

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](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>

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

	Peer Effects: France		Peer Effects : Amongst relatives		Weakness of risk to be caught		Weakness of associated penalty	
	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
Household composition (<i>ref.</i> : single woman)								
Single man	-0.0353*** (0.0124)	-0.0345*** (0.0126)	0.0781** (0.0371)	0.0731* (0.0377)	0.197** (0.0807)	0.197** (0.0821)	-0.0230 (0.0842)	0.000184 (0.0842)
Single man with children	-0.0210 (0.0303)	-0.0152 (0.0301)	0.104 (0.0868)	0.0877 (0.0882)	0.518*** (0.178)	0.516*** (0.179)	0.394*** (0.148)	0.384*** (0.148)
Single woman with children	-0.00731 (0.0193)	-0.00638 (0.0192)	-0.0331 (0.0570)	-0.0289 (0.0569)	0.0529 (0.120)	0.0422 (0.120)	-0.0127 (0.123)	-0.0235 (0.122)
Married woman without child(ren)	0.0237 (0.0149)	0.0215 (0.0149)	-0.0585 (0.0432)	-0.0534 (0.0433)	-0.0267 (0.0998)	-0.0276 (0.0998)	0.000602 (0.0976)	0.00842 (0.0966)
Married woman with child(ren)	0.0224 (0.0184)	0.0225 (0.0186)	0.0307 (0.0566)	0.0423 (0.0564)	0.170 (0.116)	0.165 (0.116)	-0.0588 (0.127)	-0.0854 (0.127)
Married man without child(ren)	-0.0528*** (0.0175)	-0.0503*** (0.0177)	0.0377 (0.0566)	0.0282 (0.0573)	0.391*** (0.117)	0.385*** (0.121)	0.223* (0.122)	0.229* (0.125)
Married man with child(ren)	0.00602 (0.0135)	0.00512 (0.0135)	0.0723* (0.0422)	0.0758* (0.0426)	0.0783 (0.0903)	0.0715 (0.0918)	-0.0558 (0.0909)	-0.0457 (0.0896)
Number of children in household	-0.00108 (0.00574)	-0.000723 (0.00568)	-0.00860 (0.0181)	-0.00854 (0.0178)	-0.0571 (0.0365)	-0.0545 (0.0366)	-0.0105 (0.0375)	-0.0103 (0.0375)
Number of individuals in household	0.0130*** (0.00461)	0.0121*** (0.00465)	-0.0200 (0.0129)	-0.0200 (0.0130)	-0.0824*** (0.0276)	-0.0771*** (0.0277)	-0.0656** (0.0288)	-0.0601** (0.0290)
Age (<i>ref.</i> : < 25)								
25-40	-0.0265 (0.0163)	-0.0281 (0.0182)	0.0149 (0.0474)	-0.00797 (0.0506)	0.0145 (0.0983)	-0.0261 (0.106)	0.239* (0.122)	0.288** (0.132)
40-60	-0.0443*** (0.0160)	-0.0462*** (0.0179)	-0.0187 (0.0469)	-0.0378 (0.0500)	-0.134 (0.0990)	-0.173 (0.107)	0.245** (0.120)	0.276** (0.129)
60-70	-0.0742*** (0.0175)	-0.0820*** (0.0221)	-0.126** (0.0526)	-0.0746 (0.0666)	-0.156 (0.112)	-0.267* (0.140)	0.280** (0.131)	0.202 (0.158)
> 70	-0.0831*** (0.0178)	-0.0949*** (0.0242)	-0.172*** (0.0523)	-0.0967 (0.0726)	-0.191* (0.112)	-0.336** (0.157)	0.388*** (0.126)	0.298* (0.163)



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(continued)	Peer Effects: France		Peer Effects : Amongst relatives		Weakness of risk to be caught		Weakness of associated penalty	
	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
Income levels (<i>ref.</i> : < 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 (<i>ref.</i> : employee)								
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

	Undeclared work. 2015		
	(i)	(ii)	(iii)
% undeclared workers amongst relatives & acceptability of undeclared work	0.0137***		
	(0.0045)		
Undeclared work acceptability & Perceived weakness of associated risk		0.0055***	
		(0.0019)	
% undeclared workers amongst relatives & Perceived weakness of associated risk			0.0193***
			(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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Tableau C2-2 – Acceptability and perceptions of respectively risks and sanctions: interactions and joint influences for fraudulent behaviours (undeclared work, tax fraud, social benefit fraud) – Probit estimates

