

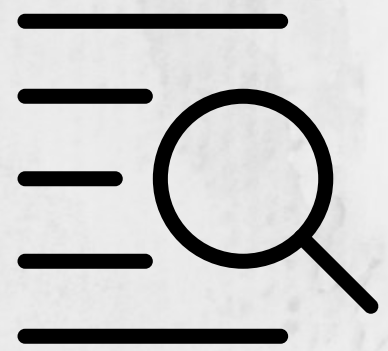
Asociación entre nivel educativo y consumo de alcohol en adultos en España

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1 *Introducción*

- La **cantidad** de consumo de alcohol y los **patrones de consumo** son los principales determinantes de los daños a la salud relacionados con el alcohol.
- Diferencias en cuanto a la **situación socioeconómica**:

Mayor morbimortalidad por alcohol en estratos socioeconómicos bajos

Menor prevalencia o cantidad promedio de alcohol en estratos socioeconómicos bajos

PARADOJA DEL DAÑO DEL ALCOHOL

¡Depende de la medida y del sexo!

1 Introducción

Gradiente socioeconómico positivo: conforme aumenta el nivel socioeconómico, mayor es el consumo

Gradiente socioeconómico negativo: conforme aumenta el nivel socioeconómico, menor es el consumo

Consumo promedio excesivo de alcohol (HAD)

Cantidad

Superación de una determinada cantidad de alcohol diaria o semanal



≥ 20 gr alc/día

Gradiente socioeconómico positivo

Paradoja del daño del alcohol



≥ 40 gr alc/día

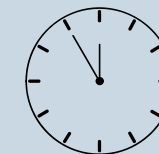
Gradiente socioeconómico negativo

*A partir de cierta cantidad

Consumo intensivo episódico de alcohol (HED)

Patrón de consumo

Existencia de algún episodio el mes o el año anterior



2-4 horas



≥ 4 bebidas estándar

*A partir de 2009

Gradiente socioeconómico positivo/negativo

*Según país



≥ 5 bebidas estándar

Gradiente socioeconómico negativo

*Actualmente se ha rebajado a 10/20 gr alc/día

*No existe una definición ampliamente aceptada

2. *Objetivos*



- Conocer la **desigualdad educativa** en ciertas medidas mensuales de cantidad de bebida (**HAD y HED**) por sexo y periodo.
- Conocer el **efecto del consumo HAD y HED** en las desigualdades educativas.

-Poca información sobre en qué umbral de cantidad consumida (HAD) se invierten los gradientes socioeconómicos en hombres

-Poca información sobre gradientes socioeconómicos según el HED

3 Metodología

Población de estudio y variables



Encuesta sobre alcohol y otras drogas en España (EDADES)

Población Española de 25 a 64 años

Datos consumo sustancias:
cuestionario autoadministrado



Muestra ponderada

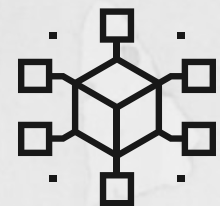
Edad  Región de residencia 



1997-2017

Diez ediciones bienales de la encuesta

Análisis estratificado por:



♂ Hombre
♀ Mujer



1997-2007
2009-2017

3 Metodología

Población de estudio y variables



Indicadores cantidad y episodios (Variable dependiente)

+ Frecuencia (n° días) y cantidad (n° bebidas estándar/día)

Vino

Cerveza/sidra

Aperitivos

Licores de frutas

Licores fuertes

Cócteles espirituosos

Últimos 30 días

+ Frecuencia (n° días) de HED ($\geq 4/5$ bebidas en 2h)

Indicadores desigualdad socioeconómica (Variable independiente)

Nivel de estudios

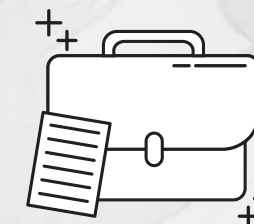
Primarios
Secundarios 1º etapa
Secundarios 2º etapa
Universitarios

