Supplementary Table 1. Survey questions on specific variable of ADL and IADL in the HRS and ELSA
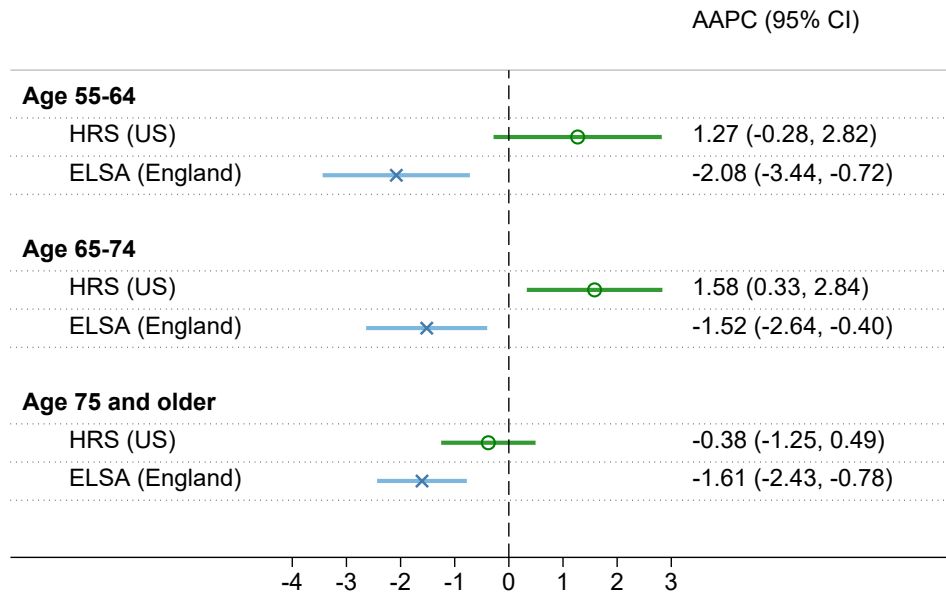
	HRS	ELSA
ADL limitation	Here are a few more everyday activities. Please tell me if you have any difficulty with these because of a physical, mental, emotional or memory problem. Again exclude any difficulties you expect to last less than three months.	HEADLB. Here are a few more everyday activities. Please tell me if [^you have / [^name] has] any difficulty with these because of a physical, mental, emotional or memory problem. Again exclude any difficulties you expect to last less than three months. Because of a health or memory problem, [^do you /does he /does she] have difficulty doing any of the activities on this card?
	• Because of a health or memory problem do you have any difficulty with dressing, including putting on shoes and socks? • Because of a health or memory problem do you have any difficulty with walking across a room? • (Because of a health or memory problem do you have any difficulty with) bathing or showering? • (Because of a health or memory problem do you have any difficulty with) eating, such as cutting up your food? • (Because of a health or memory problem do you have any difficulty with) getting in or out of bed? • (Because of a health or memory problem do you have) any difficulty with using the toilet, including getting up and down?	• Dressing, including putting on shoes and socks • Walking across a room • Bathing or showering • Eating, such as cutting up ^[your / his / her] food • Getting in or out of bed • Using the toilet, including getting up or down
IADL limitation	Here are a few other activities which some people have difficulty with because of a physical, mental, emotional, or memory problem. Please tell me whether you have any difficulty with each activity I name. If you don't do the activity at all, just tell me so. Exclude any difficulties that you expect to last less than three months.	Combined with ADL (See the leading question above)
	• (Because of a health or memory problem do you have) any difficulty preparing a hot meal? • (Because of a health or memory problem do you have) any difficulty with shopping for groceries? • (Because of a health or memory problem do you have) any difficulty with making phone calls? • (Because of a health or memory problem do you have) any difficulty taking medications? • (Because of a health or memory problem) do you have any difficulty with managing your money -- such as paying your bills and keeping track of expenses?	• Preparing a hot meal • Shopping for groceries • Making telephone calls • Taking medications • Managing money, such as paying bills and keeping track of expenses

