond to occupation dummies at the one-digit level. All of these controls are also interacted with the African dummy; (iv) EA fixed-effects are included; (v) Columns (1) and (2) are corrected for sample selection bias (Two-step Heckman Model), and columns (3) and (4) are not; (vi) Continuous variables are centered with respect to their means.

Figure 1: EA fixed effects of the unemployment regression against EA unemployment rates



Notes: (i) Each point represents the estimated EA fixed effects of the first-step unemployment regression against the EA unemployment rate centered with respect to its national mean. The figure gives equal weight to each EA; (ii) The solid line shows the fitted values, and the gray area shows the confidence interval at 95%.



Figure 2: EA fixed effects of the contact rate regression against EA contact job proportion

Notes: (i) Each point represents the estimated EA fixed effects of the first-step contact regression against the EA contact job proportion centered with respect to its national mean. Both figures gives equal weight to each EA; (ii) The solid line shows the fitted values, and the gray area shows the confidence interval at 95%; (iii) The left panel represents EA fixed effects of the first-step contact regression controlling for occupations, while the right panel represents EA fixed effects of the first-step contact regression not controlling for occupations.



Figure 3: African-EA fixed effects against both outcomes

Notes: (i) The left panel represents the non-linear relationship between the estimated African-EA fixed effects of the first-step unemployment regression and the share of French natives ; (ii) The right panel represents the non-linear relationship between the estimated African-EA fixed effect of the first-step contact regression (controlling for occupations) and the share of French natives. The figure gives equal weight to each EA; (iii) The solid line shows the fitted values, and the gray area shows the confidence interval at 95%.

Distinction between sub-Saharan Africans and North Africans

This Appendix provides single-step estimates when the African population is split into sub-Saharan Africans and North Africans.

	Probability of being unemployed	
	(1)	(2)
Sub-Saharan African $\times\%{\rm Contact}$	$\begin{array}{c} 0.392^{a} \ (0.038) \end{array}$	${0.531^a} \ (0.054)$
North-African \times %Contact	$\begin{array}{c} 0.092^{a} \\ (0.012) \end{array}$	${0.133^a} \ (0.014)$
Sub-Saharan African×%French	$0.801^a \\ (0.031)$	$0.768^a \\ (0.032)$
North-African $\times \%$ French	$\begin{array}{c} 0.416^{a} \ (0.012) \end{array}$	${0.399^a} \ (0.013)$
Sub-Saharan African $\times\%{\rm Contact}\times\%{\rm French}$		$2.515^a \\ (0.664)$
North-African \times %Contact \times %French		1.241^a (0.226)
Constant	0.601^a (0.007)	${0.601^a} \ (0.007)$
Controls	yes	yes
$\overline{\mathbf{R}^2}$	0.11	0.11
Observations	$1,\!411,\!278$	$1,\!411,\!278$

Table 5: Probability of being unemployed

(i) Standard errors in brackets; Significance levels a, b, c: 1%, 5%, 10%, respectively; (ii) Individual controls are age and age squared, education dummies, marital status, presence of children. All of these controls are also interacted with the racial indicator (North-African and Sub-Saharan African); (iii) EA fixed-effects are included.

	Probability of being in contact		
	(1)	(2)	
Sub-Saharan African $\times\%\mathrm{French}$	0.059^b (0.025)	-0.079^{a} (0.023)	
North-African \times %French	-0.197^{a} (0.010)	-0.192^{a} (0.009)	
Constant	0.286^a (0.006)	0.414^a (0.005)	
Controls: Age & education	yes	yes	
Controls: Occupations		yes	
$\overline{\mathbf{R}^2}$	0.08	0.25	
Observations	$1,\!130,\!837$	$1,\!130,\!837$	

Table 6: Probability of being in contact with the public

(i) Standard errors in brackets; Significance levels a, b, c: 1%, 5%, 10%, respectively; (ii) Individual controls are age and age squared, education dummies and occupation dummies in column (2). All of these controls are also interacted with the racial indicator (North-African and Sub-Saharan African);
; (iii) Both specifications are corrected for sample selection bias (Two-step Heckman Model); (iv) EA fixed-effects are included.

Predictors of the share of FN voters at the district level (Marseille/Paris)

The French census allows us to study the relationship between the share of FN voters and spatial covariates at a local level for these two cities. In the Census, the lowest geographical level we have access to is the municipality ('commune'). For these two cities, each municipality corresponds to a district ('arrondissement'). In the political database, the lowest geographical level we have access to is the canton. The match between the canton and the district is not straightforward as a canton may comprise more than one district (in Marseilles). For this city, we map the canton areas to the district areas by hand.

We use data from the 1995 presidential election for the FN vote share and the 1990 French Census for local covariates. Results are similar when the 1988 presidential election is used instead.