Clase ocupacional

T. manuales no cualificados
T. manuales cualificados
Prof. intermedios/t. no manuales
Directivos/profesionales

Nivel de renta

< 10.000€
10.000€ - 14.999€
15.000€ - 24.999€
 $\geq 25.000€$



✓ más estable y menos causalidad inversa

3 Metodología

Análisis estadístico

- Cantidad media de consumo
- Prevalencias de **intervalo de cantidad diaria**

0.1-10 g alc/día

11-20 g alc/día

>20 g alc/día



0.1-20 g alc/día

21-40 g alc/día

>40 g alc/día

- Media días HED

Nº días HED

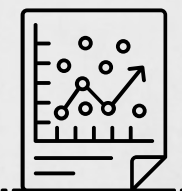
1-3 días HED

>=4 días HED

RESULTS

Estandarización por edad

Población estándar europea 2013



Modelos de regresión binomial negativa con varianza robusta y con enlace logarítmico

Ajuste por sexo, grupo de edad, año, CCAA, estado civil y estado de inmigración

Modelos alternativos: cantidad ajustada por HED, y viceversa

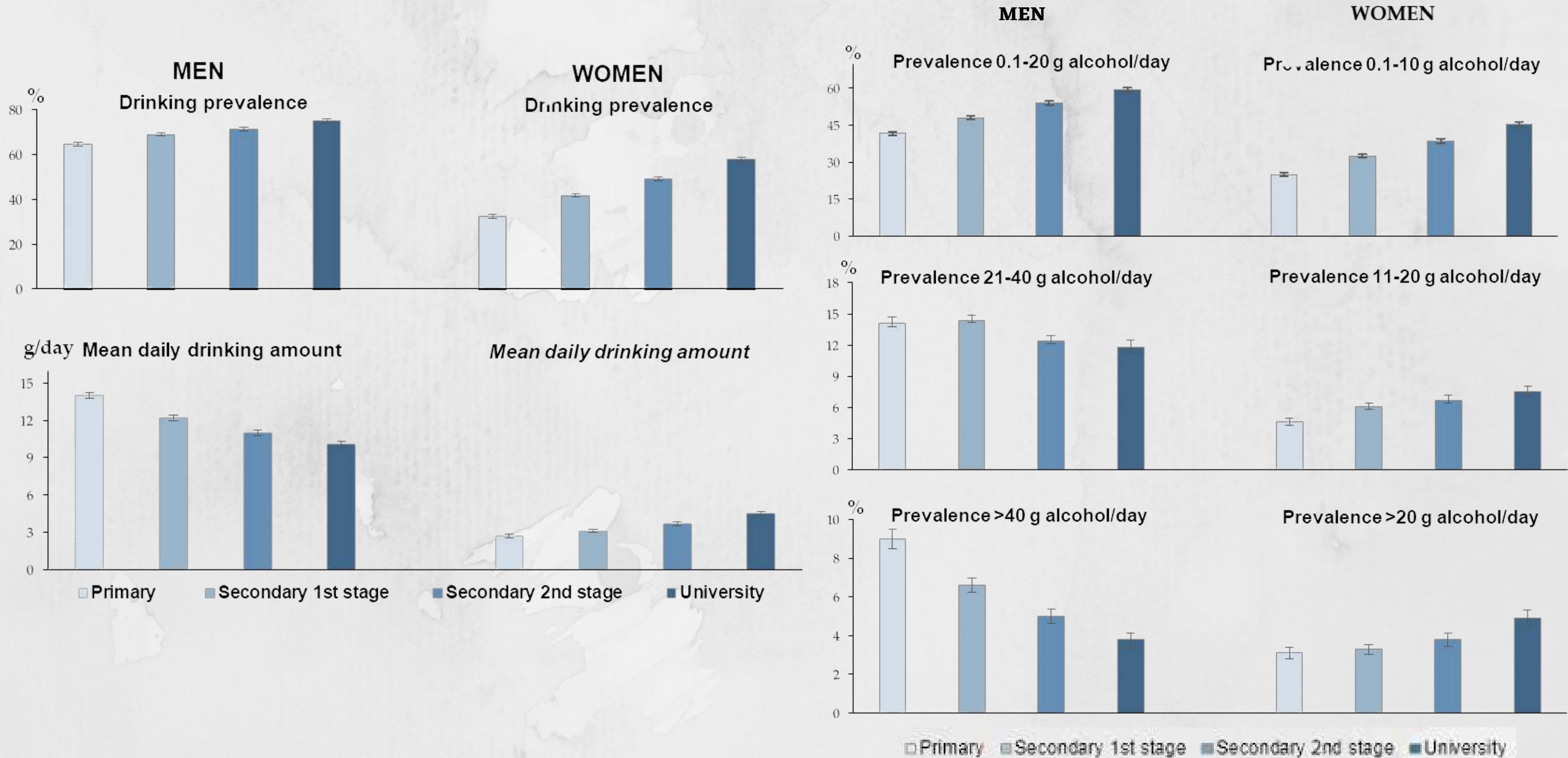


1. **Ratios de tasas** (ref. estudios universitarios)
2. **Cambio porcentual relativo** en las medidas de consumo por año de educación (nº años educación como continua)

*Análisis de sensibilidad con clase ocupacional y con nivel de renta

4 Resultados

Figura 1. Medidas estandarizadas por edad de la cantidad de consumo promedio de alcohol



4 Resultados

Tabla 1. Desigualdad educativa en la prevalencia y la cantidad media de consumo de alcohol en los últimos 30 días.

Measure of amount of alcohol	Men						Women					
	Model I		Model II		Model I		Model II					
Drinking prevalence	PR	95% CI	PR	95% CI	PR	95% CI	PR	95% CI				
Primary	0.86	0.84 0.87	0.85	0.83 0.86	0.57	0.56 0.59	0.58	0.56 0.60				
Secondary 1st stage	0.91	0.90 0.92	0.89	0.88 0.91	0.74	0.72 0.75	0.75	0.73 0.76				
Secon-dary 2nd stage	0.96	0.94 0.97	0.95	0.94 0.97	0.87	0.85 0.89	0.88	0.86 0.90				
University	1.00		1.00		1.00		1.00					
Mean daily drinking amounth	MR	95% CI	MR	95% CI	MR	95% CI	MR	95% CI				
Primary	1.24	1.20 1.29	1.11	1.06 1.15	0.57	0.53 0.61	0.57	0.54 0.61				
Secondary 1st stage	1.19	1.15 1.23	1.09	1.05 1.13	0.71	0.68 0.75	0.74	0.70 0.77				
Secondary 2nd stage	1.10	1.06 1.14	1.05	1.01 1.09	0.85	0.80 0.89	0.85	0.81 0.89				