	Undeclared work, 2015					Undeclared personal services, 2015					Tax Fraud (0/1), 2015				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
Acceptability ...															
...of undeclared work (1-10)	0.00845*** (0.00163)			0.00582*** (0.00177)	0.00562*** (0.00181)	0.00642*** (0.00150)			0.00548*** (0.00140)	0.00486*** (0.00150)	0.0105*** (0.00175)			0.00832*** (0.00212)	0.00930*** (0.00215)
...of tax fraud (1-10)		0.00777*** (0.00154)		0.00397** (0.00182)	0.00309* (0.00185)		0.00490*** (0.00134)		0.00213 (0.00136)	0.00225 (0.00193)		0.00870*** (0.00173)		0.00329 (0.00213)	0.00376* (0.00208)
...of social benefit fraud (1-10)			0.00750*** (0.00204)		0.00274 (0.00218)			0.00402** (0.00176)		0.000449 (0.00246)			0.00398 (0.00263)		-0.00425 (0.00277)
Number of observations	2,004	2,004	2,004	2,004	2,004	1,710	1,710	1,710	1,710	1,710	2,004	2,004	2,004	2,004	2,004
Linear probability model R2	0.065	0.065	0.059	0.069	0.071	0.041	0.036	0.032	0.043	0.043	0.045	0.037	0.021	0.047	0.049
Weakness of risk to be caught (1 – probability to be caught) ...															
...for undeclared work (1-10)	8.46e-05 (0.00191)			-0.000912 (0.00206)	0.000817 (0.00244)	0.00296** (0.00143)			0.00283** (0.00122)	0.00321** (0.00146)	8.46e-05 (0.00191)			-0.000912 (0.00206)	0.000817 (0.00244)
...for tax fraud (1-10)		0.00166 (0.00177)		0.00207 (0.00197)	0.00296 (0.00196)		0.000615 (0.00141)		-0.000797 (0.00155)	-0.000618 (0.00154)		0.00166 (0.00177)		0.00207 (0.00197)	0.00296 (0.00196)
...for social benefit fraud (1-10)			-0.00254 (0.00185)		-0.00407* (0.00240)			0.000269 (0.00102)		-0.000177 (0.00143)			-0.00254 (0.00185)		-0.00407* (0.00240)
Number of observations	2,004	2,004	2,004	2,004	2,004	1,710	1,710	1,710	1,710	1,710	2,004	2,004	2,004	2,004	2,004
Linear probability model R2	0.055	0.055	0.049	0.057	0.060	0.032	0.032	0.032	0.032	0.032	0.019	0.020	0.020	0.020	0.022
Estimated penalty weakness (estimated as 5K euro – penalty) when undertaking ...															
...undeclared work (1-10)	0.00954*** (0.00414)			0.00762* (0.00451)	0.00987** (0.00503)	0.00954*** (0.00414)			0.00762* (0.00451)	0.00987** (0.00503)	0.00783 (0.00601)			0.00660 (0.00467)	0.0102* (0.00548)
...tax fraud (1-10)		0.00815** (0.00400)		0.00338 (0.00452)	0.00975* (0.00531)		0.00815** (0.00400)		0.00338 (0.00452)	0.00975* (0.00531)		0.00524 (0.00390)		0.00198 (0.00427)	0.00333 (0.00470)
...social benefit fraud (1-10)			-0.00106 (0.00401)		-0.0121** (0.00554)			-0.00106 (0.00401)		-0.0121** (0.00554)			0.000395 (0.00501)		-0.00720 (0.00671)
Number of observations	2,004	2,004	2,004	2,004	2,004	2,004	2,004	2,004	2,004	2,004	2,004	2,004	2,004	2,004	2,004
Linear probability model R2	0.052	0.051	0.049	0.052	0.055	0.030	0.030	0.031	0.030	0.031	0.021	0.020	0.019	0.021	0.022

Notes: Probit estimations. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. This specification controls for sociodemographic characteristics, education and income levels, main occupation categories. Sources: EPIMF.