Globalization and Mental Distress

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Queen Mary University
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- 20% of people in the working age population currently suffer from mental health problems (OECD, 2015).
- And 50% of people experience mental health problems at least once over their lifetime (OECD, 2015).
- In this paper, we argue that the increased competitive pressure brought about by globalization is a key determinant of this phenomenon.

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     - $\Rightarrow$ worsened expectations about the future.

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- Our results suggest that the distributional consequences of import competition may be stronger and more widespread in society than thought so far.

- This may provide an explanation for the recent upsurge of anti-globalization sentiment observed in the UK and other developed countries (Colantone and Stanig, 2016ab).

Motivation

- Mental health is a major concern in the UK:
  - one of government's three clinical priorities (McCrone et al., 2008);
  - single largest spending category in NHS budget (NHS data service);
  - almost 1.2 million people use NHS mental health services every year, increasing over time (NHS data service);
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- Repeated individual-level data on mental health are crucial:
  - The UK provides yearly information on mental health for a nationally representative sample of individuals over a long time span.

Related literature

- Literature on labor market implications of import competition.

  [Bernard et al., 2006; Wälde and Weiß, 2007; Khandewal, 2010; Autor et al., 2013, 2014, 2015, 2016; Crinò and Epifani 2014a,b; Dauth et al., 2014; Hummels et al., 2014; Acemoglu et al., 2016; Bloom et al., 2016]

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- Emerging literature on trade and health.

  [Levine and Rothman, 2006; Owen and Wu, 2007; Oster, 2012; Hummels et al., 2015; Adda and Fawaz, 2015; McManus and Schaur, 2016ab; Pierce and Schott, 2016]

  We are the first to study how import competition affects mental distress at the worker level, and to analyze the mechanisms through which this effect takes place.

Related literature

- Studies on the economic determinants of mental distress

  [e.g., Smith, 1999; Ruhm, 2000; Katz et al., 2001; Clark, 2003; Sullivan and von Wachter, 2009; Cornaglia et al., 2014; Farrè et al., 2015; Dustmann and Fasani, 2016]

  We provide the first evidence that import competition is an additional, and first-order, economic determinant of workers' mental distress.

Outline of the presentation

- Data and descriptive statistics.
- Empirical specification.
- Results.
  - Baseline estimates.
  - Robustness checks.
  - Heterogeneity.
- Mechanisms.
- Conclusion.

Data and stylized facts

Data

- Individual-level data from the British Household Panel Survey (BHPS):
  - representative of British population aged 16+;
  - focus on seven waves: 2001-2007;
  - $\approx$ 50,000 individual-year observations: 10,121 individuals, observed on average for about 5 years;
  - extremely rich information on individual and household characteristics, including:
    - mental and physical health;
    - demographic variables;
    - employment status;
    - industry of affiliation.

Data

- Baseline measure of mental health: Generalized Health Questionnaire indicator, GHQ-12.
  - Widely used by clinicians to detect psychiatric illness (Goldberg, 1978; Serrano-Aguilar et al., 2009).
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- Scaled between 0 and 100 to express results in %.

Data

GHQ Questions and Answers

GHQ Component	Questions and Answers
	Questions
	Have you recently:
Anxiety and depression	1) lost much sleep over worry?
	2) felt constantly under strain?
	3) felt you couldn't overcome your difficulties?
	4) been feeling unhappy or depressed?
Social dysfunction	5) been able to concentrate on whatever you're doing?
	6) felt that you were playing a useful part in things?
	7) felt capable of making decisions about things?
	8) been able to enjoy your normal day-to-day activities?
	9) been able to face up to problems?
	10) been feeling reasonably happy, all things considered?
Loss of confidence	11) been losing confidence in yourself?
	12) been thinking of yourself as a worthless person?
	Answers
	not at all; no more than usual; rather more than usual; much more so than usual

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- We complement these data with rich information on other industry characteristics.