University	1.00		1.00		1.00		1.00					

Gradiente educativo positivo **Gradiente educativo negativo**

Model I: Negative binomial regression model adjusted for simple age, simple calendar-year, region, marital status and immigration status, all entered as dummy variables. **Model II:** Same as Model I, but additionally adjusted for and number of days of heavy episodic drinking during the last 30 days. **PR:** Ratio between the value of drinking measure at each education level and its value at university level. **PC:** Relative percent change in the corresponding drinking measure per year of education, under the assumption of a linear association. **MR:** Ratio between the value of mean daily drinking amount at each education level and its value at university level.

4 *Resultados*

Tabla 2. Desigualdad educativa en tres medidas de frecuencia de consumo episódico excesivo de alcohol (HED) en los últimos 30 días.

Measure of amount of alcohol	Men				Women			
	Model I		Model II		Model I		Model II	
Prevalence of 0.1-20 g/day in men and 0,1-10 g/day in women	PR	95% CI	PR	95% CI	PR	95% CI	PR	95% CI
Primary	0.72	0.70 0.73	0.72	0.70 0.74	0.56	0.54 0.58	0.56	0.54 0.59
Secondary 1st stage	0.80	0.78 0.81	0.81	0.79 0.82	0.72	0.71 0.74	0.73	0.71 0.75
Secondary 2nd stage	0.91	0.89 0.93	0.92	0.90 0.94	0.87	0.85 0.90	0.88	0.85 0.90
University	1.00		1.00		1.00		1.00	
Prevalence of 21-40 g/day in men and 11-20 g/day in women	PR	95% CI	PR	95% CI	PR	95% CI	PR	95% CI
Primary	1.15	1.07 1.23	1.13	1.06 1.21	0.65	0.59 0.72	0.69	0.62 0.77
Secondary 1st stage	1.20	1.13 1.28	1.17	1.10 1.24	0.84	0.77 0.91	0.87	0.79 0.94
Secondary 2nd stage	1.08	1.01 1.15	1.03	0.97 1.10	0.91	0.83 0.99	0.91	0.83 0.99
University	1.00		1.00		1.00		1.00	
Prevalence of HAD	PR	95% CI	PR	95% CI	PR	95% CI	PR	95% CI
Primary	2.19	1.96 2.45	1.78	1.59 1.98	0.56	0.49 0.64	0.63	0.55 0.73
Secondary 1st stage	1.86	1.67 2.06	1.53	1.38 1.69	0.71	0.64 0.79	0.82	0.74 0.92
Secondary 2nd stage	1.40	1.25 1.56	1.25	1.12 1.40	0.81	0.72 0.91	0.85	0.76 0.95
University	1.00		1.00		1.00		1.00	

