Undeclared work – Evidence from France

Laila AitbihiOuali and Olivier Bargain

Annexe en ligne / Online Appendix

C1 - Individuals' perception of undeclared work and associated risks and sanctions

The stated share of undeclared workers amongst relatives tends to be bigger for the subgroups of younger respondents and lower income individuals. On the other hand, men tend to estimate lower shares of undeclared workers at the country level compared to all other respondents. Men also estimate lower risks to be caught doing undeclared work, alongside younger respondents and higher income individuals. These lower perceived risks in these sociodemographic groups are likely to stem from lower risk aversion levels (Eckel & Grossman, 2008^(a); Fehr-Duda *et al.*, 2006^(b)). Individuals' perceived risk to be caught when doing undeclared work increases with age and it is negatively associated with education levels. Conversely, younger respondents and lower income individuals expect higher sanctions and more expensive penalties when undertaking undeclared work. Interestingly, one's occupation is not significantly associated to perceived risks and sanctions. Moreover, their inclusion does not change the value or significance of other sociodemographic controls. We ran additional regressions (unreported) that assess the association between sociodemographic characteristics and perceived risk and sanctions for other fraudulent behaviours. Men tend to estimate lower risks to be caught when committing fraud compared to the rest of the sample, which indicates a pattern from men since this behaviour was already observed for the case of undeclared work. Conversely, those with lower education levels and older individuals estimate higher risks to be caught – the effect is stronger for the latter group when it comes to tax fraud.

(a) Eckel, C. C. & Grossman, P. J. (2008). Men, Women and Risk Aversion: *Experimental Evidence, Handbook of experimental economics results*, vol. 1 part 7, 113, 1061–1073 (Plott, Charles R. and Smith, Vernon L. editors), Elsevier. https://doi.org/10.1016/s1574-0722(07)00113-8
(b) Fehr-Duda, H., De Gennaro, M. & Schubert, R. (2006). Gender, financial risk, and probability weights. *Theory and decision*, 60(2), 283–313. https://doi.org/10.1007/s11238-005-4590-0

	penan		Poor Effect	s · Amongst	Weakness	of risk to be	Wook	oes of
	Peer Effec	ts: France	rela	tives	Cau	aht	associate	ed penalty
	(a)	(b)	(a)	(h)	(a)	(h)	(a)	(h)
Household composition (ref · single w	oman)	(5)	(u)	(5)	(4)	(8)	(u)	(0)
Single man	-0 0353***	-0 0345***	0 0781**	0 0731*	0 197**	0 197**	-0 0230	0 000184
	(0.0124)	(0.0126)	(0.0371)	(0.0377)	(0.0807)	(0.0821)	(0.0842)	(0.0842)
Single man with children	-0.0210	-0.0152	0 104	0.0877	0.518***	0.516***	0.394***	0.384***
	(0.0303)	(0.0301)	(0.0868)	(0.0882)	(0.178)	(0.179)	(0.148)	(0.148)
Single woman with children	-0.00731	-0.00638	-0.0331	-0.0289	0.0529	0.0422	-0.0127	-0.0235
enigie neman mareneren	(0.0193)	(0.0192)	(0.0570)	(0.0569)	(0.120)	(0.120)	(0.123)	(0.122)
Married woman without child(ren)	0.0237	0.0215	-0.0585	-0.0534	-0.0267	-0.0276	0.000602	0.00842
	(0.0149)	(0.0149)	(0.0432)	(0.0433)	(0.0998)	(0.0998)	(0.0976)	(0.0966)
Married woman with child(ren)	0.0224	0.0225	0.0307	0.0423	0.170	0.165	-0.0588	-0.0854
	(0.0184)	(0.0186)	(0.0566)	(0.0564)	(0.116)	(0.116)	(0.127)	(0.127)
Married man without child(ren)	-0.0528***	-0.0503***	0.0377	0.0282	0.391***	0.385***	0.223*	0.229*
	(0.0175)	(0.0177)	(0.0566)	(0.0573)	(0.117)	(0.121)	(0.122)	(0.125)
Married man with child(ren)	0.00602	0.00512	0.0723*	0.0758*	0.0783	0.0715	-0.0558	-0.0457
	(0.0135)	(0.0135)	(0.0422)	(0.0426)	(0.0903)	(0.0918)	(0.0909)	(0.0896)
Number of children in household	-0.00108	-0.000723	-0.00860	-0.00854	-0.0571	-0.0545	-0.0105	-0.0103
	(0.00574)	(0.00568)	(0.0181)	(0.0178)	(0.0365)	(0.0366)	(0.0375)	(0.0375)
Number of individuals in household	0.0130***	0.0121***	-0.0200	-0.0200	-0.0824***	-0.0771***	-0.0656**	-0.0601**
	(0.00461)	(0.00465)	(0.0129)	(0.0130)	(0.0276)	(0.0277)	(0.0288)	(0.0290)
Age (ref.: < 25)								<u> </u>
25-40	-0.0265	-0.0281	0.0149	-0.00797	0.0145	-0.0261	0.239*	0.288**
	(0.0163)	(0.0182)	(0.0474)	(0.0506)	(0.0983)	(0.106)	(0.122)	(0.132)
40-60	-0.0443***	-0.0462***	-0.0187	-0.0378	-0.134	-0.173	0.245**	0.276**
	(0.0160)	(0.0179)	(0.0469)	(0.0500)	(0.0990)	(0.107)	(0.120)	(0.129)
60-70	-0.0742***	-0.0820***	-0.126**	-0.0746	-0.156	-0.267*	0.280**	0.202
	(0.0175)	(0.0221)	(0.0526)	(0.0666)	(0.112)	(0.140)	(0.131)	(0.158)
> 70	-0.0831***	-0.0949***	-0.172***	-0.0967	-0.191*	-0.336**	0.388***	0.298*
	(0.0178)	(0.0242)	(0.0523)	(0.0726)	(0.112)	(0.157)	(0.126)	(0.163)