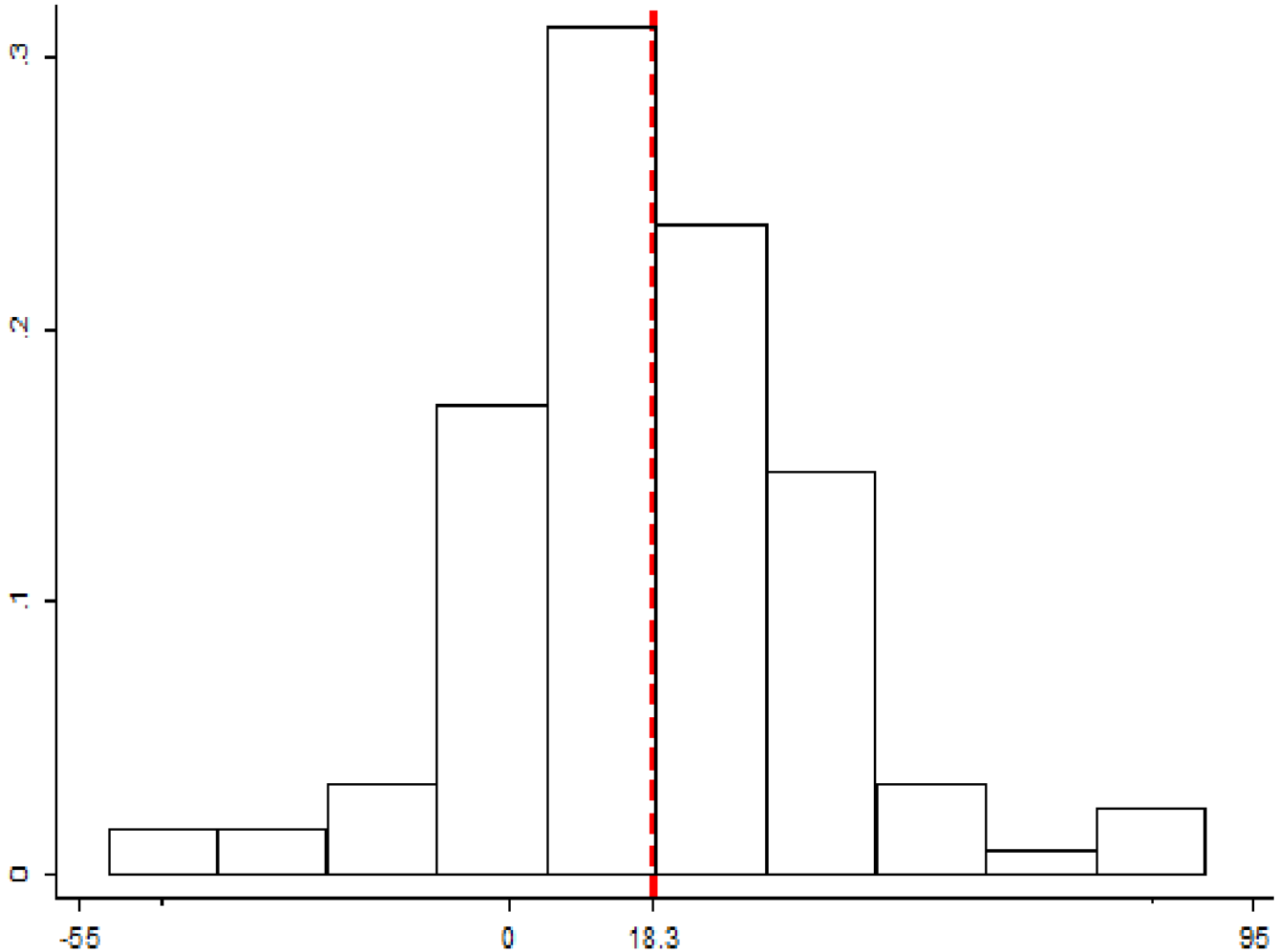
Descriptive statistics

Descriptive Statistics on Individual Characteristics

	Mean	Std. Dev.	Obs.
GHQ-12	30.0	14.2	52781
GHQ 1 (Anxiety and depression)	30.8	20.1	52781
GHQ 2 (Social dysfunction)	33.9	12.7	52781
GHQ 3 (Loss of confidence)	17.1	20.8	52781
GHQ-12 (Caseness score)	13.8	23.6	52781
Physical health	7.8	9.9	52781
Age	41.1	12.2	52778
Male	50.3	50.0	52781
Married	59.5	49.1	52753
Leaving as couple	14.7	35.4	52753
Self-employed	10.9	31.2	52779
Employed	82.2	38.2	52779
Household size	3.0	1.3	52781
Couple, no children	27.4	44.6	52781
Couple, dep. children	37.7	48.5	52781
Owned house or on mortgage	82.7	37.8	52549
Rented house	15.6	36.2	52549

Descriptive statistics

Distribution of Import Competition Shock Across Industries



▸ More

Empirical specification

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$$MD_{ijt} = \alpha_i + \alpha_j + \alpha_t + \beta_1 IC_{jt-1} + \mathbf{I}_{it-1}\gamma^{'} + \mathbf{H}_{it-1}\delta^{'} + \mathbf{S}_{jt-6}\lambda^{'} + \varepsilon_{ijt}, \qquad (1)$$

- where:
  - MD_{ijt} is a proxy for the year t mental distress of worker i, who was employed in industry j in year $t-1$.
  - α_i, α_j, and α_t are individual, industry, and year fixed effects, respectively.
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  - $\mathbf{S}_{jt-6}$: controls for industry characteristics (sixth lags of real output, output price, employment share of high-skill workers, value added, and export intensity).
- Identification strategy:
  - compare *changes* in mental distress across similar individuals, living in similar households, employed in similar industries, except for the import competition shock.

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- This instrument is meant to isolate variation in UK imports due to supply shocks in the origin countries.