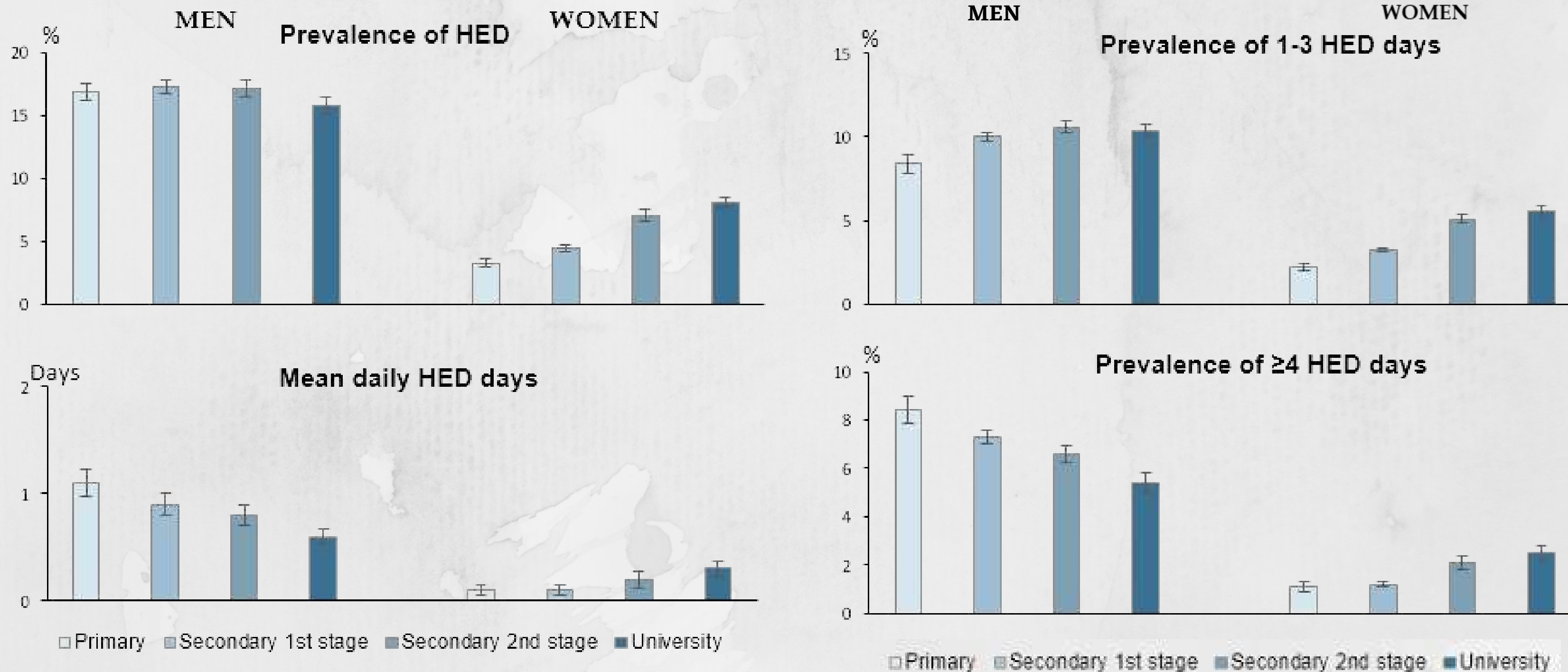
Gradiente educativo positivo

Gradiente educativo negativo

Model I: Negative binomial regression model adjusted for simple age, simple calendar-year, region, marital status and immigration status, all entered as dummy variables. **Model II:** Same as Model I, but additionally adjusted for and number of days of heavy episodic drinking during the last 30 days. **PR:** Ratio between the value of drinking measure at each education level and its value at university level. **PC:** Relative percent change in the corresponding drinking measure per year of education, under the assumption of a linear association. **MR:** Ratio between the value of mean daily drinking amount at each education level and its value at university level.

4 *Resultados*

Figura 2. Medidas estandarizadas por edad de la frecuencia de consumo intensivo episódico de alcohol



4 Resultados

Tabla 3. Desigualdad educativa en prevalencia y cantidad media de frecuencia de consumo episódico excesivo de alcohol (HED) en los últimos 30 días.

Measure of HED frequency & education	Men						Women					
	Model I			Model II			Model I			Model II		
Prevalence of HED	PR	95% CI		PR	95% CI		PR	95% CI		PR	95% CI	
Primary	1.07	1.01	1.13	0.99	0.93	1.04	0.50	0.44	0.56	0.83	0.74	0.93
Secondary 1st stage	1.10	1.05	1.15	1.04	0.99	1.09	0.67	0.61	0.72	0.91	0.84	0.99
Secon-dary 2nd stage	1.08	1.02	1.13	1.04	0.99	1.09	0.88	0.82	0.95	1.02	0.95	1.09
University	1.00			1.00			1.00			1.00		
Mean HED days	MR	95% CI		MR	95% CI		MR	95% CI		MR	95% CI	
Primary	1.62	1.47	1.80	0.99	0.90	1.09	0.61	0.50	0.74	1.01	0.86	1.19
Secondary 1st stage	1.47	1.35	1.60	1.11	1.02	1.20	0.68	0.60	0.77	0.94	0.84	1.05
Secondary 2nd stage	1.23	1.13	1.35	1.09	1.01	1.19	0.92	0.82	1.04	1.15	1.03	1.29
University	1.00			1.00			1.00			1.00		

Gradiente educativo positivo

Gradiente educativo negativo

No hay un gradiente claro