Supplementary Figure 1 – Distribution of the number of IADL/ADL limitations, by study period and age group
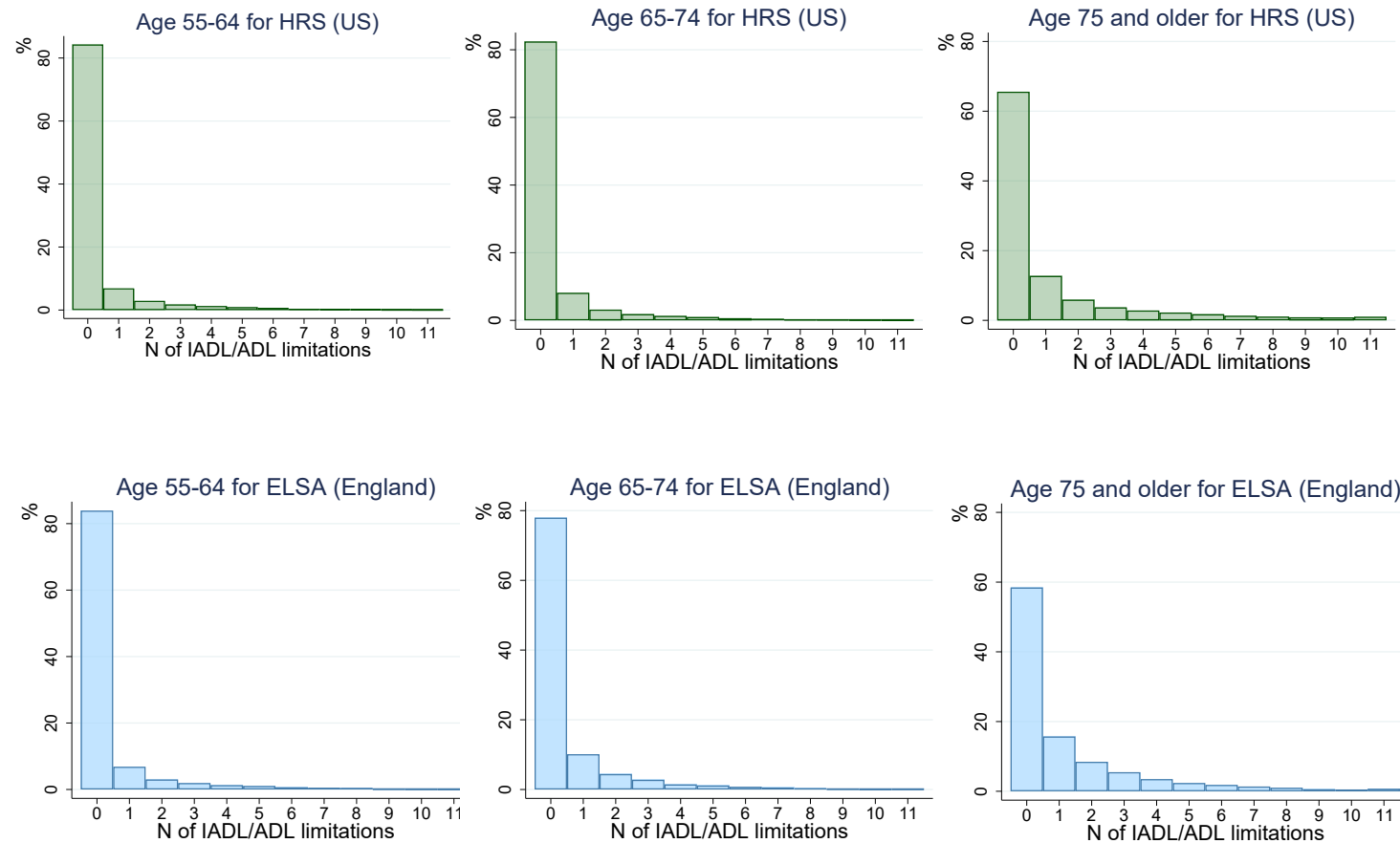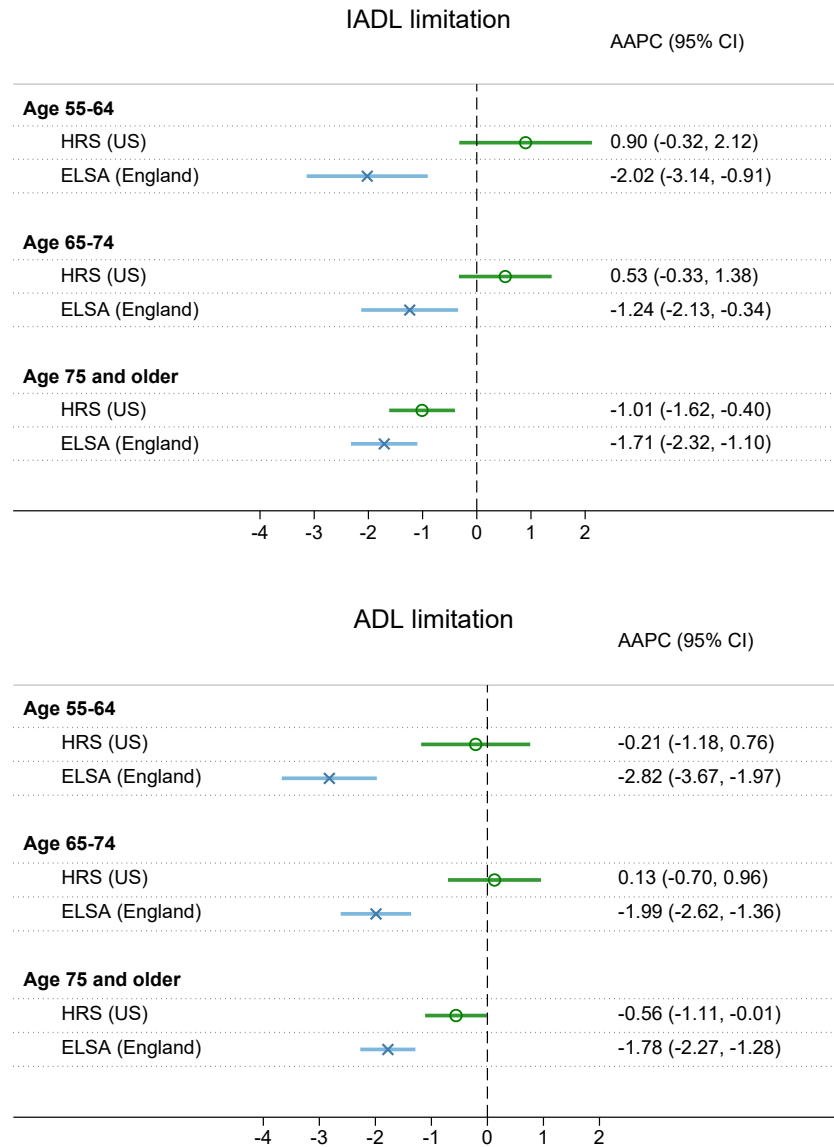

Note: Estimates were based on the pooled data over 2002-2016.

