

The UK's Productivity Puzzle

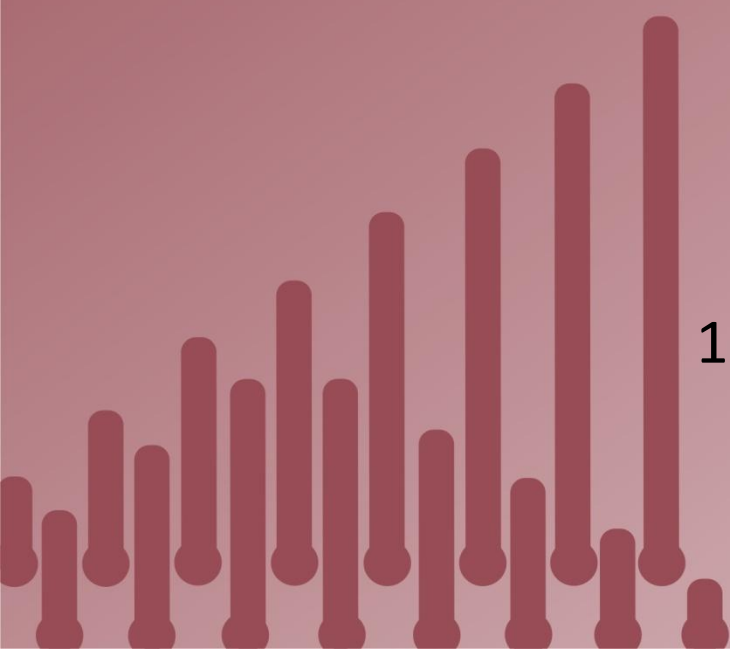
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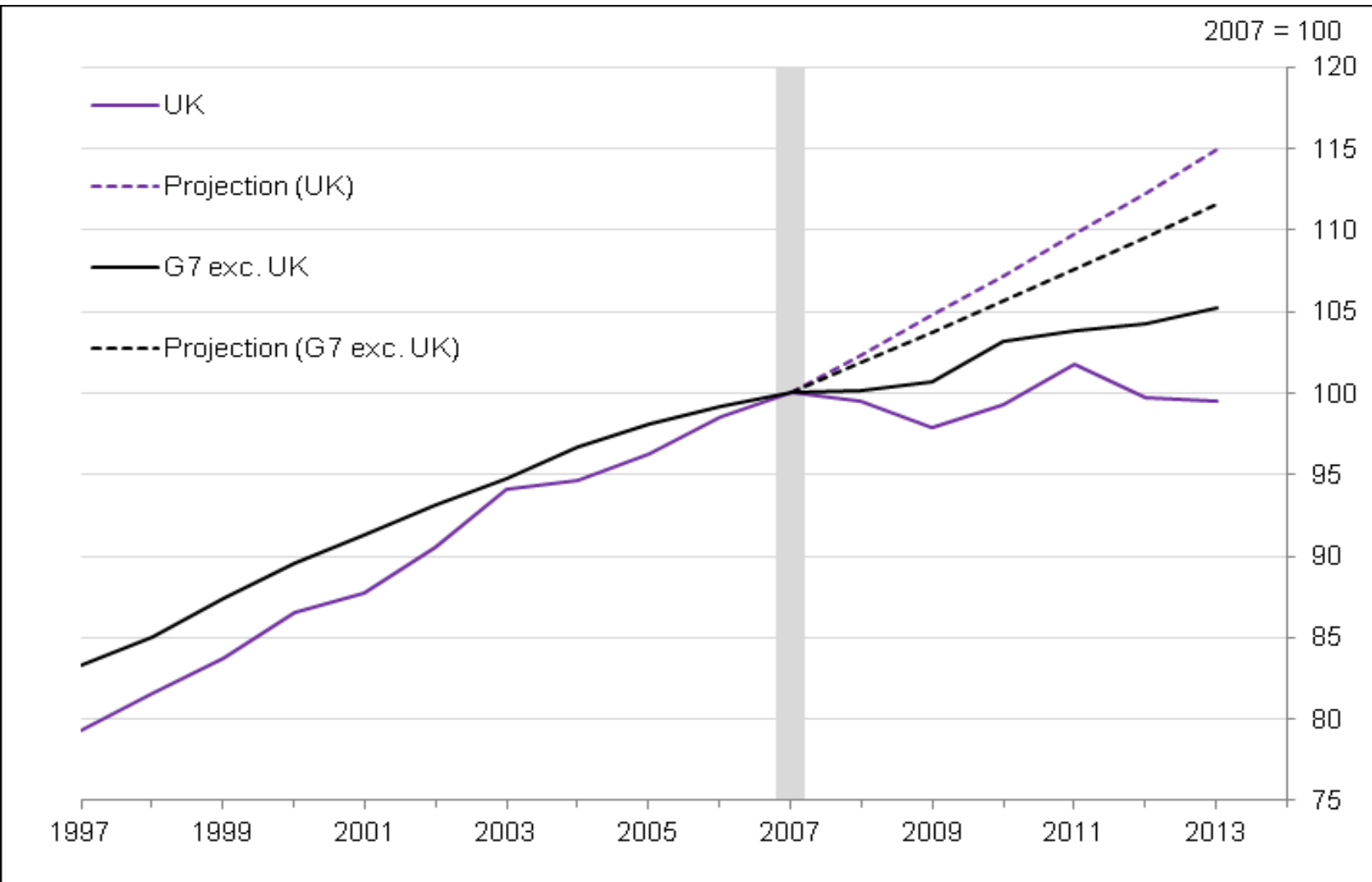
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What's the Issue?