Model I: Negative binomial regression model adjusted for simple age, simple calendar-year, region, marital status and immigration status, all entered as dummy variables. **Model II:** Same as Model 1, but additionally adjusted for and number of grams/day of alcohol intake during the last 30 days. **PR:** Ratio between the value of the HED measure at each education level and its value at university level **PC:** Relative percent change in the corresponding HED measure per year of education, under the assumption of a linear association. **MR:** Ratio between the value of mean HED days at each education level and its value at university level.

4 Resultados

Tabla 4. Desigualdad educativa en tres medidas de frecuencia de consumo episódico excesivo de alcohol (HED) en los últimos 30 días.

Measure of HED frequency & education	Men				Women			
	Model I		Model II		Model I		Model II	
Prevalence of one HED day	PR	95% CI	PR	95% CI	PR	95% CI	PR	95% CI
Primary	0.75	0.66 0.84	0.87	0.77 0.98	0.47	0.38 0.57	0.77	0.63 0.94
Secondary 1st stage	0.90	0.83 0.99	0.98	0.90 1.07	0.65	0.57 0.74	0.87	0.77 1.00
Secondary 2nd stage	0.98	0.89 1.07	1.02	0.93 1.12	0.88	0.77 0.99	0.98	0.87 1.11
University	1.00		1.00		1.00		1.00	
Prevalence of 2-3 HED days	PR	95% CI	PR	95% CI	PR	95% CI	PR	95% CI
Primary	0.95	0.85 1.07	0.97	0.87 1.08	0.47	0.37 0.59	0.80	0.64 0.99
Secondary 1st stage	0.98	0.90 1.08	0.98	0.98 0.98	0.71	0.62 0.83	1.00	0.86 1.16
Secondary 2nd stage	1.01	0.92 1.11	1.00	1.00 1.00	0.87	0.76 1.01	1.02	0.89 1.17
University	1.00		1.00		1.00		1.00	
Prevalence of ≥4 HED days	PR	95% CI	PR	95% CI	PR	95% CI	PR	95% CI
Primary	1.48	1.34 1.63	1.10	1.00 1.20	0.57	0.46 0.71	0.96	0.77 1.18
Secondary 1st stage	1.40	1.29 1.53	1.15	1.05 1.24	0.63	0.54 0.74	0.89	0.76 1.04
Secondary 2nd stage	1.23	1.13 1.35	1.11	1.02 1.21	0.89	0.77 1.03	1.08	0.93 1.25
University	1.00		1.00		1.00		1.00	

