

Looking for the bright side of the China Syndrome: Rising export opportunities and life satisfaction in China

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Motivation

- Economic theory shows that we gain from (free) trade
 - Efficiency gain (specialization / pro-competitive effects)
 - Lower prices
 - Larger number of available variety

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- Economic theory shows that we gain from (free) trade
 - Efficiency gain (specialization / pro-competitive effects)
 - Lower prices
 - Larger number of available variety
- Yet, the social consequences of globalization are an endless source of concern and discussion.
 - Impact on inequalities
 - Importance of adjustment costs: Import competition can lead to job losses which have negative consequences on the long term

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The debate on the social consequences of globalization is lively

- With leftist anti-globalists



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- With leftist anti-globalists



- ... and rightist ones



Motivation

The debate is also lively in academia.

Paul Krugman, 1994, Harvard Business Review:

At this point [...] the available evidence does not support the view that trade with the Third World is an important part of the wage inequality story.

Paul Krugman, 2007, Vox:

It's no longer safe to assert that trade's impact on the income distribution in wealthy countries is fairly minor. There's a good case that it is big, and getting bigger.

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The China Syndrome - Impact on employment

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- David Autor, David Dorn and Gordon H. Hanson (AER, 2013)
 - Estimate the impact of Chinese import competition on U.S. local labor markets
 - ⇒ Expansion of China's export capacity explains at least a quarter of industrial job losses in the United States between 2000 and 2007.
- Repeated evidence for the U.S.: Autor et al. (QJE, 2014), Acemoglu et al. (J. Labor. Eco., 2016), Pierce and Shcott (AER 2016), etc.
- and other developed countries: e.g. Ahn and Duval (IMF, 2017)

Hidden costs of globalization - 1

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- Impact on (mental) health:
 - Colantone et al. (2016): British Workers in industries with higher import competition report more mental health problems
 - MacManus and Schaur (JIE, 2016): Chinese import competition in U.S. local labor markets tends to worsen self-reported mental, physical, and overall health.
 - Pierce and Schott (2016): U.S. counties more exposed to a trade shock exhibit higher rates of suicide...

Hidden costs of globalization - 2

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- Political consequences: Higher exposition to Chinese imports ⇒
 - Higher electoral turnout in the U.S. (Che et al., 2016)
 - Fewer votes for moderate representatives in the U.S. and more votes for Trump (Autor et al., 2017)
 - More votes for the Brexit (Colantone and Stanig, 2017)
 - More vote for extreme right in Germany and France (Dippel et al., 2015 ; Malgouyres, 2016)

Looking the other side

- These recent works tend to draw a bleak picture of globalization and China's internationalization.
- But they provide only an incomplete assessment of the social and human consequences of globalisation.
- The social costs induced by the growth of Chinese exports in developed countries must be balanced against possible benefits for the Chinese population.

Looking the other side

- These recent works tend to draw a bleak picture of globalization and China's internationalization.
- But they provide only an incomplete assessment of the social and human consequences of globalisation.
- The social costs induced by the growth of Chinese exports in developed countries must be balanced against possible benefits for the Chinese population.
- **We aim at assessing the impact of globalization on Chinese perceived well-being**

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Did globalization improved well-being in China?

- Positive impact on income and poverty reduction is undeniable
- But the impact on well-being remains an open question
- Because wealth and well-being are not always closely related
 - Easterlin et al. (2012) show no increase in well-being of Chinese citizens between 1990 and 2010. Life satisfaction was relatively high in 1990. Decrease in following years.
- Because increased trade openness led to profound changes in working conditions, environment, lifestyle...
 - Aghion et al. (2016): “Destructive creation” process inherent in a process of rapid growth generate uncertainty which negatively affect well-being.
 - Hummels et al. (2016): Positive **export** shocks lead to an increased risk of illness and injury.

What we (want to) do

Question: How does a change in export performance affect perceived well-being in China?

Data: Longitudinal family survey (CFPS)

Key variable: Export shock in Chinese cities

- Exploit variation in foreign demand (weighted by in the initial export structure)

Two steps:

1. What is the global effect of rising export opportunities on life-satisfaction?
2. Through which channels does this effect operate?
 - Income, employment probability
 - Job satisfaction
 - (Mental) Health

What we find

- Enhanced export opportunities improve life satisfaction of the local population in China.
- The impact we estimate is far from being negligible. On average, and controlling for potential impacts on incomes and health, rising export opportunities explain between 16.7 and 20.5% of observed increased in life satisfaction in China over the period 2010-2014.
- This effect goes beyond an increase in individual wages and employment opportunities: It is also visible for non-working people.
- But it is not disconnected from the labour markets.
 - Rising export opportunities influence positively workers' job satisfaction
 - The impact on non-working individuals is reinforced when at least one person in the household works.