- This recession is not like others
- Big drop in GDP but much smaller employment shock
- Falling labour productivity
 - Particularly poor relative to rest of G7 (next slide)
- So what is going on?

Figure 1 Labour Productivity growth in the UK and the rest of the G7, 1997-2013



Structure of the Chapter

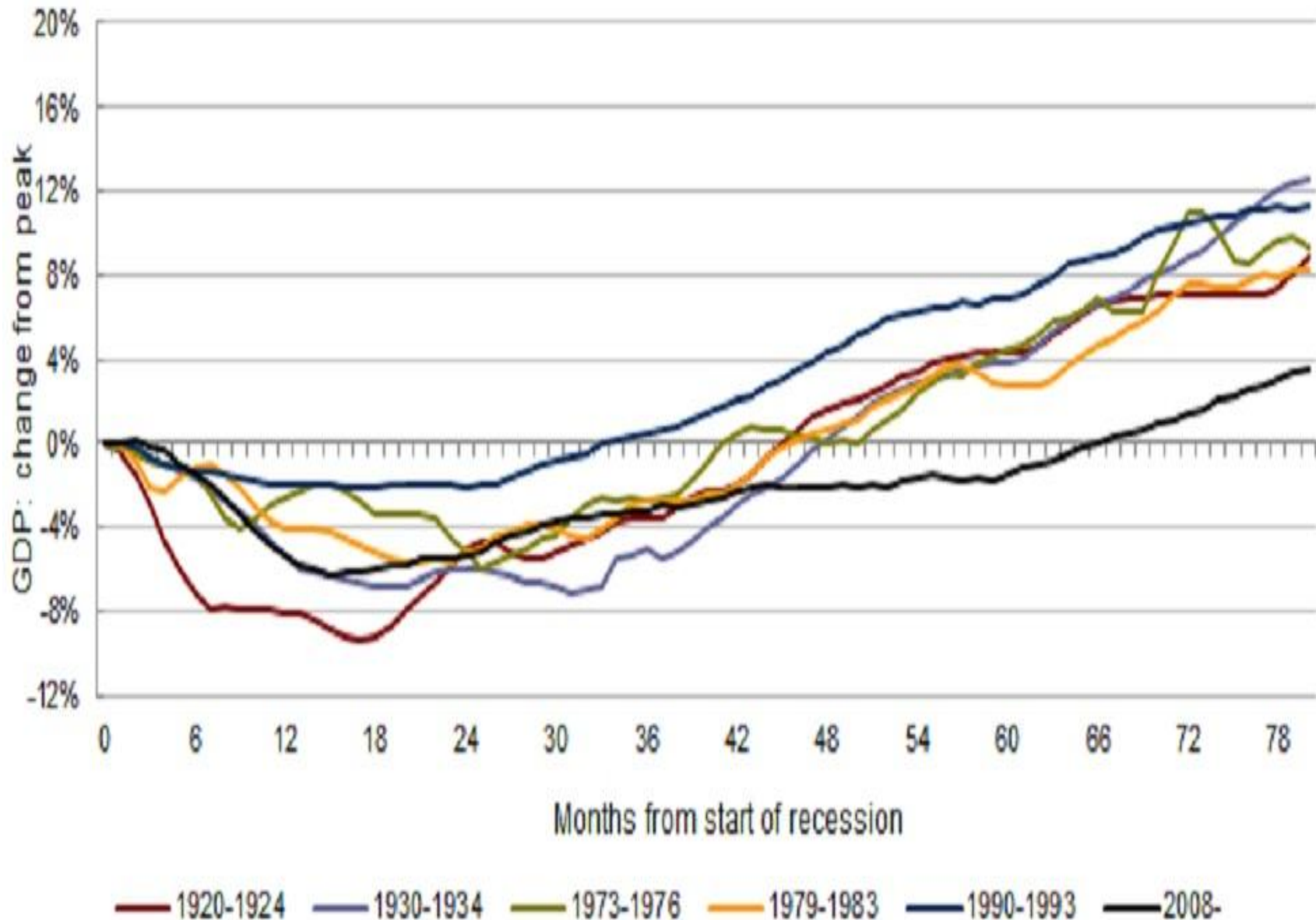
- Describe nature of UK productivity puzzle
- Review others' take on what's happening
- Provide some (partial) insights from micro analysis of workplaces
 - WERS 2004-2011
 - Some 1998-2004 analysis
- Speculate about the future