Gradiente educativo positivo
 Gradiente educativo negativo
 No hay un gradiente claro

Model I: Negative binomial regression model adjusted for simple age, simple calendar-year, region, marital status and immigration status, all entered as dummy variables. **Model II:** Same as Model 1, but additionally adjusted for and number of grams/day of alcohol intake during the last 30 days. **PR:** Ratio between the value of the HED measure at each education level and its value at university level **PC:** Relative percent change in the corresponding HED measure per year of education, under the assumption of a linear association. **MR:** Ratio between the value of mean HED days at each education level and its value at university level.

4 *Resultados*

Tabla 5. Gradientes educativos en la cantidad de consumo de alcohol y la frecuencia de consumo episódico intenso en los últimos 30 días (% de cambio relativo por año de educación)

	Men				Women			
	1997-2007		2009-2017		1997-2007		2009-2017	
	PC	95%CI	PC	95%CI	PC	95%CI	PC	95%CI
Drinking amount measure								
Drinking prevalence	1.2	1.0 1.4	1.6	1.4 1.8	4.6	4.3 4.9	5.0	4.6 5.3
Prevalence of HAD	-6.0	-6.8 -5.1	-6.4	-7.7 -5.0	4.2	2.7 5.6	5.4	3.5 7.3
Mean daily drinking amount	-2.1	-2.5 -1.7	-1.5	-2.0 -1.0	4.4	3.7 5.2	5.2	4.4 5.9
HED measure								
Prevalence of HED	-0.7	-1.3 -0.1	-0.5	-1.1 0.1	4.0	2.6 5.5	<u>6.3</u>	5.2 7.5
Prevalence of ≥4 HED days	-2.9	-3.8 -2.0	-3.8	-4.9 -2.6	2.6	0.1 5.3	<u>7.0</u>	4.7 9.4
Mean HED days	-4.3	-5.3 -3.3	-3.8	-4.9 -2.6	2.8	0.8 4.8	<u>5.7</u>	3.8 7.6

PC: Relative percentage change in the corresponding drinking measure per year of education, under the assumption of a linear association, obtained from negative binomial regression model adjusted for simple age, simple calendar-year, region, marital status and immigration status, all entered as dummy variables.

5 *Discusión*

El gradiente educativo en la ingesta de alcohol depende fuertemente del sexo y de la medida analizada

<21 g/día de cantidad y <3 días de HED últimos 30 días

Gradiente educativo positivo

Hombres →

Cantidades superiores

Inversión gradiente



Mujeres →

Gradiente educativo positivo para todas las medidas de consumo de alcohol (HAD y HED)

Análisis complementario bebedoras



***Menor proporción de mujeres con menor nivel de estudios bebedoras, no que consuman alcohol en menor cantidad o medida.**

Heterogeneidad de las desigualdades socioeconómicas en las medidas de consumo de alcohol

5 *Discusión*

Aplanamiento del gradiente educativo en el consumo intensivo episódico (HED) cuando se ajusta por la cantidad

España: gradiente educativo en el consumo según cantidad contribuye a explicar una parte importante del gradiente en las medidas de frecuencia de HED, pero no lo contrario.