  (see, most notably, Autor et al., 2013, 2014, 2015, 2016; Dauth et al., 2014; Hummels et al., 2014; Bloom et al., 2016).

Results

Baseline estimates

Baseline estimates

	(1)	(2)	(3)	(4)	(5)
IC	0.217***	0.493***	0.920***	0.729***	0.815***
	[0.014]	[0.129]	[0.193]	[0.122]	[0.136]
Estimator	OLS	2SLS	2SLS	2SLS	2SLS
Individual controls	no	no	yes	yes	yes
Household controls	no	no	yes	yes	yes
Industry controls	no	no	no	no	yes
Individual effects	yes	yes	yes	yes	yes
Industry effects	no	no	no	yes	yes
Year effects	no	no	no	yes	yes
Obs.	50154	50154	48510	48510	48450
R^2	0.52	0.52	0.52	0.53	0.53
First-stage results					
World Exp.	-	0.310***	0.160***	0.250***	0.213***
	-	[0.021]	[0.009]	[0.027]	[0.011]
Kleibergen-Paap *F*-Statistic	-	222.8	321.9	85.4	412.5

Magnitude

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- A one s.d. increase in import competition in a given industry induces a 0.8 p.p. increase in the mental distress of workers employed in that industry, explaining about 8.5% of the within-individual standard deviation in mental health (9.6 p.p.).

- This effect is roughly equivalent to what would be obtained by moving a worker from the industry at the 25th percentile of the import shock (6.2%) to the industry at the 75th percentile (28.9%).

- Comparable with a one s.d. increase in crime rates across British local authorities (Dustmann and Fasani, 2016).

- A worker would need a yearly monetary compensation of 180 pounds to make up for the ensuing utility loss. ▸ More

- Back-of-the-envelope calculation of aggregate effects: 26.9 million people employed in the UK in 2007; average import competition shock 18.3% (86% of a standard deviation) $\Longrightarrow$ total compensation $\approx$ 4.18 billion pounds (i.e., 0.86*180*26.9), 0.3% of UK GDP.