Supplementary Figure 2. Adjusted annual percent change (AAPC) of disability from 2002 to 2016 in the US and England by age group, using the outcome of **having three or more IADL/ADL limitations**

AAPC (95% CI)

Age 55-64
    HRS (US)   1.27 (-0.28, 2.82)
    ELSA (England)   -2.08 (-3.44, -0.72)

Age 65-74
    HRS (US)   1.58 (0.33, 2.84)
    ELSA (England)   -1.52 (-2.64, -0.40)

Age 75 and older
    HRS (US)   -0.38 (-1.25, 0.49)
    ELSA (England)   -1.61 (-2.43, -0.78)

-4   -3   -2   -1   0   1   2   3

Note: Control variables included sociodemographic characteristics (age, gender, foreign-born status, race, household size, marital status, number of children) and survey design aspects (refreshment sample indicator, interview month, proxy interview indicator). The AAPC was calculated as: 100*ln(Adjusted Risk Ratio $_{2016 \text{ vs. } 2002}$)/14. Adjusted risk ratios were calculated holding all covariates at a grand mean of the pooled sample.

Supplementary Figure 3 - Adjusted annual percent change (AAPC) of disability from 2002 to 2016 in the US and England by age group, separately for having **at least one IADL and for having at least one ADL limitation**

IADL limitation

AAPC (95% CI)

Age 55-64
HRS (US)   0.90 (-0.32, 2.12)
ELSA (England)   -2.02 (-3.14, -0.91)

Age 65-74
HRS (US)   0.53 (-0.33, 1.38)
ELSA (England)   -1.24 (-2.13, -0.34)

Age 75 and older
HRS (US)   -1.01 (-1.62, -0.40)
ELSA (England)   -1.71 (-2.32, -1.10)

-4 -3 -2 -1 0 1 2

ADL limitation

AAPC (95% CI)

Age 55-64
HRS (US)   -0.21 (-1.18, 0.76)
ELSA (England)   -2.82 (-3.67, -1.97)

Age 65-74
HRS (US)   0.13 (-0.70, 0.96)
ELSA (England)   -1.99 (-2.62, -1.36)

Age 75 and older
HRS (US)   -0.56 (-1.11, -0.01)
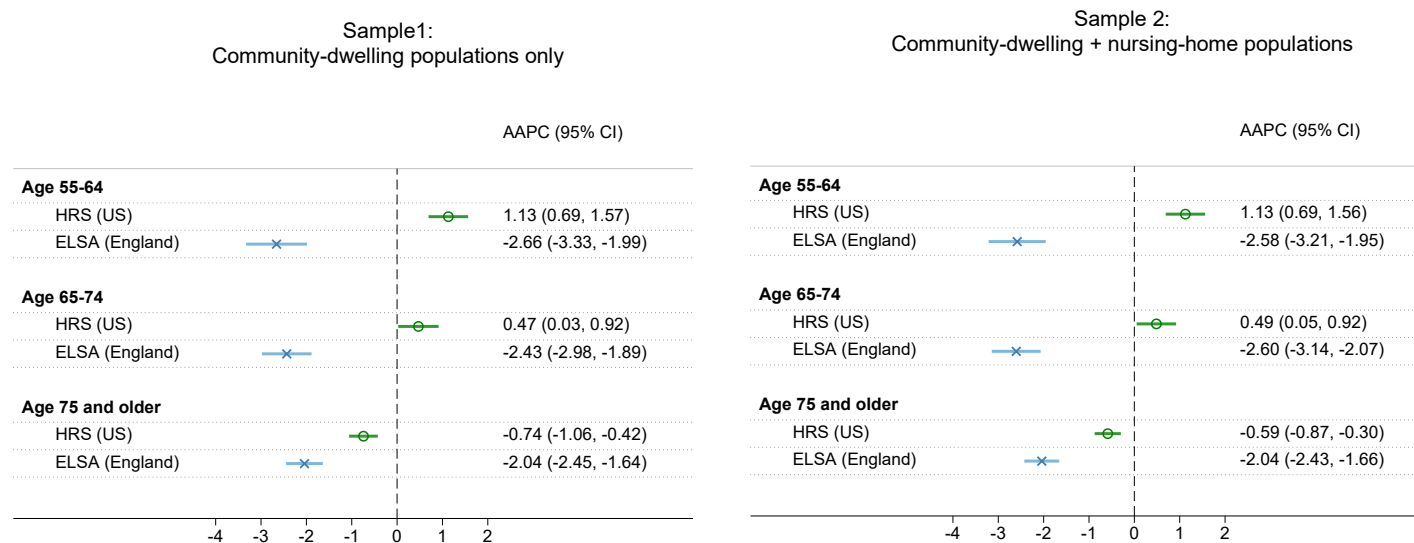ELSA (England)   -1.78 (-2.27, -1.28)
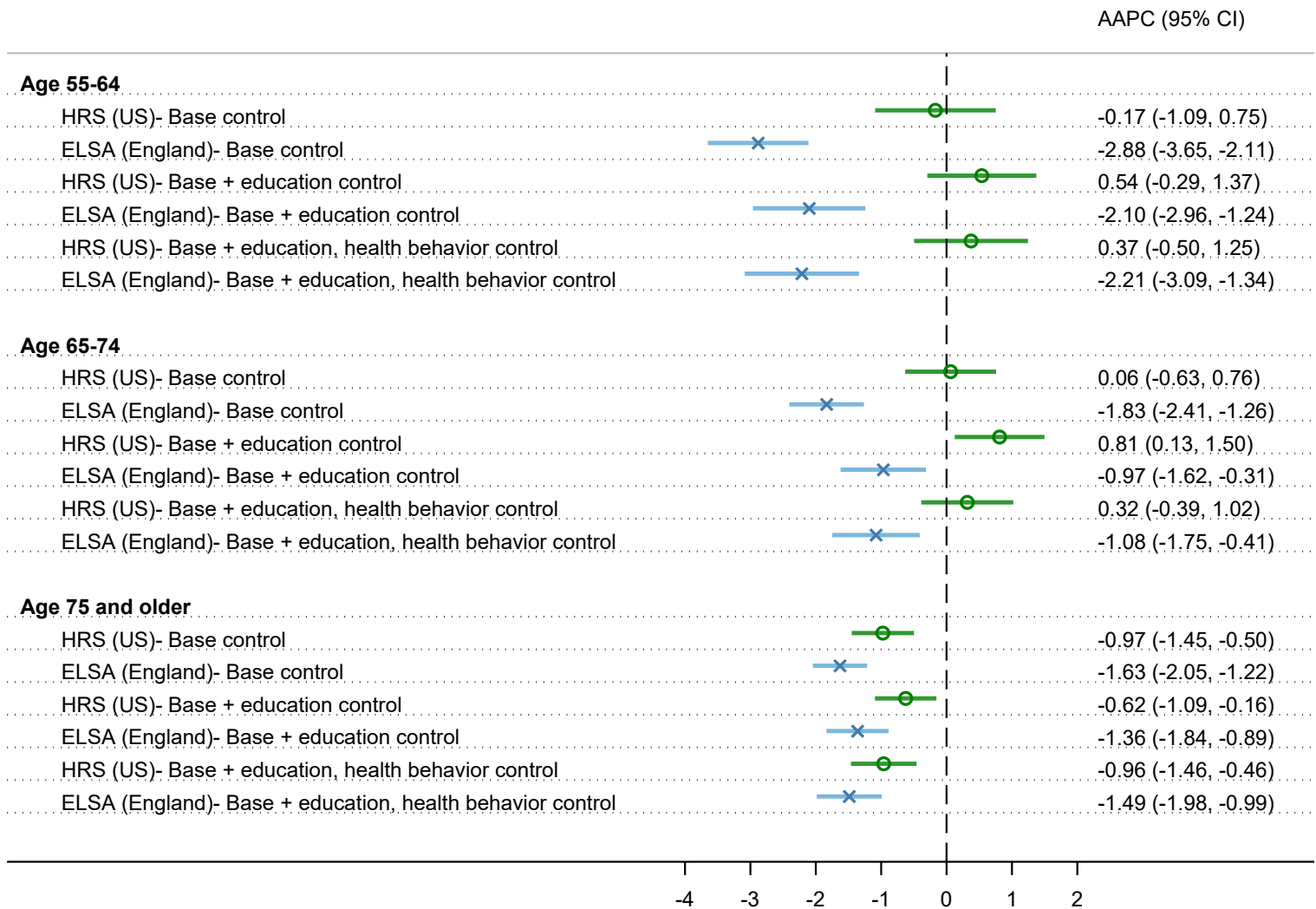
-4 -3 -2 -1 0 1 2