Consumo HED importante para explicar daños relacionados con alcohol



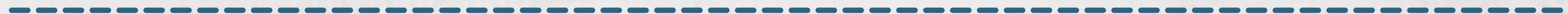
Sin embargo, en España durante 1997-2017
**gran influencia de HED sobre desigualdades
está mediada por la cantidad**

5

Discusión



- Análisis gradiente educativo en múltiples medidas de consumo de alcohol, poco realizado anteriormente
- Larga serie de encuestas; tamaño muestra considerable
- Metodología encuesta: constante a lo largo del tiempo
- Indicadores ajustados por varios factores sociodemográficos
- Resultados coherentes al utilizar otros indicadores de desigualdad



- Encuestas autodeclaradas: subestimación del consumo de alcohol, especialmente consumo excesivo > mujeres bajo nivel educativo
- Diseño transversal → no causalidad nivel educativo - medidas consumo alcohol
- Posible influencia de otras covariables no consideradas
- Medición de desigualdades relativas → No consideración desigualdades absolutas

6 *Conclusiones*

Obtención rutinaria medidas HAD y HED para controlar las desigualdades socioeconómicas

Intervenciones preventivas ingesta de alcohol >>> Hombres bajo nivel educativo
Mujeres no solo para bajo nivel educativo

Futuras investigaciones → Comparar gradientes educativos con población de mayor de edad

Paradoja alcohol-daño: estimar disparidad entre gradientes socioeconómicos consumo - mortalidad/morbilidad



Article

Educational Gradients in Drinking Amount and Heavy Episodic Drinking among Working-Age Men and Women in Spain

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Abstract: Alcohol-related harm decreases as socioeconomic position increases, although sometimes the opposite happens with alcohol intake. The objective was to know the educational gradient in monthly measures of drinking amount and heavy episodic drinking (HED) among people aged 25–64 years in Spain from 1997–2017. Such gradient was characterized with the relative percent change (PC) in drinking measures per year of education from generalized linear regression models after adjusting for age, year, region, marital status and immigration status. Among men, the PCs were significantly positive ($p < 0.05$) for prevalence of <21 g alcohol/day (2.9%) and 1–3 HED days (1.4%), and they were negative for prevalences of 21–40 g/day (−1.1%), >40 g/day (−6.0%) and ≥ 4 HED days (−3.2%), while among women they ranged from 3.6% to 5.7%. The gradient in prevalences of >40 g/day (men) and >20 g/day (women) was greatly attenuated after additionally adjusting for HED, while that of ≥ 4 HED days was only slightly attenuated after additionally adjusting for drinking amount. Among women, the gradients, especially in HED measures, seem steeper in 2009–2017 than in 1997–2007. Educational inequality remained after additional adjustment for income and occupation, although it decreased among women. These results can guide preventive interventions and help explain socioeconomic inequalities in alcohol-related harm.

Keywords: alcohol use; average drinking amount; heavy episodic drinking; educational gradient; sex; Spain