Nature of the Puzzle

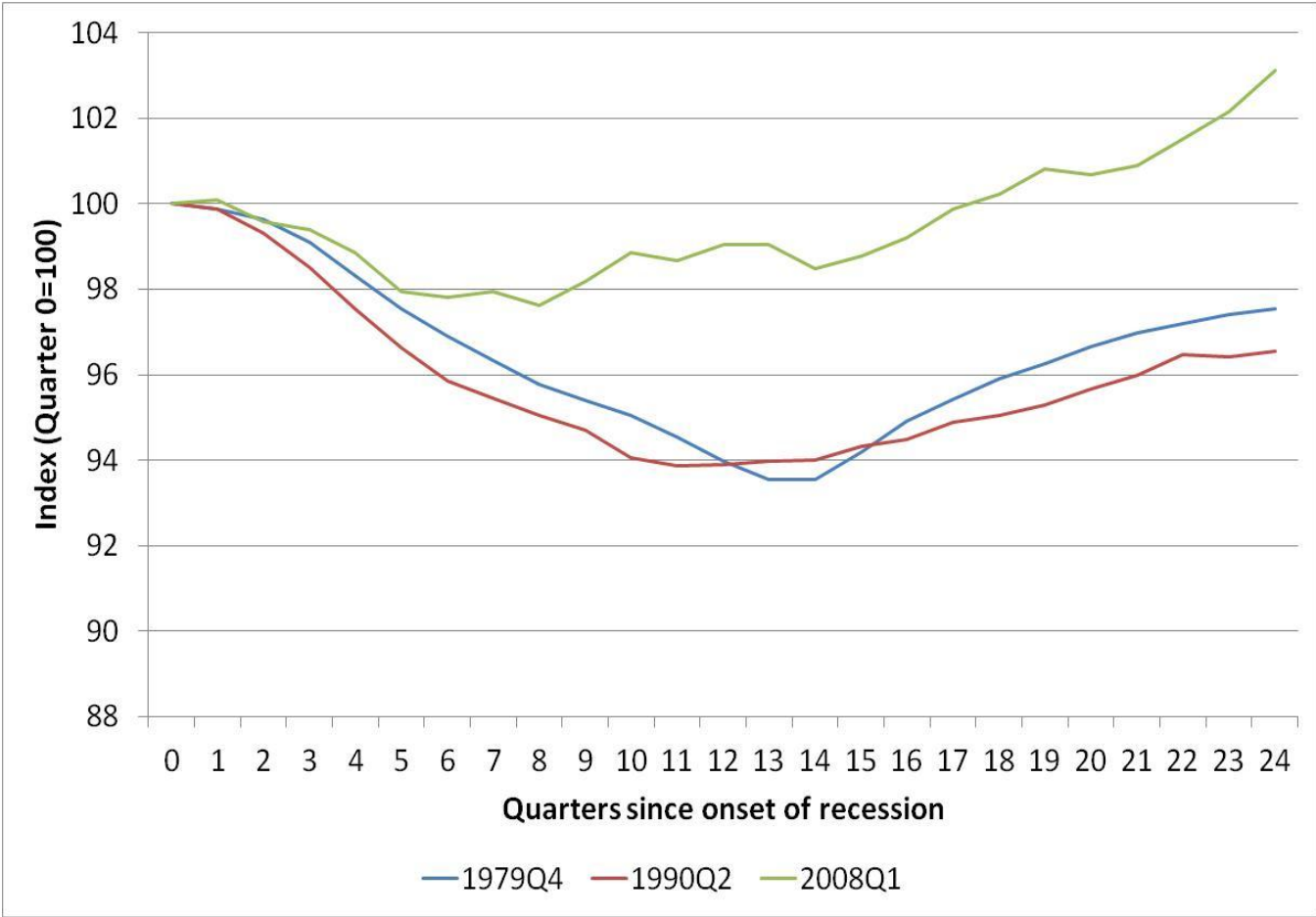
Nature of the Puzzle(s)

- Big drop in GDP followed by slow rate of recovery which has been unprecedented
- Labour market holding up: relatively high employment
- Low productivity growth relative to competitors
- Two puzzles
 - Why has growth taken so long to return?
 - Why has labour market responded differently this time compared to earlier recessions?

GDP Change from Peak Relative to Previous Recessions



Employment Change in Recent Recessions



Potential Explanations

Review of the Literature

Discussions have been about.....