Robustness checks

The effect of import competition is remarkably robust to a large range of sensitivity checks. In particular, we find similar results when:

- employing alternative instruments;
- controlling for pre-existing industry trends and contemporaneous shocks;
- addressing the possibly non-random sorting of individuals across industries;
- using alternative measures of mental health.

Robustness checks

Robustness Checks

	Coeff.	Std. Err.	Obs.	R^2	KP F-Stat.
a) Alternative IV strategies					
1) Alt. instr.: excl. US and Canada from the importers	0.963***	[0.116]	48450	0.53	576.3
2) Alt. instr.: excl. US and Canada also from the exporters	0.861***	[0.106]	48450	0.53	696.9
3) Excl. industries most correlated with UK GDP	0.807***	[0.135]	46640	0.53	160.1
4) Excl. most energy-intensive industries	0.820***	[0.135]	47237	0.53	355.8
5) Excl. most volatile industries (Autor et al., 2013)	0.836***	[0.114]	47004	0.53	131.0
6) Alt. instr: industry-specific effective exchange rates	1.426***	[0.456]	48450	0.52	20.2
b) Contemporaneous shocks					
7) Year-month dummies	0.827***	[0.134]	48450	0.53	415.4
8) Sector-year dummies: Output growth (2001-2007)	0.694***	[0.175]	48450	0.53	65.7
9) Sector-year dummies: Employment growth (2001-2007)	0.882***	[0.127]	48450	0.53	148.0
10) Sector-year dummies: Material intensity growth (2001-2007)	0.681***	[0.195]	48287	0.53	82.2
11) Sector-year dummies: Capital intensity growth (2001-2007)	1.160***	[0.155]	48274	0.53	1527.3
12) Sector-year dummies: Skill intensity growth (2001-2007)	0.776***	[0.130]	48450	0.53	525.1
13) Sector-year dummies: Labor productivity growth (2001-2007)	0.989***	[0.167]	48450	0.53	521.1
14) 2-digit industry x year dummies	0.987***	[0.115]	48450	0.53	81.6
15) Major occupation x year dummies	1.120***	[0.185]	42173	0.52	268.7

Robustness checks

Robustness Checks

	Coeff.	Std. Err.	Obs.	R^2	KP F-Stat.
c) Underlying trends based on pre-existing ind. characteristics					
16) Year dummies x initial (2001) import penetration	1.092***	[0.130]	46983	0.53	798.9
17) Year dummies x initial (2001) ind. char.	0.809***	[0.160]	46983	0.53	529.9
18) Year dummies x initial (1998-2000) av. ment. health in the ind.	0.809***	[0.112]	47002	0.53	282.9
19) Year dummies x initial (1998-2000) av. indiv. char. in the ind.	1.211***	[0.323]	47002	0.53	89.7
d) Placebo tests					
20) Dep. var.: Physical health	-0.125*	[0.068]	50679	0.72	446.4
21) Mental health and future import competition	-0.298	[0.253]	42228	0.52	218.4
e) Sorting					
22) Only workers who do not switch industry	0.482***	[0.149]	37435	0.55	266.3
23) Individual-industry fixed effects	0.762***	[0.278]	28752	0.57	226.4
24) *IC* in the earliest industry of employment	1.017***	[0.184]	15334	0.72	281.2
25) *IC* at the 2-digit industry level	1.022***	[0.116]	48452	0.52	445.4

