

# An analysis of doctors' labour supply

*Should the British NHS train 8,000 more doctors?*

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# Outline

- Introduction
- Literature
- Data
- Results
- Caveats
- Conclusion

# Why is health workforce important?

- Training doctors is expensive and takes time
  - £498,489 10-year GP training & £564,112 14-year Consultant training (BMA, 2012)
- The NHS is entirely bearing those costs...
  - ...but staffing shortages persist (nurses & GPs)...
  - ...UK population is growing and ageing...
  - ...and headcount has been increasing for the last ten years.
    - OME, HSCIC and the NHS Confederation have reported an average increase of doctors' headcount close to 25% from 2004 to 2014 with an average yearly growth of 2.5%.

# Exploring the unexplored using the LFS

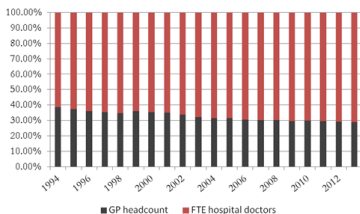
- Headcount growth might have relied upon GP feminisation
- The Labour Force Survey (LFS) has been little used for this purpose
  - It is the main source of analysis in labour markets trends
  - It is complex and comprehensive with very detailed information at individual/hhld level

# Main concerns: hours worked & early retirement

- Very little literature on the labour supply of doctors (Addicott et al, 2015; Baltagi et al, 2005 HE)
- Few topics
  - Nurse (Rice, 2005; Propper and Van Reenen, 2010 JPE)
  - GPs (Gravelle and Hole, 2007 BJGP; Morris et al, 2011 HE)
    - GP feminisation process (McKinstry et al, 2006 BMCHSR; Hedden et al, 2014 HRH)
  - Consultants (Morris et al, 2008 JRSM)
- But they have excluded other relevant workers
  - Specialists & Associate Specialists & doctors in training

## Many reports deal with a bunch of figures

- DDRB (2015) analyses FTE and headcount (professionals and trainees)
- Need to better incentivise GP profession. How? HEE increases PG GP vacancies in training by 50%



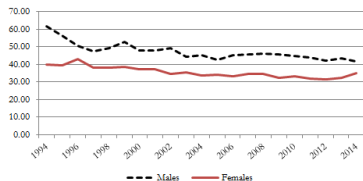
## Feminisation of GP workforce

- Increasing female participation may help to explain growth in headcount.
- This explains the increase in headcount in Scotland (McKinstry et al, 2006 BMCHSH)...
  - ...but there is not evidence on how hard they work (number of hours)...
  - ...that may have accentuate GP shortage
- Female GPs doubled in the last 30 years (Hedden et al, 2014 HRH).
  - but the shortage of GPs still persists.
  - Many articles look at FT. The real issue is in the PT side.

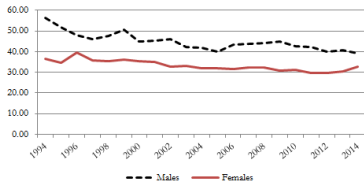
## How hard do doctors work?

- Salaried GPs usually work harder...
  - but the other way also applies looking at dual practice (Gosden et al, 1999 QJM).
- PT GPs work considerably fewer hours (-17.8h) than FT (Gravelle and Hole, 2008 BJGP).
  - Why? Seniority & family circumstances (number of children).

GPs (ttushr average)



GPs (bushr average)





# Intentions to leave and early retirement

- GPs plan to retire early from the NHS (Hedden et al, 2014).
  - Reasons: workload looking after family or leisure.
  - But they may think of doing devoting a few hours in private practice.
- There is hardly literature on leave of absence.
- Job satisfaction also affects early retirement or intentions to leave (Hann et al, 2010)
  - But there is not clear relationship between those (Hedden et al, 2014).
  - Partial effect of job satisfaction on intentions to leave.