- The role of the Banking Sector (direct, indirect)
- Any 'cleansing' effect
- Incentives to innovate (conflicting hypotheses)
- Labour Hoarding
 - If so why and to what end?
- The Flexible labour market
 - Strong labour supply, falling real wages
- Capital shallowing
- Measurement error
 - Output, capital stock; intangibles; estimating counterfactual

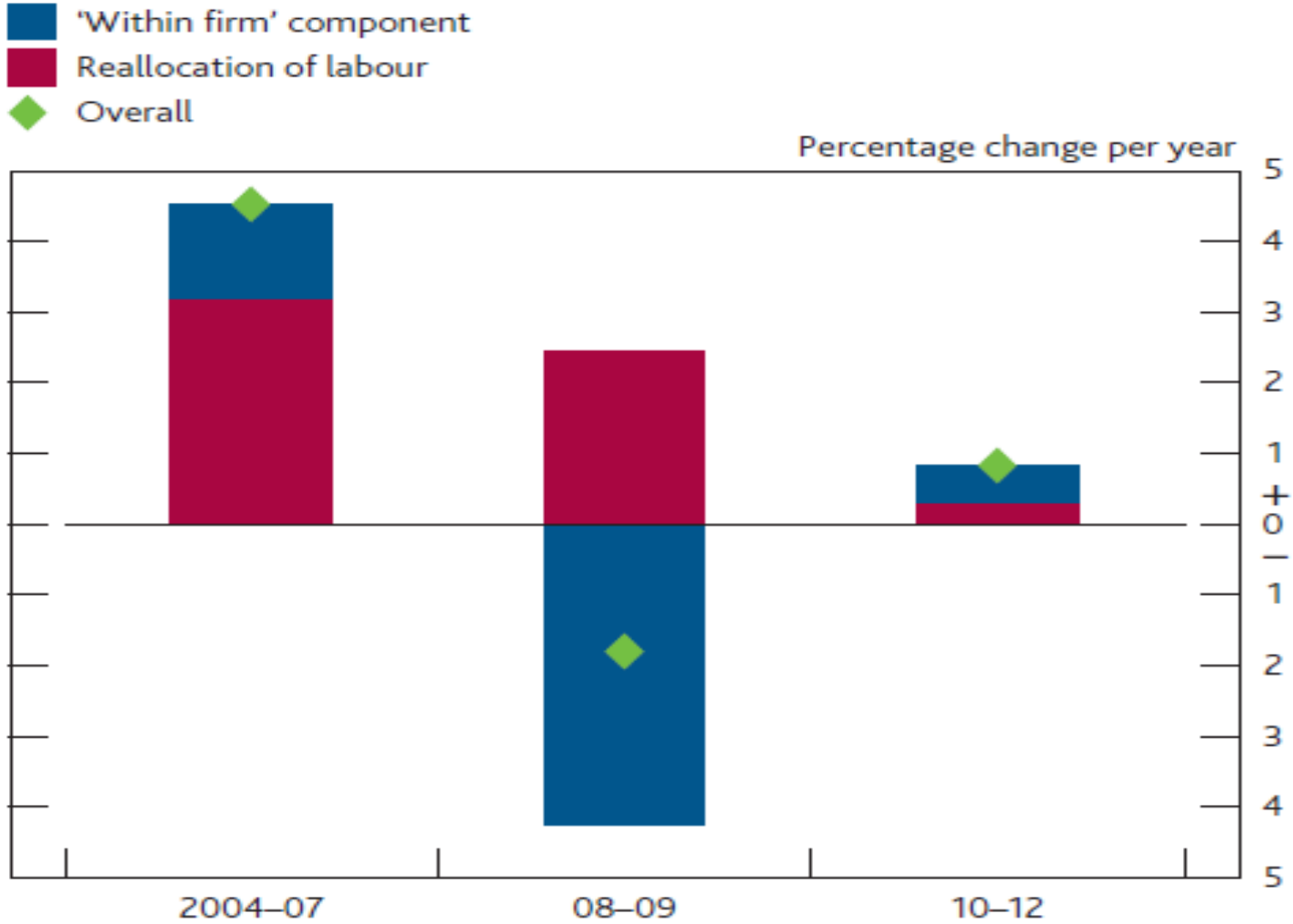
Hypothesis 1: A Banking Crisis

- Direct impact on UK's large Finance Sector
- Expensive in taxpayer money and govt time
 - Banks underwritten (£1.16bn) and quantitative easing (circa £400bn)
 - Opportunity costs
- Little evidence of indirect effects
 - Lending fell more sharply than in previous recessions but had little impact on aggregate productivity (Riley et al)
 - Many firms cash rich
- Forbearance?
 - Not really (Arrowsmith et al); no effect (Riley et al)

Hypothesis 2: No Cleansing Effect?

- Temporary spike in liquidations and redundancies
 - % loss making firms rose (Barnett et al)
- Rate of workplace closure no different to benign 1998-2004 (van Wanrooy et al)
 - Harris and Moffatt also find reduced closure rates post-2007 in ARD. In manufacturing it is the more productive workplaces that are most likely to close!
- Growth in variance across sectors
 - Output (Pessoa and Van Reenen)
 - Value added (Barnett et al)
 - Productivity across establishments (Field and Franklin)
- Chief contributor to falling productivity is *within* sector and *within* firm (Riley et al; Barnett et al)

Decomposition of labour productivity growth into within and between firm



Sources: ONS research data sets and Bank calculations.