Table C1 – The effects of sociodemographics on peer effects, risks, penalties and sanctions – Probit estimates

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(continued)	Poor Effor	te: France	Peer Effect	ts : Amongst	Weakness	of risk to be	Weaki	ness of
			rela	atives	cau	ıght	associate	ed penalty
	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
Income levels (ref.: < 900€ / month)								
900-1,499	-0.0292*	-0.0309*	-0.0722	-0.0763	-0.0222	-0.0318	-0.202*	-0.190*
	(0.0172)	(0.0173)	(0.0460)	(0.0464)	(0.103)	(0.103)	(0.108)	(0.107)
1,500-2,299	-0.0590***	-0.0591***	-0.0891*	-0.0925**	-0.0390	-0.0660	-0.0879	-0.0765
	(0.0169)	(0.0171)	(0.0462)	(0.0469)	(0.104)	(0.105)	(0.110)	(0.110)
2,300-3,099	-0.0754***	-0.0751***	-0.0790*	-0.0832*	0.149	0.128	-0.136	-0.133
	(0.0174)	(0.0176)	(0.0474)	(0.0482)	(0.105)	(0.106)	(0.111)	(0.112)
3,100-3,999	-0.112***	-0.110***	-0.00287	-0.0126	0.289**	0.258**	0.123	0.134
	(0.0187)	(0.0191)	(0.0546)	(0.0559)	(0.119)	(0.121)	(0.128)	(0.129)
> 4,000	-0.117***	-0.107***	0.00348	-0.00663	0.495***	0.464***	0.0805	0.0339
	(0.0189)	(0.0193)	(0.0556)	(0.0576)	(0.118)	(0.121)	(0.130)	(0.135)
Self-employed (Yes=1)		0.0237		0.0292		-0.307**		0.209
		(0.0225)		(0.0665)		(0.143)		(0.143)
Occupation/Activity status (ref.: emplo	yee)							
Executive/Manager		-0.0494***		0.0270		0.0154		0.221**
		(0.0154)		(0.0511)		(0.106)		(0.112)
White-collar worker		-0.0192		-0.00832		0.0619		-0.125
		(0.0143)		(0.0435)		(0.0908)		(0.103)
Manual worker		-0.00533		0.0476		-0.00179		-0.202**
		(0.0148)		(0.043)		(0.0895)		(0.101)
Retired		-0.0175		-0.0266		-0.0881		0.0409
		(0.0154)		(0.0420)		(0.0916)		(0.0994)
Job seeker		-0.00340		-0.0909		0.107		0.102
		(0.0190)		(0.0579)		(0.125)		(0.121)
Number of observations	2,004	2,004	2,004	2,004	2,004	2,004	2,004	2,004
R2	0.115	0.121	0.032	0.044	0.064	0.068	0.033	0.037

Notes: Linear regressions. Standard (robust to heteroscedasticity) in parentheses. ***p<0.01, ** p<0.05, * p<0.1. Sources: EPMF.