	Share of FN voters			
	(1)	(2)	(3)	(4)
%Africans	0.531^a (0.16)		$0.045 \\ (0.10)$	
%Foreigns		0.447^{a} (0.10)		$\begin{array}{c} 0.015 \\ (0.09) \end{array}$
% <hs diploma<br="">%Unemployment</hs>			$0.189^a \\ (0.04) \\ 0.254^b \\ (0.09)$	0.184^a (0.04)
				0.272^b (0.10)
Constant	$ \begin{array}{r} 19.119^{a} \\ (1.29) \end{array} $	15.887^a (1.70)	-3.800 (3.74)	-3.543 (3.75)
\mathbb{R}^2	0.43	0.57	0.94	0.94
Observations	16	16	16	16

Table 7: Marseille at the district level

Notes: (i) Significance levels : a: 1%, b: 5%, c: 10% ; (ii) The share of the far-right party comes from the presidential election of 1995 (first round); (iii) Foreigners are considered as individuals with no French citizenship at birth; (iv) The covariates are computed using the French Census of 1990 ; (v) The share of FN voters is computed using the database of political elections which was made available by the Center for Socio-Political Data of Sciences-Po.

	Share of FN voters			
	(1)	(2)	(3)	(4)
%Africans	0.544^{a} (0.08)		$\begin{array}{c} 0.108 \\ (0.19) \end{array}$	
%Foreigns		$0.197^b \\ (0.07)$		-0.031 (0.05)
$\%{<}{\rm HS}$ Diploma			0.200^a (0.04)	$0.217^a_{(0.03)}$
%Unemployment			-0.321^{c} (0.18)	-0.216 (0.17)
Constant	5.649^a (0.52)	4.233^b (1.74)	-5.939^{c} (2.92)	-7.054^{a} (1.79)
R^2	0.72	0.29	0.88	0.88
Observations	20	20	20	20

Table 8: Paris at the district level

Notes: (i) Significance levels : a: 1%, b: 5%, c: 10% ; (ii) The share of the far-right party comes from the presidential election of 1995 (first round); (iii) Foreigners are considered as individuals with no French citizenship at birth; (iv) The covariates are computed using the French Census of 1990 ; (v) The share of FN voters is computed using the database of political elections which was made available by the Center for Socio-Political Data of Sciences-Po.

Contact jobs in the French Diversity Charter

The French Diversity Charter defines 15 sectors. Using FQP 2003, we compute the sector-specific proportions of contact jobs q_s . Table 9 details the results.

	Contact rate q_i	s Observations
Agriculture, Forestry and Fishing	33.89	2160
Arts, Entertainment, Recreation, Information and Communications	71.76	563
Finance, Insurance, Real Estate, and Rental and Leasing	59.96	929
Construction	62.15	1852
Wholesale Trade, Retail Trade and Sales	79.48	4114
Public Administration	64.84	2873
Educational Services	87.32	2453
Accommodations and Food Services	80.14	977
IT and telecommunication services	62.21	651
Industry and Manufacturing	28.13	4693
Educational, Health and Social Services	82.29	3868
Security services and hygiene	27.97	236
Management and Administrative Services	55.14	2637
Personal Services	68.66	1289
Transportation, Logistics and Tourism	60.98	1435

Table 9: Share of contact jobs by sector in the FQP survey

Note: Each sector is identified using the variable NAFG36 of survey FQP 2003.

The website of the French Diversity Charter provides the number of employees for each firm. Each individual in the Census declares the economic activity of its employer/firm. Thus we compute for both groups of firms the sector-specific employment proportions e_s (Census) and \tilde{e}_s (Diversity Charter). Results are presented in Tables 10 and 11.

Using Tables 9, 10, and 11, we obtain $q^{census} = \sum_{s=1}^{15} q_s e_s = 62.06\%$, and $q^{charter} = \sum_{s=1}^{15} q_s \tilde{e}_s = 61.73\%$.

	Frequency e_{i}	$_{s}$ Observations
Agriculture, Forestry and Fishing	4.11	47322
Arts, Entertainment, Recreation, Information and Communications	3.04	34995
Finance, Insurance, Real Estate, and Rental and Leasing	4.52	52078
Construction	6.76	77946
Wholesale Trade, Retail Trade and Sales	13.32	153505
Public Administration	9.81	113939
Educational Services	7.35	84780
Accommodations and Food Services	3.53	40729
IT and telecommunication services	3.13	36035
Industry and Manufacturing	17.37	200241
Educational, Health and Social Services	11.44	131829
Security services and hygiene	0.24	2716
Management and Administrative Services	8.62	99417
Personal Services	2.40	27623
Transportation, Logistics and Tourism	4.38	51730

Table 10: Employment shares by sector in the Census

Note: Each sector is identified using the variable NAFD of 1999 French Census.

	Frequency	\tilde{e}_s Observations
Agriculture, Forestry and Fishing	0.41	13
Arts, Entertainment, Recreation, Information and Communications	3.95	124
Finance, Insurance, Real Estate, and Rental and Leasing	5.25	165
Construction	6.53	205
Wholesale Trade, Retail Trade and Sales	9.65	303
Public Administration	3.50	110
Educational Services	4.87	153
Accommodations and Food Services	3.73	117
IT and telecommunication services	4.84	152
Industry and Manufacturing	10.10	317
Educational, Health and Social Services	8.63	271
Security services and hygiene	2.10	66
Management and Administrative Services	27.87	875
Personal Services	3.98	125
Transportation, Logistics and Tourism	4.59	144

Table 11: Employment shares by sector in the French Diversity Charter

Source: French Diversity Charter (2004-2013).