Note: Control variables included sociodemographic characteristics (age, gender, foreign-born status, race, household size, marital status) and survey design aspects (refreshment sample indicator, interview month, proxy interview indicator). The AAPC was calculated as: 100*ln(Adjusted Risk Ratio $_{2016 \text{ vs. } 2002}$)/14. Adjusted risk ratios were calculated holding all covariates at a grand mean of the pooled sample.

Supplementary Figure 4. Adjusted annual percent change (AAPC) in disability from 2002 to 2016 in the US and England, by age group -- **With vs. without nursing home populations**

|	Sample1: Community-dwelling populations only		Sample 2: Community-dwelling + nursing-home populations	
		AAPC (95% CI)		AAPC (95% CI)
Age 55-64				
HRS (US)		1.13 (0.69, 1.57)		1.13 (0.69, 1.56)
ELSA (England)		-2.66 (-3.33, -1.99)		-2.58 (-3.21, -1.95)
Age 65-74				
HRS (US)		0.47 (0.03, 0.92)		0.49 (0.05, 0.92)
ELSA (England)		-2.43 (-2.98, -1.89)		-2.60 (-3.14, -2.07)
Age 75 and older				
HRS (US)		-0.74 (-1.06, -0.42)		-0.59 (-0.87, -0.30)
ELSA (England)		-2.04 (-2.45, -1.64)		-2.04 (-2.43, -1.66)

Note: Control variables included sociodemographic characteristics (age, gender, foreign born status, race, household size, marital status, number of children) and survey design aspects (refreshment sample indicator, interview month, proxy interview indicator). Population weights were not applied because population weights are not available for nursing home population in ELSA. The AAPC was calculated as: $100*\ln(\text{Adjusted Risk Ratio}_{\text{2016 vs. 2002}})/14$. Adjusted risk ratios were calculated holding all covariates at a grand mean of the pooled sample.