(a) The chart includes UK private non-financial corporations, excluding those in the agriculture, mining and utilities sectors. Further details are provided in Barnett *et al* (2014a).

Hypothesis 3: Incentives to Innovate?

- Opportunity costs v uncertainty
- Moderate degree of work reorganization and not linked to being hit by Crisis (van Wanrooy et al)
 - Similar to early 90s (Geroski and Gregg)
- Decline in product and process innovation in firms though real R&D expenditure constant (ONS; Barnett et al)
- BoE estimated fall in product innovators accounted for 1pp of productivity shortfall between 2008 and 2012 (Barnett et al)

Hypothesis 4: Labour Hoarding

- Labour retention in the face of declining demand
 - Induced by uncertainty (Martin and Rowthorn)
- Opportunity to do so
 - Falling price of labour relative to capital
 - Falling real wages
 - High firm profitability
- % firms with falling output but constant employment doubled in recession (Barnett et al)
- Retention of high value-added workers creating intangible capital – not hoarding (Goodridge et al)
- Also hiring rates high relative to pre-recession (Barnett et al) – not hoarding

Hypothesis 5: Flexible Labour Market

- Big rise in total N jobs
- Falling real wages and low inflation: unprecedented
 - Real hourly labour costs static between 2008 and 2013.
 - bargaining power (unions, benefit system) – sensitivity of real wages to unemp - labour supply (immigration), pay freezes and nominal wage cuts
- Growth in non-standard jobs
 - Part-time, temporary, self-employment; often involuntary; Blanchflower underemployment index
 - Now growth in full-time/permanent jobs
- Hours fell more than employment
 - Back to pre-recession level for FT in q1 2012 and q1 2014 for all
- Hard teasing out causal link with productivity

Hypothesis 6: Capital Shallowing

- Fall in capital-labour ratio?
 - Real wage decline and rise in capital costs due to bank reluctance to lend (Broadbent)
 - May be behind strong hiring rate since HC less sticky
- Heavily contested
 - Pessoa and Van Reenen say accounts for 2/3 decline in labour productivity, with hours decline also important but TFP minor
 - By end 2013 8% lower than counterfactual in absence of recession, accounting for 2.5pp of productivity shortfall (Bennett et al)
 - Field and Franklin disagree saying TFP is more important
 - Harris and Moffat: no capital shallowing in manufacturing – instead LP decline in manufacturing attributed to decline in intermediary inputs. In services LP decline due to decline in TFP

Hypothesis 7: Measurement issues

- Measurement issues and output revision may explain 4pp of productivity shortfall (Barnett et al)
- Difficulties measuring output – not huge contributor (Grice)
- North Sea output falling pre-recession
 - Not fully accounted for in estimating trend
- Don't capture intangibles where there has been big growth (Goodridge et al)
 - From 2014 R&D has counted as part of gross fixed capital formation and thus part of GDP
- Big debate over TFP growth – better than 70s recession, similar to '80s (Pessoa and JVR)

Sectoral Stories

- Finance
 - Steep productivity growth pre-recession (Bell and Van Reenen)
 - But treated as intermediate input in national accounts so not counted in GDP (Oulton)
- More sectoral variance in productivity trends than hitherto believed
 - Wales and Taylor: 3 industries account for much of fall in output per hour (Finance, Utilities, Oil)
 - Much bigger fall in Services (due to fall in TFP) than Manufacturing (where intermediaries fell) (Harris and Moffat)

WERS Analysis

What Can We Learn From Workplace-
level Analyses?

The Workplace Employment Relations Survey

- **National** survey mapping employment relations in workplaces across Britain.
- **Unique and comprehensive:** data collected from managers, worker representatives and employees in 2,700 workplaces with 5+ employees.
- **Well-established:** 1980, 1984, 1990, 1998, **2004, 2011**
- **Linked employer-employee:**
 - 2004 and 2011 cross-sections
 - 2004-2011 Panel

A CLEANSING EFFECT?