C2 – Other fraudulent behaviours

Table C2-1 - Testing for interactions between peer effects, perceived risks and perceived sanctions and their impact on undeclared work: Complementary and substitution effects – Probit model

	ι	Jndeclared work	. 2015
	(i)	(ii)	(iii)
% undeclared workers amongst relatives & acceptability	0.0137***		
of undeclared work	(0.0045)		
Undeclared work acceptability & Perceived weakness of		0.0055***	
associated risk		(0.0019)	
% undeclared workers amongst relatives & Perceived			0.0193***
weakness of associated risk			(0.0079)
Number of observations	2,004	2,004	2,004
R2	0.079	0.075	0.069

Notes: Probit estimations. Includes sociodemographic, income and occupation category controls. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Sources: EPMF.

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work, 2015 (1) (5) (1) (4) (5) (1) (1) 0.00582*** 0.00562*** 0.00642*** (0.00150) 0.00397** 0.00309* 0.0 (1) 0.003177 (0.00185) (0.00150) 0.0 ** 0.00309* 0.00214 (1,710 ** 0.00214 1,7710 (0 ** 0.00214 0.041 0.041 0.069 0.071 0.00296** (0 0.06206 (0.00244) (0.00143) 0 0.00207 0.00296** (0 0	Undeclared personal ser (2) (3) (4) (00490*** (3) (000402** (0.00176) (1,710 (1,710 (0.00176) (0.00176) (0.00176)	//ces. 2015 (4) 0.00548*** C (0.00136) 0.00213 (0.00136) 0.043 0.043 0.043	(5) (5) (0.00486*** 0 (0.00450) (((0.00193) 0.000449 (0.00246) (1,710 0.043 0.043 0.043 0.043 0.00321** 8	(1) .00105*** 0.00175) 0.	Tax Fraud (0/ (2) (3)	(1), 2015 (4)	(2)
(4) (5) (1) 0.00582*** 0.00562*** 0.00642*** 0.00582*** 0.00562*** 0.00642*** 0.00187 0.00181) (0.00150) 0.00330** 0.00309* 0.0 1 0.00185) 0.00165) 1 0.00185) 0.00165) 1 0.00214) 0.0011 0.00214) 0.0071 0.041 0.002912 0.002941 0.00143) 0.002061 0.00296** 0.00143) 0.00207 0.00296** 0.00143)	(2) (3) 00490*** 0.00134) 0.00402** 1,710 1,710 0.036 0.032	(4) 0.00548*** C (0.00140) 0.00243 (0.00136) 0.00135) 0.043 0.043 0.043	(5) (5) (5) (5) (10,00456) (10,00456) (10,00456) (10,00246) (1,710 (1,710 0.043 0.00321** 8 0.00321** 8 0.0032000*** 8 0.0032000*** 8 0.00000*** 8 0.00000*** 8 0.0000***	(1) 0.0105*** 0.00175) 0.0	(2) (3)	(4)	(2)
0.00582*** 0.00562*** 0.00642*** (0.00177) (0.00181) (0.00150) 0. 0.00397** 0.00309* 0.0 (0.00182) (0.00185) 0. ** 0.003054 1,7710 0. 2.004 2.004 1,7710 0.041 0.069 0.071 0.00296** (0.00206) (0.00244) (0.00143) 0. (0.00197) (0.00196) 0.0	00490*** 0.00134) 0.00402** 1,710 1,710 0.036 0.032	0.00548*** 0 (0.00140) 0.00213 (0.00136) 1.710 0.043 0.043 0.043 (0.00122) 0.042	0.00486*** 0 0.00486*** 0 0.002255 (0.00150) (0 0.002449 0.000449 0.000246) 0 0.043 0 0.043 8 0.00321** 8	0.0105*** 0.00175) 0.			