Supplementary Figure 5 - Adjusted annual percent change (AAPC) of disability from 2002 to 2016 in the US and England, by age group – **With adjustments for education and health behaviors**

|	AAPC (95% CI)
Age 55-64	
HRS (US)- Base control	-0.17 (-1.09, 0.75)
ELSA (England)- Base control	-2.88 (-3.65, -2.11)
HRS (US)- Base + education control	0.54 (-0.29, 1.37)
ELSA (England)- Base + education control	-2.10 (-2.96, -1.24)
HRS (US)- Base + education, health behavior control	0.37 (-0.50, 1.25)
ELSA (England)- Base + education, health behavior control	-2.21 (-3.09, -1.34)
Age 65-74	
HRS (US)- Base control	0.06 (-0.63, 0.76)
ELSA (England)- Base control	-1.83 (-2.41, -1.26)
HRS (US)- Base + education control	0.81 (0.13, 1.50)
ELSA (England)- Base + education control	-0.97 (-1.62, -0.31)
HRS (US)- Base + education, health behavior control	0.32 (-0.39, 1.02)
ELSA (England)- Base + education, health behavior control	-1.08 (-1.75, -0.41)
Age 75 and older	
HRS (US)- Base control	-0.97 (-1.45, -0.50)
ELSA (England)- Base control	-1.63 (-2.05, -1.22)
HRS (US)- Base + education control	-0.62 (-1.09, -0.16)
ELSA (England)- Base + education control	-1.36 (-1.84, -0.89)
HRS (US)- Base + education, health behavior control	-0.96 (-1.46, -0.46)
ELSA (England)- Base + education, health behavior control	-1.49 (-1.98, -0.99)

-4   -3   -2   -1   0   1   2

Note: Control variables in the baseline model included sociodemographic characteristics (age, gender, foreign born status, race, household size, marital status, number of children) and survey design aspects (refreshment sample indicator, interview month, proxy interview indicator). The health behavior variables included smoking status and BMI category. To address missing in BMI for 2006, 2010, and 2014, we first imputed heights and weights by applying within-person linear interpolation and extrapolation over years 2002-2016. We imputed remaining missing data in heights and weights using a multivariable linear regression model including the predictors of demographic, socioeconomic, survey, health behavior, and health outcome covariates. We then calculated BMI based on the imputed heights and weights. Disability was defined as having at least one IADL/ADL limitation. The AAPC is calculated as: $100*\ln(\text{Adjusted Risk Ratio}_{\text{2016 vs. 2002}})/14$. Adjusted risk ratios were calculated holding all covariates at a grand mean of the pooled sample.