Closure Rate Higher Among those with Poorer Pre-recession Performance

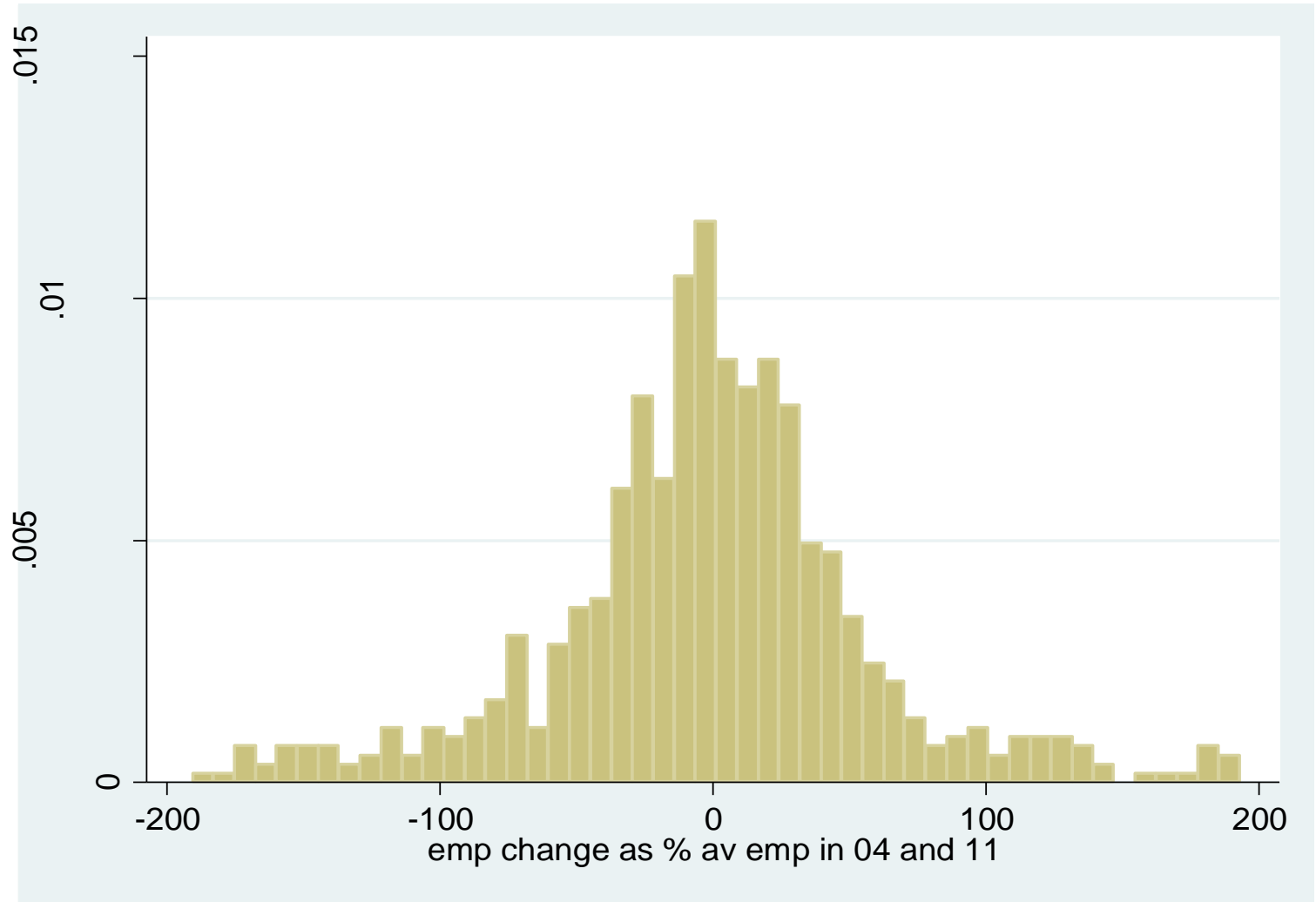
Financial Performance relative to industry average in 2004:	Raw:		Controls:	
	Mean	Marginal Effect	Mean	Marginal effect
Below	.29	-	.25	-
Average	.17	-.12	.17	-.09
Better	.20	-.10	.21	-.04
A lot better	.08	<u>-.21</u>	.08	<u>-.17</u>

Incentives to Innovate?

- Little change in rate of workplace innovation
 - Exception: increase in “changes to work organization” (2004: 32%; 2011: 37%)
- Amount/type of innovation not linked to impact of recession
- However N innovations lower where workplace faced “declining” or “turbulent” market conditions
- N innovations +ve sig associated with higher labour productivity relative to industry av. and higher quality of output but not financial performance, ceteris paribus
- N innovations lowered likelihood of “weaker as a result of recent recession”

LABOUR HOARDING?

Employment Growth, 2004-2011, private sector panel



Employment Change as a Percentage of Base Year Employment Level Private Sector Panel – consistent with labour hoarding?

	Shrunk by at least 20%	No Change	Grew by at least 20%
2004-11, at least 5 employees:	21	39	41
2004-11, at least 10 employees:	25	40	34
1998-2004, at least 10 employees:	24	42	34

Employment Change and Impact of Recession, 2004-2011
- Clearly the recession did matter for employment growth

Recession Impact:	Shrunk by at least 20%	No Change	Grew by at least 20%
None	6.9	33.1	60.1
A little	10.3	38.5	51.2
Moderate	16.8	46.8	36.5
Quite a Lot	25.7	34.9	39.4
A great deal	29.7	37.7	32.6
All	20.4	39.0	40.7

Employment Change in 2004-2011 and Changing Demand for Goods and Services, Panel Workplaces in Private Trading Sector

What mattered was declining demand, rather than uncertainty

Product and service demand:	Growing	Turbulent	Declining
Always	20.2	9.7	-25.6
Started	19.5	5.0	7.5
Stopped	4.6	19.4	31.5
Never	11.1	12.7	10.4