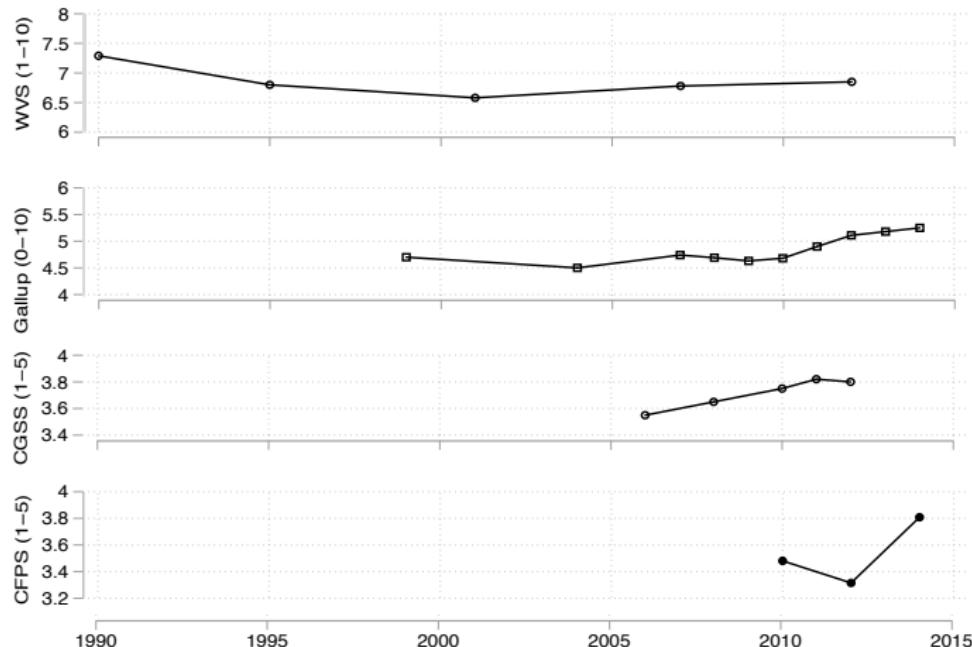
Roadmap

1. Introduction
2. Life satisfaction in China
3. Empirical specification
4. Baseline results
5. Robustness checks
6. Channels
7. Conclusion