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Supplementary Figure 6. Unadjusted prevalence (%) of disability from 2002 to 2016 in the US and England, by income and age group
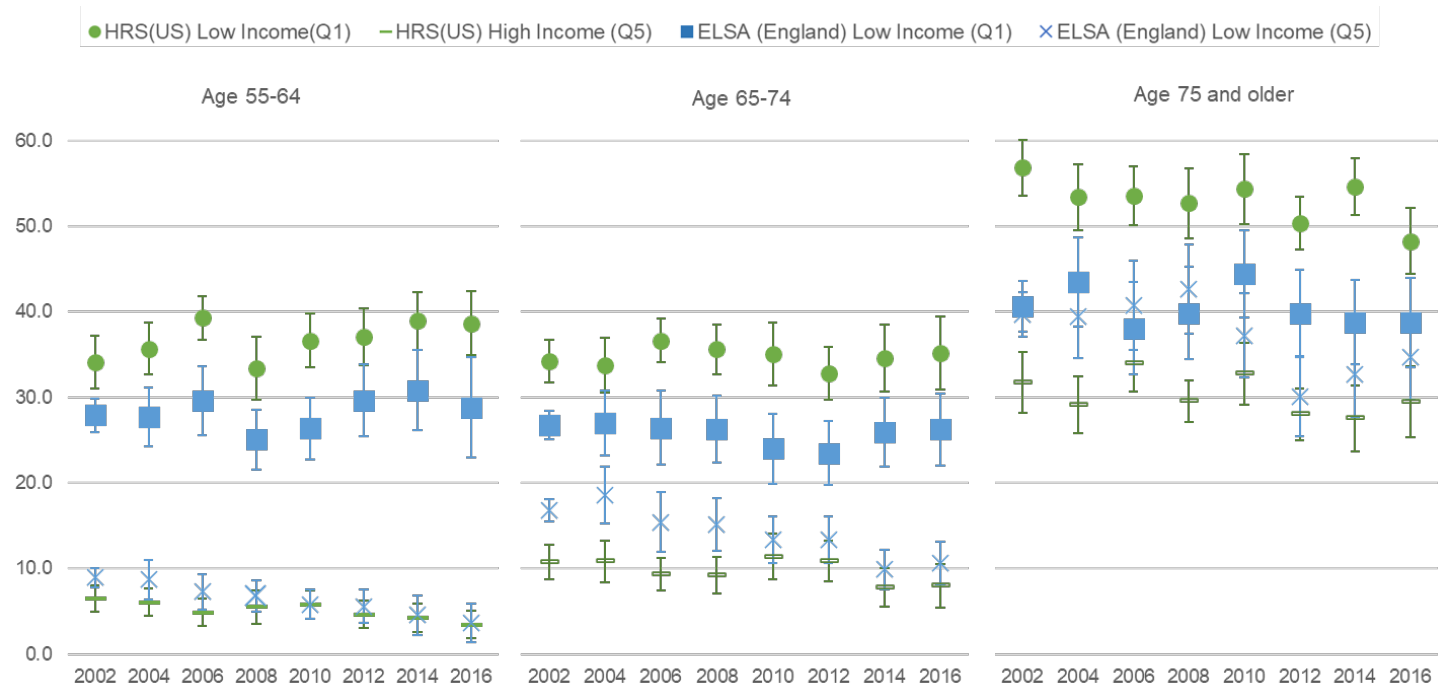