Other evidence on labour hoarding

- Link between performance and employment change broken
 - workplace performance in 1998 predictive of employment growth in 1998-04
 - By 2004-2011 this was no longer the case.
- Growth in % skilled workers negatively correlated with workplace employment growth
 - In workplaces that had shrunk by at least 20%, the increase in the percentage of employees who were skilled was 9 percentage points, whereas it was only 2 percentage points in workplaces that had grown by at least 20%
 - Robust to controls
 - No association between increase in % skilled and innovations so not clearly linked to investment in intangibles
 - Consistent with hoarding of skilled workers
- Increase in workplace tenure
 - In private sector panel workplaces mean workplace tenure was under two years in one-third (33%) of workplaces in 2004, falling to just over one-quarter (27%) in 2011. The percentage with an average of at least 5 years' tenure rose from 35% to 52%.

A SLOWDOWN IN HRM INVESTMENTS?

Share of employment in private sector workplaces with specific HR practices, 1998-2011

	1998	2004	2011	2004 v 1998	2011 v 2004	2011 v 1998
	%	%	%	Signif.	Signif.	Signif.
Semi-autonomous team-working ⁺	44	35	48	***	***	
Functional flexibility ⁺	79	78	82		**	
Training for 80%+ experienced employees ⁺	21	41	49	***	***	***
Problem-solving groups	49	34	30	***	*	***
Quality targets	55	58	63			
Appraisals for 80%+ non-managerial employees	53	69	78	***	***	***
Profit-related pay	53	44	43	***		***
Share-ownership scheme	32	33	28		**	
<i>Voice:</i>						
Representative + Direct	26	31	33	**		***
Representative only	43	28	24	***	*	***
Direct only	11	21	23	***		***
Neither	20	20	19			

Ordered probit regression of labour productivity on count of HR practices private sector, 1998-2011

	1998	2004	2011	1998	2004	2011
<i>Controls?</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Count of HR practices	0.11*** [2.77]	0.10*** [2.75]	0.05 [1.53]	0.11*** [2.92]	0.09** [2.32]	0.06 [1.60]
<i>N</i>	<i>1259</i>	<i>1210</i>	<i>1337</i>	<i>1258</i>	<i>1210</i>	<i>1337</i>

Falling Real Wages

- Which, if any, of these actions were taken by your workplace in response to the recent recession?
 - 38% wage freeze/cut = most common response to recession
 - Accompanied by other cost cutting actions in 4/5 cases
- % reporting pay freeze in last settlement doubled
 - 12% in 2004, 26% 2011
 - 36% where manager said affected “a great deal” by recession

What Lies Behind Falling Real Wages

- Union bargaining power?
 - No correlation between freezes/cuts and unionisation
 - No correlation between pay freeze in last settlement and unionisation
 - Little change in union wage premium (some counter-cyclicality)
 - Hard to identify break point in union power
 - May have been some time ago?
- Welfare reform
 - Those using public job placement service and those drawing on unemployed for recruits no more likely to freeze/cut pay
- Immigration
 - 1 percentage point in the number of non-EEA nationals employed at a workplace raised the probability of a wage freeze or cut by roughly 0.4 of a percentage point
 - % non-UK EEA nationals was not significant

Influences on the Most Recent Pay Settlement for the Largest Non-Managerial Occupation

	2004			2011		
	All	Freeze/ cut	Increase	All	Freeze/ cut	Increase
Financial Performance	30	36	29	36	44	34
Productivity levels	21	23	21	19	18	19
Changes in Cost of Living	24	11	26	21	17	22
Recruitment and Retention	21	16	21	13	11	14
Industrial Action	<1	<1	<1	<1	<1	<1
None of these	4	14	3	12	11	12
<i>N workplaces</i>	<i>1750</i>	<i>182</i>	<i>1587</i>	<i>1756</i>	<i>379</i>	<i>1346</i>

The 'flexible' labour market

- Greater use of numerical flexibility in 2011 than 2004
 - Up from 50% to 65% of workplaces
 - But not associated with managerial perceptions of how adversely workplace affected by recession nor with HR manager perceptions of how workplace had emerged from recession
 - In panel analysis greater use of numerical flexibility linked to poorer workplace performance (additive scale) and productivity relative to industry average
- Increased union density in panel 2004-11 associated with improved performance (additive scale and labour productivity) relative to industry average

Effort

- Lower demand creates 'slack' leading to employees working less hard or less smart, perhaps compounded by disincentives generated by lower real wages?
- Or recession increases pressure on workers either via co-worker dismissal/lower employment rates, or indirectly via threat of dismissal
- % who "strongly agree" "my job requires that i work very hard" increased significantly from 25% in 2004 to 32% in 2011. Remains so ceteris paribus.
- Not associated with how adversely workplace affected by recession but positively associated with HR manager perception of current market competition.
- Driven by employees who said "my workload increased" when asked what had happened to their job as a result of recession