Robustness checks

Alternative Proxies for Mental Distress

	Coeff.	Std. Err.	Obs.	R^2	KP F-Stat.
1) GHQ-12 (Caseness score)	0.983***	[0.262]	48450	0.48	412.5
2) GHQ-12 (Able to concentrate on whatever you're doing?)	1.077***	[0.204]	48450	0.35	412.5
3) GHQ-12 (Lost much sleep over worry?)	0.340*	[0.181]	48450	0.50	412.5
4) GHQ-12 (Felt that you were playing a useful part in things?)	0.986***	[0.142]	48450	0.36	412.5
5) GHQ-12 (Felt capable of making decisions about things?)	0.932***	[0.223]	48450	0.37	412.5
6) GHQ-12 (Felt constantly under strain?)	0.466**	[0.213]	48450	0.49	412.5
7) GHQ-12 (Felt you couldn't overcome your difficulties?)	0.513**	[0.226]	48450	0.48	412.5
8) GHQ-12 (Able to enjoy your normal day-to-day activities?)	1.131***	[0.222]	48450	0.35	412.5
9) GHQ-12 (Able to face up to problems?)	1.013***	[0.168]	48450	0.36	412.5
10) GHQ-12 (Feeling unhappy or depressed?)	1.602***	[0.248]	48450	0.49	412.5
11) GHQ-12 (Losing confidence in yourself?)	-0.274	[0.377]	48450	0.54	412.5
12) GHQ-12 (Thinking of yourself as a worthless person?)	0.937***	[0.229]	48450	0.55	412.5
13) GHQ-12 (Feeling reasonably happy, all things considered?)	1.057***	[0.206]	48450	0.37	412.5
14) Dummy for GHQ-12 (Likert score) above 12	0.028***	[0.005]	48450	0.48	412.5
15) Dummy for GHQ-12 (Caseness score) above 2	0.012**	[0.005]	48450	0.44	412.5

Heterogeneity

Heterogeneity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
IC	0.772***	0.820***	1.109***	1.257***	0.871**	1.061***	0.760**
	[0.129]	[0.138]	[0.187]	[0.138]	[0.325]	[0.122]	[0.291]
IC * Male	0.094						-0.014
	[0.114]						[0.137]
IC * Self-employed		-1.341***					-5.854***
		[0.417]					[0.712]
IC * Over 50			-0.974**				-0.423
			[0.353]				[0.357]
IC * Long tenure				-0.778**			-0.763**
				[0.293]			[0.304]
IC * Permanent					-0.112		0.657
					[0.368]		[0.444]
IC * Full Time						-0.383***	-0.182
						[0.106]	[0.182]
Dummy over 50			0.658*				0.510**
			[0.326]				[0.205]
Dummy long tenure				1.234***			1.195***
				[0.157]			[0.167]
Dummy permanent					1.360***		1.074***
					[0.148]		[0.183]
Dummy full time						1.051***	0.731***
						[0.107]	[0.134]
Obs.	48450	48450	48449	40018	48447	48018	39777
R^2	0.53	0.53	0.53	0.52	0.53	0.53	0.52
Kleibergen-Paap *F*-Statistic	148.8	477.3	221.1	196.6	212.2	181.6	58.3

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  $\Rightarrow$ If a given mechanism is relevant, both regressions will deliver a statistically significant coefficient.