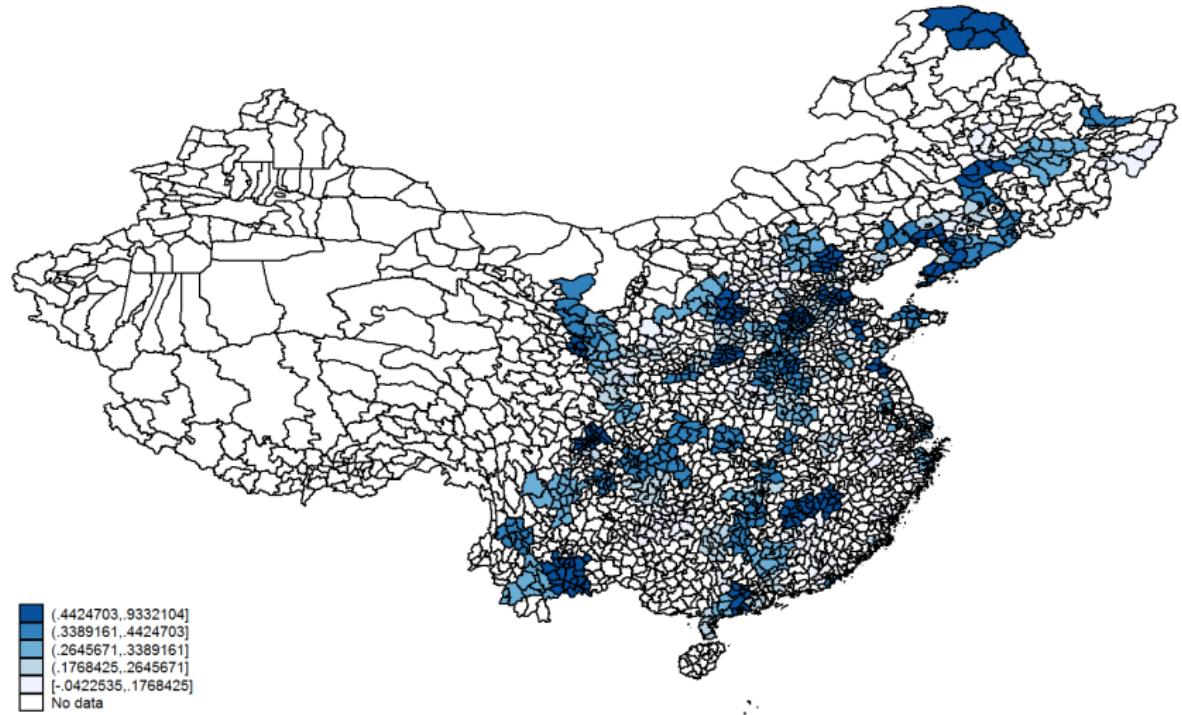
Life satisfaction in China

- China Family Panel Studies (CFPS)
 - Institute of Social Sciences, University of Beijing
- Nationally representative survey
- Follows families over time: 2010, 2012, 2014
 - > 30.000 adults across 124 cities
- Main variable of interest: life satisfaction
 - Q: "How satisfied are you with your life?"
 - A: 1 (very unsatisfied) to 5 (very satisfied)
- Mean of life satisfaction: 3.5 (standard dev = 1.06)
- Life satisfaction deteriorated between 2010 and 2012, but rose between 2012 and 2014.

Life satisfaction in China - Comparison with other surveys



Change in average life satisfaction (2010-2014)



Empirical specification

Estimated equation

$$\text{Life satisfaction}_{ct}^i = \beta \ln \text{ExOp}_{ct} + \gamma Z_t^i + \mu_{pt} + \lambda^i + \epsilon_{ct}^i$$

- Life satisfaction $_{ct}^i$ denotes the self-assessed life satisfaction by individual i in location c in year t .
- Z_t^i is a vector of control variables
- μ_{pt} is a province-year fixed effect
- λ^i is an individual fixed effect

Empirical specification

- Endogeneity issue
 - Two possible biases:
 - ▶ OVB: Locality's export performance may be correlated with a wide range of economic characteristics (quality of social and economic facilities, skills of political authorities, human capital, etc.), that also influence well-being.
 - ▶ Reverse causality: A community with higher level of happiness and confidence in the future is more likely to put in place trade-promoting policies and encourage productive investment.
 - Empirical strategy:
 - ▶ We exploit the panel dimension and include individual fixed effects
 - ▶ Control variables (for time-varying variables) + Province-year fixed effects
 - ▶ Local export opportunities is measured via a indicator which varies only with exogenous changes in foreign demand.

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Export opportunities

$$ExOp_{ct} = \sum_{jk} w_{cdkt_0} M_{dkt}$$

- M_{dkt} = import demand of product k in country d at year t
- w_{cdt_0} = share of exports of product k to country d in total export of a Chinese locality c at a baseline year t_0
- The weights w_{cdkt_0} are calculated from Chinese custom data for year 2008 (i.e. two years before the first wave of the CFPS).

Export opportunities - Estimation of M_{dkt}

- Structural gravity equation

$$EX_{odkt} = \phi_{odkt} S_{okt} M_{dkt} = \phi_{odkt} \underbrace{\frac{Y_{okt}}{\prod_{okt}}}_{S_{okt}} \underbrace{\frac{E_{dkt}}{P_{dkt}}}_{M_{dkt}}$$

- In log form:

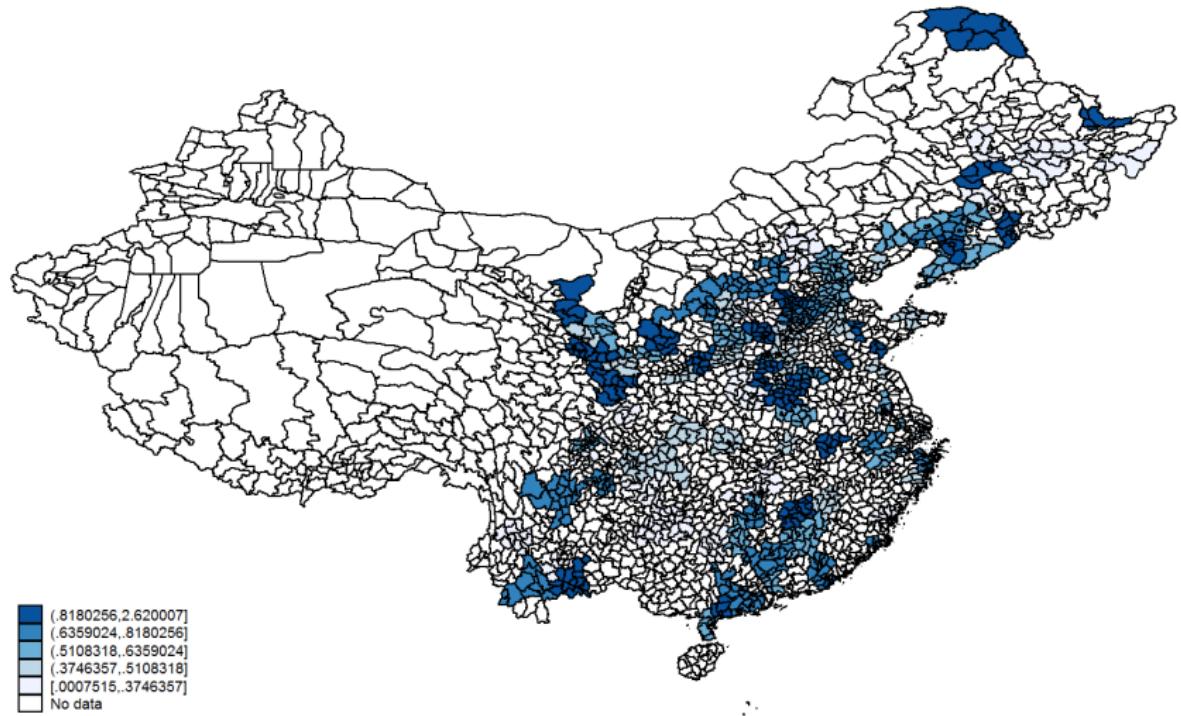
$$\ln EX_{odkt} = \ln \phi_{odkt} + \ln S_{okt} + \ln M_{jkt} + u_{odkt}$$

Export opportunities - Estimation of M_{dkt}

$$\ln EX_{odkt} = \ln \phi_{odkt} + \ln S_{okt} + \ln M_{jkt} + u_{odkt} \quad (1)$$

- $\ln S_{okt}$ = Exporter fixed effect
 - $\ln M_{jkt}$ = Importer fixed effect
 - $\ln \phi_{odkt}$ proxied by bilateral distance, common border, RTA, etc.
-
- We estimate (1) for each year and product
 - Bilateral trade flows between 175 countries at the HS2 level (96 sectors)
 - We collect the exporter fixed effects and use \widehat{M}_{jkt}

Change in Export opportunities (2010-2014)



Sample and Control variables

- Final sample after cleaning: 25,968 individuals across 122 locations (prefectures)
- Dependent variable: Life satisfaction (ordinal: 0 to 5)
- Control variables
 - Income
 - ▶ Household income per capita
 - ▶ Perceived relative income (ordinal: 0 to 5)
 - Health score (ordinal: 0 to 5)
 - Marital status, number of children, labor market participation, etc.

Preliminary result - Impact on income and labor market participation

Dependent variable	Ln Income	Income status	Ln hous. inc. per capita	Has a Job
	(1)	(2)	(3)	(4)
In ExOp	0.087 ^b (0.042)	-0.036 (0.043)	-0.013 (0.034)	-0.016 (0.014)
Individual controls not reported				
Individual fixed effects	Yes	Yes	Yes	Yes
Province-period dummies	Yes	Yes	Yes	Yes
Observations	23,411	65,070	65,070	56,483
R-squared	0.73	0.65	0.57	0.74