Supplementary Figure 7 Adjusted annual percent change (AAPC) In disability from 2002 to 2016 in the US and England, by age and income groups – **Including all income quintile groups**
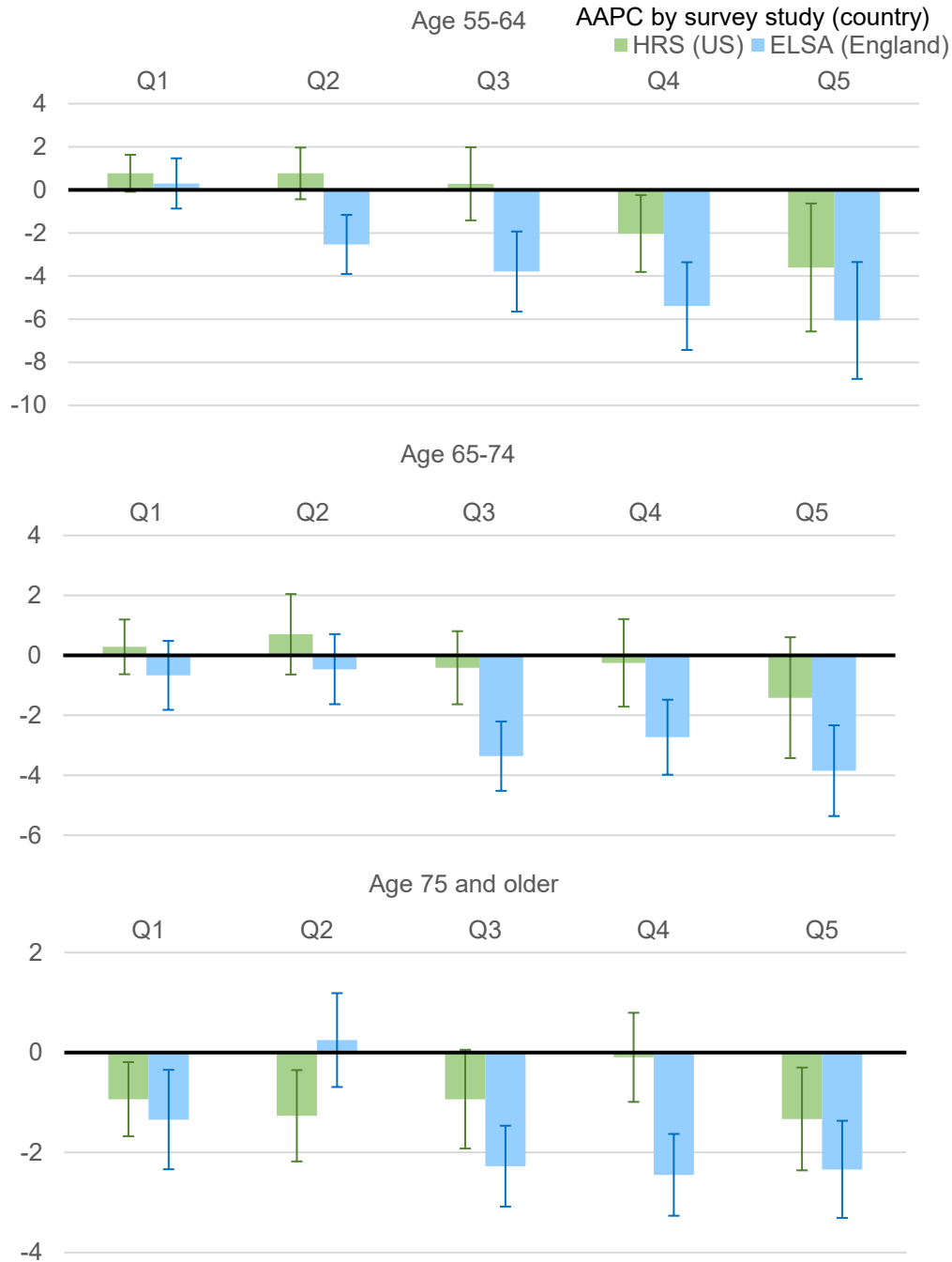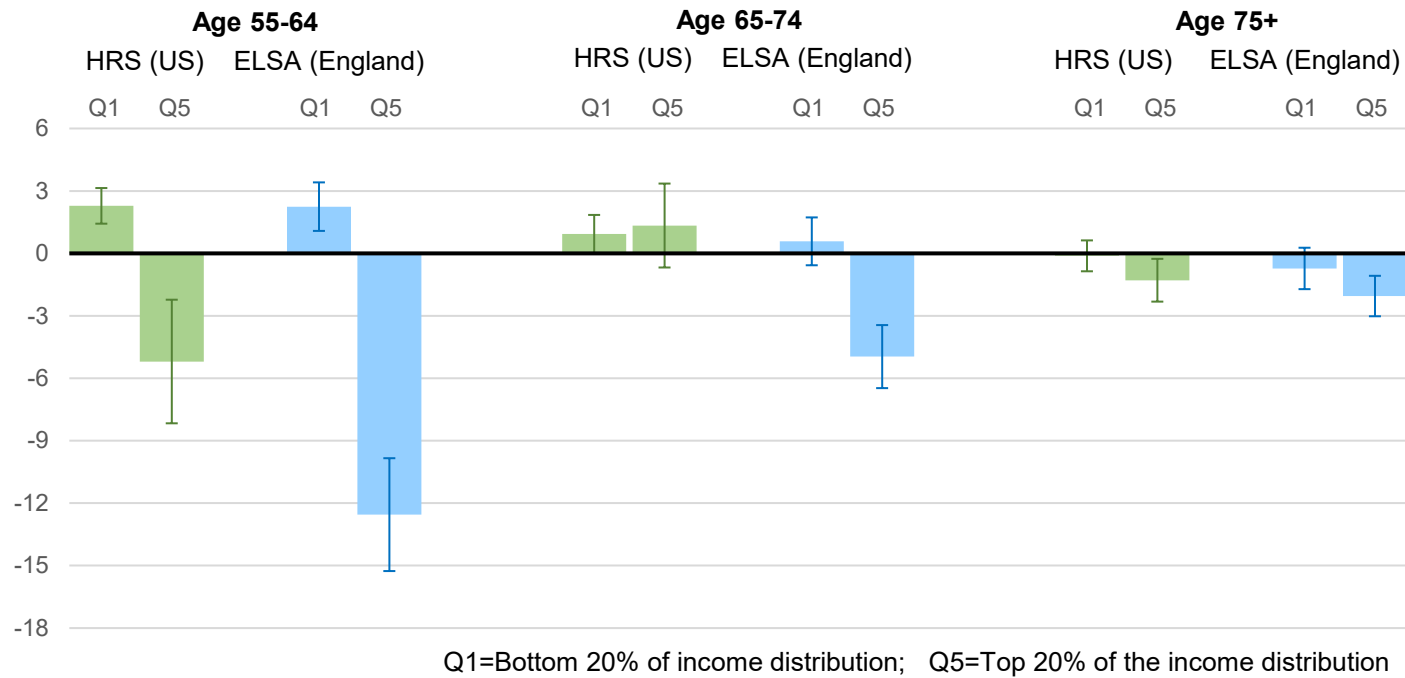