Nivel de renta

	Men			Women		
Measure of amount of alcohol intake & individual income						
Drinking prevalence	Preval. Ratio	95% CI		Preval. Ratio	95% CI	
< 10.000€	0.81	0.78	0.84	0.62	0.58	0.65
10.000€-14.999€	0.85	0.82	0.87	0.67	0.64	0.71
15.000€-24.999€	0.93	0.92	0.95	0.83	0.81	0.85
>=25.000€	1.00			1.00		
	Percent	95% CI		Percent	95% CI	
Per thousand € of income	0.47	0.41	0.54	1.17	1.07	1.28
HAD prevalence	Preval. Ratio	95% CI		Preval. Ratio	95% CI	
< 10.000€	1.37	1.15	1.63	0.71	0.55	0.92
10.000€-14.999€	1.21	1.02	1.43	0.68	0.54	0.85
15.000€-24.999€	1.01	0.88	1.13	0.79	0.68	0.91
>=25.000€	1.00			1.00		
	Percent	95% CI		Percent	95% CI	
Per thousand € of income	-0.63	-1.15	-0.10	1.24	0.72	1.76
Mean daily drinking amount	Mean ratio	95% CI		Mean ratio	95% CI	
< 10.000€	0.96	0.89	1.04	0.57	0.50	0.64
10.000€-14.999€	0.95	0.89	1.01	0.65	0.59	0.71
15.000€-24.999€	0.97	0.93	1.01	0.78	0.73	0.82
>=25.000€	1.00			1.00		
	Percent	95% CI		Percent	95% CI	
Per thousand € of income	0.16	0.00	0.33	1.53	1.29	1.77
Prevalence of HED	Preval. Ratio	95% CI		Preval. Ratio	95% CI	
< 10.000€	0.81	0.74	0.88	0.57	0.49	0.65
10.000€-14.999€	0.91	0.84	0.98	0.69	0.61	0.79
15.000€-24.999€	0.95	0.88	1.02	0.74	0.66	0.84
>=25.000€	1.00			1.00		
	Percent	95% CI		Percent	95% CI	
Per thousand € of income	0.42	0.21	0.63	1.25	0.91	1.60
Prevalence of ≥4 HED days	Preval. Ratio	95% CI		Preval. Ratio	95% CI	
< 10.000€	0.97	0.83	1.12	0.46	0.34	0.61
10.000€-14.999€	0.95	0.83	1.10	0.53	0.42	0.69
15.000€-24.999€	1.00	0.87	1.15	0.63	0.50	0.79
>=25.000€	1.00			1.00		
	Percent	95% CI		Percent	95% CI	
Per thousand € of income	0.04	-0.42	0.34	1.92	1.28	2.56
Mean HED days	Mean ratio	95% CI		Mean ratio	95% CI	
< 10.000€	0.91	0.76	1.09	0.52	0.41	0.66
10.000€-14.999€	0.86	0.72	1.01	0.60	0.48	0.73
15.000€-24.999€	0.82	0.70	0.96	0.67	0.55	0.82
>=25.000€	1.00			1.00		
	Percent	95% CI		Percent	95% CI	
Per thousand € of income	-0.44	-0.84	0.04	1.38	0.83	1.93

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	Men		Women	
Measure of amount of alcohol intake & occupational class				
Drinking prevalence	Preval. Ratio	95% CI	Preval. Ratio	95% CI
Unskilled manual workers	0.87	0.85 0.90	0.67	0.64 0.71
Skilled manual workers	0.94	0.92 0.96	0.74	0.72 0.77
Intermediate occupations and non-manual workers	0.96	0.94 0.97	0.88	0.86 0.90
Managers and professionals	1.00		1.00	
Prevalence of HAD	Preval. Ratio	95% CI	Preval. Ratio	95% CI
Unskilled manual workers	1.63	1.42 1.87	0.57	0.43 0.76
Skilled manual workers	1.44	1.29 1.61	0.78	0.64 0.95
Intermediate occupations and non-manual workers	1.19	1.09 1.30	0.98	0.87 1.11
Managers and professionals	1.00		1.00	
Mean daily drinking amount	Mean ratio	95% CI	Mean ratio	95% CI
Unskilled manual workers	1.12	1.05 1.20	0.57	0.52 0.63
Skilled manual workers	1.12	1.07 1.17	0.74	0.68 0.81
Intermediate occupations and non-manual workers	1.03	0.99 1.06	0.86	0.82 0.91
Managers and professionals	1.00		1.00	
Prevalence of HED	Preval. Ratio	95% CI	Preval. Ratio	95% CI
Unskilled manual workers	0.98	0.90 1.06	0.61	0.52 0.73
Skilled manual workers	1.05	0.99 1.11	0.74	0.65 0.85
Intermediate occupations and non-manual workers	1.01	0.96 1.06	0.89	0.82 0.97
Managers and professionals	1.00		1.00	
Prevalence of ≥4 HED days	Preval. Ratio	95% CI	Preval. Ratio	95% CI
Unskilled manual workers	1.08	0.84 1.24	0.48	0.34 0.69
Skilled manual workers	1.38	1.25 1.52	0.66	0.51 0.85
Intermediate occupations and non-manual workers	1.05	0.96 1.14	0.84	0.71 0.99
Managers and professionals	1.00		1.00	
Mean HED days	Mean ratio	95% CI	Mean ratio	95% CI
Unskilled manual workers	1.25	1.08 1.45	0.60	0.46 0.78
Skilled manual workers	1.32	1.19 1.46	0.81	0.64 1.03
Intermediate occupations and non-manual workers	1.13	1.04 1.23	0.86	0.76 0.98
Managers and professionals	1.00		1.00	