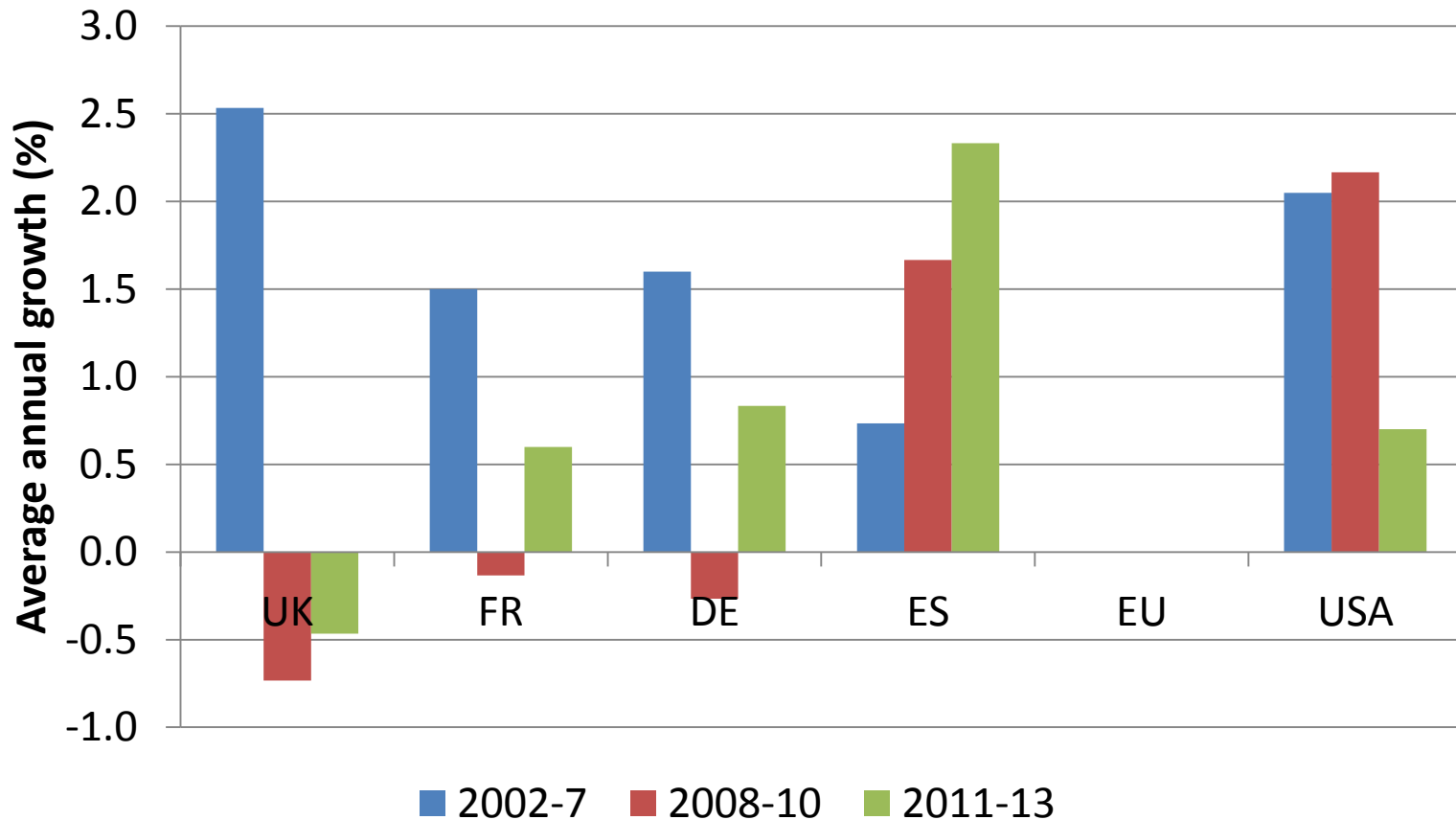
Summary of WERS Findings

- Some cleansing effect
 - Financial performance rather than productivity
- Innovation rates not linked to impact of recession
 - But returns to innovation in terms of productivity and ‘coming out stronger’
- Employment stability but clear impact of recession on growth rates via product market
- Some continued growth in HRM investments. Some (weak) evidence of lower financial returns
- Strong recession impact on wage setting but pay settlements not directly linked to productivity
- Employees working harder due to increased workload post-recession where competition high

Future

- Employment/output recently reached pre-recession peak
- Real wage growth remains illusive
- Reforms suggest long-term prospects good (Aghion et al)
 - Deregulation of capital flows; Higher Education; Welfare system; Labour law
- Permanent loss?
 - Barnett et al argue reduced investment in capital and impaired resource reallocation account for 6-9pp of 16pp shortfall in labour productivity
 - UK productive capacity 2/3 its pre-recession rate (Ball)
 - Similar to France, smaller than Spain, larger than Germany
- TFP
 - Barnett et al.: accounts for much of underutilisation and misallocation
 - Pessoa and Van Reenen: no structural break

Growth in GDP per hour



Source: OECD