Note: Control variables included sociodemographic characteristics (age, gender, foreign-born status, race, household size, marital status, number of children) and survey design aspects (refreshment sample indicator, interview month, proxy interview indicator). Income quintile was defined as weighted income, which was adjusted by the square root of household size, divided into five groups within the survey, year, and age. Disability was defined as having at least one IADL/ADL limitation. The AAPC is calculated as: $100*\ln(\text{Adjusted Risk Ratio}_{2016 \text{ vs. } 2002})/14$. Adjusted risk ratios were calculated holding all covariates at a grand mean of the pooled sample in each age group.

Supplementary Figure 8. Adjusted annual percent change (AAPC) in disability from 2002 to 2016 in the US and England, by income and age group, **using multiple imputation**
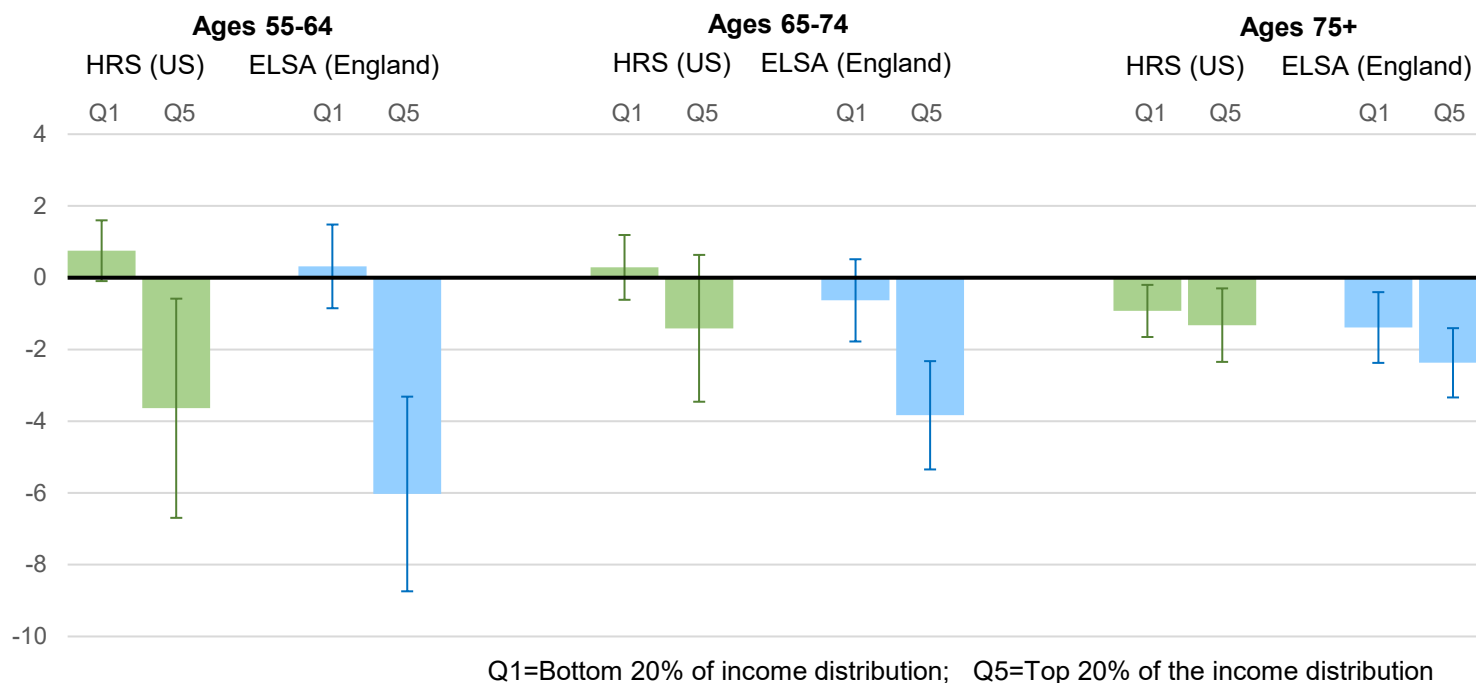
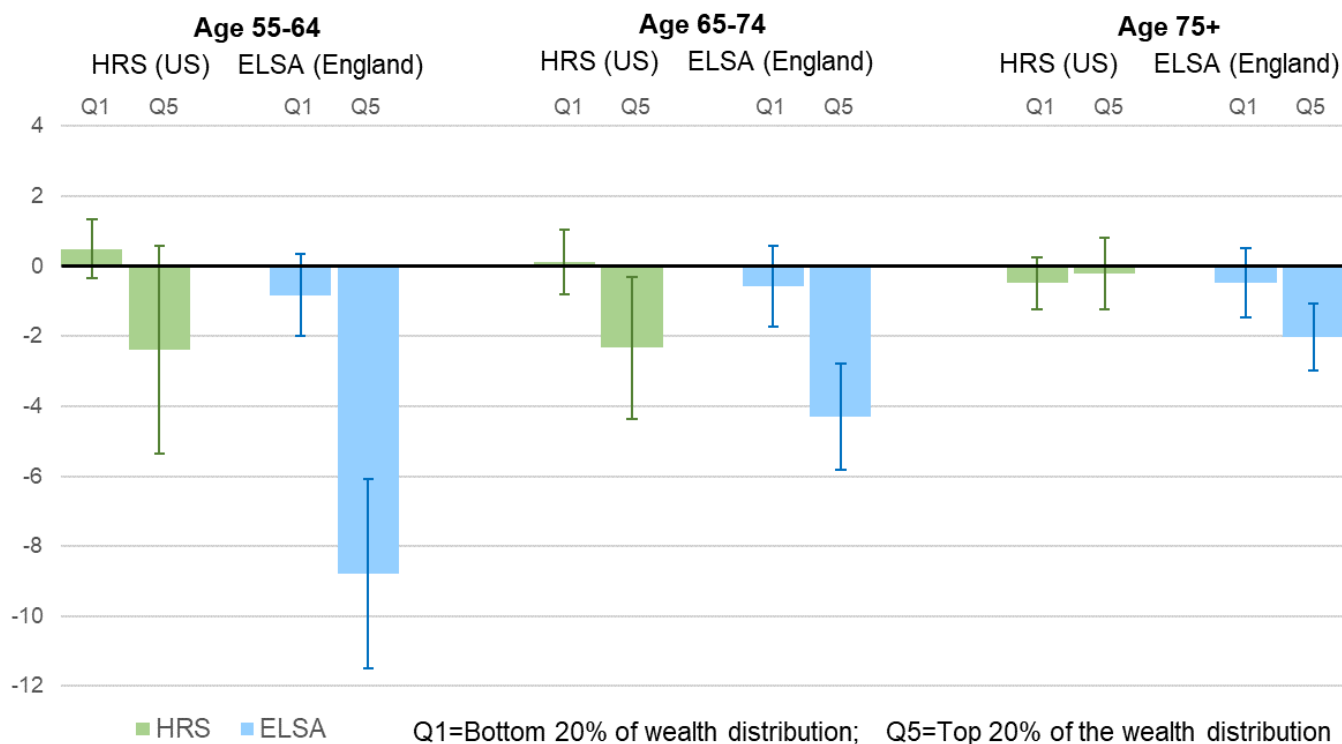Q1=Bottom 20% of income distribution;   Q5=Top 20% of the income distribution

Note: Control variables included sociodemographic characteristics (age, gender, foreign born status, race, household size, marital status, number of children) and survey design aspects (refreshment sample indicator, interview month, proxy interview indicator). Income quintile was defined as weighted income, which is adjusted by square root of household size, divided into five groups within survey, year and age. Disability was defined as having at least one IADL/ADL limitation. The AAPC was calculated as: 100*ln(Adjusted Risk Ratio $_{2016 \text{ vs. } 2002}$)/14. Adjusted risk ratios were calculated holding all covariates at a grand mean of the pooled sample in each age group.

Supplementary Figure 9. Adjusted annual percent change (AAPC) in having **three or more IADL/ADL limitations** from 2002 to 2016 in the US and England, by income and age group

Q1=Bottom 20% of income distribution;   Q5=Top 20% of the income distribution

Note: Control variables included sociodemographic characteristics (age, gender, foreign-born status, race, household size, marital status, number of children) and survey design aspects (refreshment sample indicator, interview month, proxy interview indicator). Income quintile was defined as weighted income, which is adjusted by the square root of household size, divided into five groups within the survey, year, and age. The AAPC was calculated as: $100*\ln($Adjusted Risk Ratio $_{2016 \text{ vs. } 2002})/14$. Adjusted risk ratios were calculated holding all covariates at a grand mean of the pooled sample in each age group.

Supplementary Figure 10. Adjusted annual percent change (AAPC) in disability from 2002 to 2016 in the US and England, by **wealth** and age group

Note: Control variables included sociodemographic characteristics (age, gender, foreign-born status, race, household size, marital status, number of children) and survey design aspects (refreshment sample indicator, interview month, proxy interview indicator). Wealth quintile was defined based on the distribution of weighted weight within the survey, year, and age, which was also adjusted by the square root of household size. The AAPC was calculated as: $100*(($Difference in the adjusted predicted value $_{2016 \text{ vs. } 2002})$/Adjusted predicted value in 2002$)/14$. Adjusted predicted values were calculated holding all covariates at a grand mean of the pooled sample in each age group.