Mechanisms

Mechanisms - GHQ-12 and Determinants of Mental Health

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Switch out of employment	2.304***	-	-	-	-	-	-	-	-
	[0.320]	-	-	-	-	-	-	-	-
Switch to a different industry	-1.039***	-0.794***	-0.549***	-1.410***	-1.005**	-0.865***	-1.612***	-0.618***	-0.465***
	[0.111]	[0.103]	[0.164]	[0.433]	[0.458]	[0.221]	[0.221]	[0.196]	[0.156]
Switch to another job in the same industry	-0.313***	-0.239**	-0.256**	-0.839**	-0.741***	-0.375	-0.964***	-0.290**	-0.297**
	[0.105]	[0.102]	[0.116]	[0.404]	[0.224]	[0.273]	[0.194]	[0.119]	[0.115]
Wage growth		-0.812***	-0.508***	0.277	-0.059	-0.148	0.147	-0.449***	-0.534***
		[0.088]	[0.087]	[0.315]	[0.197]	[0.379]	[0.212]	[0.097]	[0.091]
Job satisfaction: overall			-6.836***					-6.738***	-6.753***
			[0.181]					[0.187]	[0.153]
Job satisfaction: total pay				-2.844***					
				[0.497]					
Job satisfaction: job security					-3.657***				
					[0.662]				
Job satisfaction: actual work itself						-7.016***			
						[0.345]			
Job satisfaction: workload							-4.527***		
							[0.230]		
Expectations: job promotion								-0.803***	
								[0.201]	
Expectations: financial									-0.266**
									[0.107]
Individual controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Household controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Industry controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Individual effects	yes	yes	yes	yes	yes	yes	yes	yes	yes
Industry effects	yes	yes	yes	yes	yes	yes	yes	yes	yes
Year effects	yes	yes	yes	yes	yes	yes	yes	yes	yes
Obs.	43,353	34840	29477	4137	8985	6147	6201	27865	28613
R^2	0.53	0.53	0.57	0.64	0.62	0.65	0.66	0.58	0.57

Mechanisms

Mechanisms - Determinants of Mental Health and Import Competition

Dep. Variable:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Dummy for switching			Wage growth	Job satisfaction					Expectations	
	Out of empl.	Oth. ind.	Oth. job		Overall	Tot. Pay	Job Secur.	Work Itself	Workload	Job Prom.	Financial
IC	0.001**	0.002	0.004	-0.002**	-0.008***	-0.006*	-0.008***	0.000	-0.007***	-0.003**	-0.004**
	[0.001]	[0.001]	[0.002]	[0.001]	[0.001]	[0.003]	[0.002]	[0.003]	[0.002]	[0.001]	[0.002]
Switch diff. ind.				0.006	0.055***	0.026***	0.009	0.079***	0.038***	0.017***	0.028***
				[0.004]	[0.005]	[0.006]	[0.006]	[0.009]	[0.007]	[0.004]	[0.004]
Switch oth. job same ind.				0.012***	0.020***	0.006	-0.001	0.029***	0.009*	-0.003	0.004
				[0.002]	[0.006]	[0.006]	[0.006]	[0.006]	[0.005]	[0.003]	[0.009]
Wage growth					0.045***	0.045***	0.018***	0.001	-0.019***	-0.001	-0.013**
					[0.004]	[0.006]	[0.004]	[0.005]	[0.005]	[0.004]	[0.006]
Job sat.: overall										0.049***	0.006
										[0.004]	[0.004]
Individual controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Household controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Industry controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Individual effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Industry effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Year effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Obs.	50,677	47,041	30,940	35124	29450	4180	9078	6228	6254	27837	28585
R^2	0.34	0.44	0.45	0.15	0.50	0.86	0.78	0.82	0.83	0.46	0.46

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- The distributional consequences of import competition are thus stronger than thought so far, and extend to the wider population of workers who show no changes in observable labor market outcomes.
- This may help explain the surge of anti-globalization sentiment, and the success of protectionist and nationalist parties. Key for understanding Brexit (Colantone and Stanig, 2016).

Descriptive statistics

Descriptive Statistics on Import Competition

Industries with lowest import competition shock	
Manufacture of steam generators, exc. central heating hot water boilers	-51.4
Production of salt	-40.1
Electricity, gas and water supply	-25.7
Water transport	-23.5
Manufacture of wooden containers	-20.4
Industries with highest import competition shock	
Manufacture of pesticides and other agro-chemical products	51.6
Manufacture of prepared animal feeds	55.5
Manufacture of refined petroleum products	72.9
Manufacture of television, radio transmitters and phone apparatus	82.8
Mining and agglomeration of hard coal	87.3

Back

Monetary compensation

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- A one s.d. increase in import competition lowers EQ-5D in one year by 0.6 p.p.. Hence, the compensation for this utility loss is equal to 180 pounds (i.e., 0.006*£30,000) per person every year.

Back