Benchmark results

Dependent variable	Life satisfaction of individuals (2010, 2012, 2014)
Ln ExOp	0.083 ^a (0.029)
Ln household income per capita	0.017 ^a (0.007)
Perceived relative income score	0.180 ^a (0.007)
Has job dummy	-0.022 (0.018)
Health score	0.087 ^a (0.006)
In couple dummy	0.210 ^a (0.034)
Number of children	-0.049 ^b (0.023)
Urban dummy	-0.053 (0.051)
Non-agricultural Hukou	0.037 (0.033)
Work in agriculture	0.010 (0.016)
Working age (\leq 65)	0.031 (0.025)
Communist Party member	0.063 (0.043)
Ln age	-17.989 ^a (3.819)
Ln squared age	3.264 ^a (0.729)

Benchmark results

- + Household income per capita
- + Perceived relative income
- + Health score
- + In couple (dummy)
- + Age
 - Number of children
- ns Labor market participation, urban, Hukou, etc.
- + **1% increase in ExOp = + 0.00083 life satisfaction**

Benchmark results - With macro controls

Dependent variable	Life satisfaction of individuals (2010, 2012, 2014)	
Ln ExOp	0.083 ^a (0.029)	0.090 ^a (0.030)
Ln ImpComp		-0.024 (0.035)
Ln GDP per capita		-0.083 (0.172)
Ln Population density		0.475 (0.323)
FDI over GDP		0.000 (0.000)
Manufacturing employment share		0.150 (0.152)
SO ₂ emissions per capita		0.000 (0.000)
Individual controls - not reported		
Individual fixed effects	Yes	Yes
Province-year dummies	Yes	Yes
Observations	65,070	60,537

Benchmark results - Different measures of income

Dependent variable	Life satisfaction of individuals (2010, 2012 & 2014)					
Sample	A			B		
ln ExOp	0.081 ^a (0.030)	0.083 ^a (0.029)	0.102 ^a (0.034)	0.106 ^a (0.033)	0.108 ^a (0.033)	0.108 ^a (0.033)
ln household inc. cap.	0.023 ^a (0.007)				0.050 ^a (0.013)	0.048 ^a (0.013)
Perceived rel. inc.		0.181 ^a (0.007)		0.199 ^a (0.011)	0.198 ^a (0.011)	0.198 ^a (0.011)
ln individual income			0.033 ^a (0.009)	0.016 ^c (0.009)		0.005 (0.009)
Health score	0.103 ^a (0.006)	0.087 ^a (0.006)	0.116 ^a (0.010)	0.101 ^a (0.010)	0.100 ^a (0.010)	0.100 ^a (0.010)
Individual controls not reported						
Individual fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Province-year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	65,070	65,070	23,411	23,411	23,411	23,411
R-squared	0.58	0.60	0.63	0.64	0.64	0.64

Benchmark results - Quantification

	Sample A With household income (col. 1)	Sample B With indiv. income (col. 3)
Δ life satisfaction (2010-2014)		
... Sample average	0.32	0.36
... due to change in <i>ExOp</i>	0.053	0.064
... due to change in <i>ExOp</i> (%)	16.4	17.9
... due to change in income	0.005	0.0235
... due to change in income (%)	1.67	6.5
... due to change in health score	-0.130	-0.143
... due to change in health score (%)	-40.56	-39.6

Robustness checks - Alternative specification

Dependent variable	Δ Life satisfaction of individuals			
Specification	First-Difference		Growth with Controls t_0	
Time periods	2010-12 2012-14	2010-14	2010-12 2012-14	2010-14
	(1)	(2)	(3)	(4)
$\Delta \ln \text{ExOp}$	0.077 ^a (0.029)	0.112 ^b (0.046)	0.069 ^b (0.028)	0.098 ^b (0.044)
Individual controls not reported				
Province-period dummies	Yes	Yes	Yes	Yes
Observations	38,585	16,198	41,882	17,659
R-squared	0.11	0.06	0.09	0.03

Robustness checks - Alternative measure of well-being

Dependent variable	Satisfaction of individuals			
	Dummy high life satisfaction ≥4 (1)	Dummy low life satisfaction ≤ 2 (2)	Happiness adjusted (1-5) (3)	Dummy high Happiness ≥4 (4)
In ExOp	0.049 ^a (0.013)	-0.016 ^c (0.009)	0.079 ^c (0.045)	0.034 ^c (0.020)
Individual controls not reported				
Individual fixed effects	Yes	Yes	Yes	Yes
Province-year dummies	Yes	Yes	Yes	Yes
Observations	65,070	65,070	34,836	34,836
R-squared	0.55	0.53	0.66	0.63