0.00582*** 0.00562*** 0.00642*** (0.00177) (0.00181) (0.00150) 0.00397** 0.00309* 0.0 (0.00182) (0.00185) (0.00150) ** 0.003094 1,7710 0. 2,004 2,004 1,7710 0. 0.002912 0.000817 0.00296** (0.00206) (0.00244) (0.00143) 0. (0.00197) (0.00196) (0.00143) 0.0	00490*** 0.00134) 0.00402** 1,710 1,710 0.036 0.032	0.00548*** C (0.00140) 0.00213 (0.00136) 1.710 0.043 0.043 (0.00122)	0.00486*** 0 (0.00150) ((0.00153) ((0.00246) ((1.710 (0.043 (0.00321** 8	0.00175) 0.00175) 0.			
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2,004 2,004 1,710 0.069 0.071 0.041 -0.000912 0.000817 0.00296** (0.00206) (0.00244) (0.00143) 0 0.00207 0.00296 0 (0.00197) (0.00196) (0	1,710 1,710 0.036 0.032 0.0515	1,710 0.043 0.00283** ((0.00122)	1,710 0.043 0.00321** 8		(0.0026	3).	(0.00277)
0.069 0.071 0.041 -0.000912 0.000817 0.00296** (0.00206) (0.00244) (0.00143) 0 0.00207 0.00296 0 (0.00197) (0.00196) (0 (0	0.036 0.032	0.00283** (0.00122)	0.0043	2,004	2,004 2,004	2,004	2,004
-0.000912 0.000817 0.00296** -0.00206) (0.00244) (0.00143) 0.00207 0.00296 0.00143) 0.00143 0.00197) (0.00196) (0.00197)	. 91900	0.00283** (0.00122)	0.00321** 8	0.045	0.037 0.021	0.047	0.049
-0.000912 0.000817 0.00296** (0.00206) (0.00244) (0.00143) 0.00207 0.00296 0.00143) (0.00197) (0.00196) (0	000645	0.00283**	0.00321** 8		-		
(0.00206) (0.00244) (0.00143) 0.00207 0.00296 0.00143) (0.00197) (0.00196) (0	000615	(0.00122)		8.46e-05		-0.000912	0.000817
0.00207 0.00296 0.00197) (0.00196) 0.	000615		(0+1.00.0)	0.00191)		(0.00206)	(0.00244)
(0.00197) (0.00196) (0	A	-0.000797	-0.000518	0	.00166	0.00207	0.00296
	0.00141)	(0.00155)	(0.00154)	0	(00177)	(0.00197)	(0.00196)
4 -0.00407*	0.000269		-0.000177		-0.0026	4	-0.00407*
5) (0.00240)	(0.00102)		(0.00143)		(0.0018	5)	(0.00240)
2,004 2,004 1,710	1,710 1,710	1,710	1,710	2,004	2,004 2,004	2,004	2,004
0.057 0.060 0.032	0.032 0.032	0.032	0.032	0.019	0.020 0.020	0.020	0.022
when undertaking							
0.00762* 0.00987** 0.00954**		0.00762*	0.00987**	0.00783		0.00660	0.0102*
(0.00451) (0.00503) (0.00414)		(0.00451)	(0.00503) (0	0.00501)		(0.00467)	(0.00548)
0.00338 0.00975* 0.	.00815**	0.00338	0.00975*	0	00524	0.00198	0.00333
(0.00452) (0.00531) (0	0.00400)	(0.00452)	(0.00531)	0	(06600)	(0.00427)	(0.00470)
-0.0121**	-0.00106		-0.0121**		0.00030	55	-0.00720
1) (0.00554)	(0.00401)		(0.00554)		(0.0050	1)	(0.00671)
2,004 2,004 2,004	2,004 2,004	2,004	2,004	2,004	2,004 2,004	2,004	2,004
0.052 0.055 0.030	0.030 0.031	0.030	0.031	0.021	0.020 0.019	0.021	0.022
heses. *** p<0.01, ** p<0.05, * p<0.1. This specifica	ation controls for socioden	lographic character	eristics, education	n and income le	evels, main occupation	on categories.	