Robustness checks - Alternative measure of well-being

Dependent variable	Life satisfaction of individuals				
	w/o Guangdong	Low exporting provinces	High exporting provinces	Low GDP per capita provinces	High GDP per capita provinces
	(1)	(2)	(3)	(4)	(5)
In ExOp	0.091 ^a (0.030)	0.063 ^b (0.031)	0.108 ^c (0.056)	0.058 ^c (0.034)	0.116 ^b (0.051)
Individual controls not reported					
Individual fixed effects	Yes	Yes	Yes	Yes	Yes
Province-year dummies	Yes	Yes	Yes	Yes	Yes
Observations	60,255	28,690	36,318	30,618	34,386
R-squared	0.59	0.59	0.61	0.58	0.61

Channels 1 - Agriculture vs Non-Agriculture

Dependent variable	Life satisfaction of individuals			
	Rural	Urban	Agriculture	Non Agriculture
Sample	(1)	(2)	(3)	(4)
In ExOp	0.069 ^c (0.037)	0.103 ^b (0.041)	0.056 (0.044)	0.091 ^a (0.034)
Individual controls not reported				
Individual fixed effects	Yes	Yes	Yes	Yes
Province-period dummies	Yes	Yes	Yes	Yes
Observations	35,406	28,597	14,541	42,616
R-squared	0.59	0.61	0.61	0.62

Channels 2 - Working versus non-Working

Dependent variable	Life satisfaction of individuals			
	Has job	No job	Has job	No job
	(1)	(2)	(3)	(4)
Ln ExOp	0.075 ^a (0.028)	0.104 ^c (0.062)	0.070 ^b (0.028)	0.101 (0.063)
Ln ExOp × dummy other working family member			0.005 ^c (0.003)	0.014 ^c (0.007)
Individual controls not reported				
Observations	43,211	11,754	43,211	11,754
R-squared	0.62	0.62	0.62	0.62

Channels 3 - Health

Dependent variable		Individual health score				
Indicator		Score 1-5			Dummy if score=1	
Sample	All	Job	No job	All	Job	No job
In ExOp	-0.037 (0.025)	-0.041 (0.031)	0.011 (0.050)	0.008 (0.008)	0.007 (0.009)	-0.009 (0.021)
Individual controls not reported						
Individual fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Province-year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	65,070	43,211	11,754	65,070	43,211	11,754
R-squared	0.74	0.74	0.78	0.59	0.62	0.63

Channels 3 - Health (depression)

Dependent variable		Individual depression score				
Indicator		Score 1-5			Dummy if ≥ 4	
Sample	All	Job	No job	All	Job	No job
In ExOp	-0.046 (0.047)	-0.038 (0.057)	-0.195 (0.134)	0.002 (0.020)	0.019 (0.025)	-0.089 (0.056)
Individual controls not reported						
Individual fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Province-year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	32,196	17,034	5,144	32,196	17,034	5,144
R-squared	0.60	0.60	0.61	0.57	0.57	0.59

Channels 4 - family and job satisfaction

Dependent variable		Satisfaction of individuals			
Indicator		Family high satisfaction ≥4	Dummy high family satisfaction ≤ 2	Job satisfaction (1-5)	Dummy job satisfaction ≥4
Years		2012 & 2014		2010 & 2014	
		(1)	(2)	(3)	(4)
In ExOp		0.052 (0.040)	0.014 (0.018)	0.123 ^b (0.054)	0.066 ^c (0.038)
Individual controls not reported					
Individual fixed effects	Yes	Yes	Yes	Yes	Yes
Province-year dummies	Yes	Yes	Yes	Yes	Yes
Observations	38,376	38,376	7,166	7,166	
R-squared	0.68	0.64	0.62	0.62	

Conclusion - Main findings

- We find a positive, significant and robust effect of rising export opportunities on Chinese well-being
 - People living in Chinese localities that have experienced a greater export shock (as a result of foreign demand) report a greater improvement in their well-being.
 - This effect is in addition to income and employment effects
 - The impact is large: It explains more than 16% of average increase in reported life satisfaction over 2010-2014.
- The effect is mainly channeled by better working conditions
 - Non-working individuals are also positively impacted, but less and only if one member of the household is working
 - We find a strong impact on reported job satisfaction
 - We find no impact on health and family satisfaction