4 -0.00407* 5) 2.004 1,710 2.004 2.004 1,710 0.057 0.060 0.032 here undertaking 0.0351 0.032 0.0075* 0.00957* 0.00954** 0.003541 0.00752* 0.00975* 0.00414) 0.0 6 0.00451 (0.00451) 0.00464 0.00452* 0.005631 0.0 0 6 0.005541 0.0030 0.00 7 0.00564 0.030 0.0 10 0.00564 0.030 0.0 6 0.00564 0.030 0.0 10 0.00564 0.030 0.0 10 0.0056 0.030 0.030	0.00141) 0.000269 0.00220 0.032 0.032 0.032 0.0106 0.00106 0.00106 0.00106 0.00106 0.00106 0.00106 0.00106 0.00106 0.00100 0.00100 0.00100 0.00102 0.00200 0.00200 0.00200 0.00200 0.00200 0.00200 0.00200 0.00200 0.00200 0.00200 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.00000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.0000000 0.000000 0.000000 0.000000 0.0000000 0.0000000 0.0000000 0.0000000 0.00000000	-0.000757 (0.00155) (0.00155) 0.0022 (0.00451) (0.00452) (0.00452) (0.00452) 0.0030 0.0030 0.0030 0.0030	aracte	0.00321** 0.00146) ((0.00146) ((0.00154) 0.00154) 1.710 1.710 0.00143) 1.710 0.00143) 0.00143) 0.00254) 0.00564) 2.004 0.0031 0.00354) 2.004 0.0031	0.00321** 8.46e-05 0.00146) (0.00191) 0.00154) (0.00191) 0.00154) (0.00154) (0 0.00143) (0.00143) 0.00143) (0.00143) 0.00143) (0.00143) 0.00143) (0.00143) 0.00143) (0.00143) 0.00144) (0.00531) 0.00054) (0.00501) 0.00054) (0.00501) 0.00121** 0.00554) (0.00501) 0.00121** 0.0012** 0	0.00321** 8.46e-05 (0.00146) (0.00191) (0.00154) (0.00191) -0.000518 (0.00154) (0.00166 (0.00154) (0.00167) -0.000518 (0.00143) (0.0018 (0.00143) (0.0019 (0.0019 (0.00143) (0.0019 (0.0019) 0.00143) (0.0019 (0.0020) 0.0027* (0.00501) (0.0020 (0.00531) (0.00501) (0.00290) -0.0121** (0.0051) (0.00290) -0.0121** (0.00554) (0.00290) -0.0121** (0.00564) (0.00290) -0.0121** (0.00564) (0.00290) -0.0121** (0.00564) (0.00590) -0.0121** (0.00564) (0.00500) -0.0121** (0.00564) (0.00500) -0.0120* (0.00500) (0.00500) -0.0120* (0.00500) (0.00500) (0.00500) -0.0120* (0.00500) (0.00500) (0.00500) (0.00500) (0.00500) (0.00500) (0.00500) (0.00500) (0.00500) (0.00500) (0.00500) (0.00500) (0.00500) (0.00500) (0.00500) (0.00500) (0.00500)	0.00321* 8.46e-05 -0.000912 0.00145) (0.00145) (0.00191) (0.00206) -0.000518 0.00154) (0.00197) (0.00197) -0.000177 0.00154) (0.00197) (0.00197) -0.000177 -0.00266 0.00207 (0.00197) -0.000177 -0.00254 0.00197 (0.00145) -0.00143) 0.0019 0.00204 2.004 2.004 0.0032 0.019 0.020 0.020 0.020 0.00327* 0.019 0.020 0.020 0.020 0.00524 0.00524 0.00467 0.00467 0.00554) 0.00524 0.00467 0.00467 0.00554) 0.00524 0.00467 0.00467 0.00554) 0.00524 0.00467 0.00467 0.0121** 0.00524 0.00467 0.00198 0.01054 0.00524 0.00467 0.00467 0.0104 2.004 2.004 2.004 0.0100540 0.000390 0.0