## Why the LFS?

- We use a pooled cross-sectional data from 1994-2014
- The LFS is appropriate as...
  - Complex, comprehensive, detailed household and individual socioeconomic information
  - 5-waves basis: 30,000 participants in 12,000 hhld on each. Hence 150,000 individuals in 60,000 hhld over the follow-up (Ada et al, 2006)
  - Picks up trends
  - Variety of variables in topics such as hours, income, employment type,... Reduces inconsistencies.
  - PT, FT, unemployed, qualifications, worked hours, income variables, current and past jobs, prospects,...
- But there are few limitations: reported answers, attrition bias (20% replacement in each wave)

# What variables are we using? (1)

- Medicine degree: qualifications variables (holding a degree in medicine or above)
  - Higher qualification
  - Qualification as aggregation
  - Degree variables
  - Subject variables: JACS (HESA, 2002/03, 2007/08, 2012/13)
- Occupation variables: 2211 Medical practitioners (UG degree + 1 year Foundation).
  - GPs
  - Hospital doctors

## What variables are we using? (2)

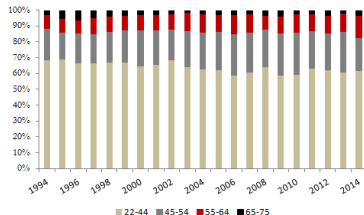
- Salaried vs Contracted GPs
  - Salaried: basic economic activity ILO definition (employees)
  - Contract: same variable but for self-employed
- FT vs PT
  - PT: variable ftpt or ftptwk, 30 hours or less
  - FT: more than 30 hours

## What variables are we using? (3)

- Workplace
  - Partnership: number of people working at workplace. Benchmark: average size 25 workers (GP Workload Survey). We range from 1-49.
  - Hospital: above 49 workers
- Other variables such as married, ethnicity or country of origin
- Hours
  - Actual hours (ttachr & bacthr): hours actually worked (Seasonally adjusted, absence, sickness,...)
  - Usual hours (ttushr & bushr): hours usually worked
  - Total hours (main and 2nd job): tothrs

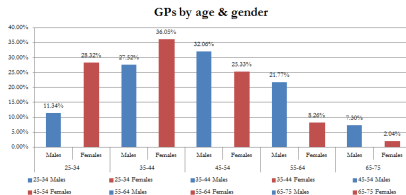
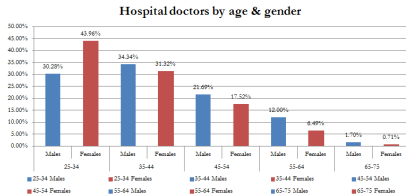
## Sample characteristics

- There are 25,921 doctors



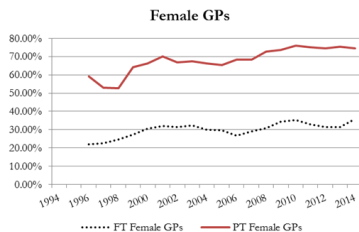
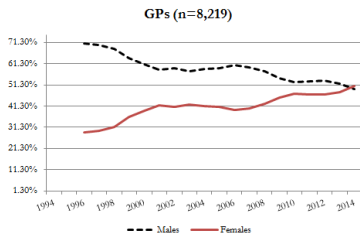
- Gender: 59.7% are males & 40.3% females
- Married/cohabit: 75% married
- Country of birth: 71.5% born in the UK.
- There are 2,109 inactive of whom 872 are retired (above 65) and don't want to work, 341 were looking after family (mainly in their 40s)

# Age and gender distribution



## GP trends

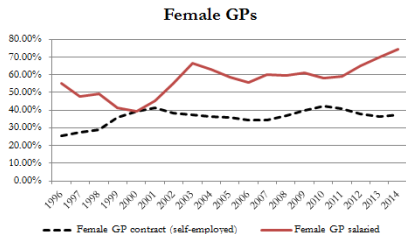
- GPs account for 8,219 of whom 4,855 are males and 3,364 are females





## GP salaried vs contracted

- Salaried GPs are 1,798 (male 707 and females 1,091) and contracted 6,420 (males 4,147 and females 2,273)



## Why doctors choose PT jobs?

- Some doctors do not want FT and do PT because...
  - Look after family (2,885 females or 30.46% vs 1,191 or 8.48% males; 1,552 female GPs or 46.14% vs 688 male GPs or 14.17%; and 988 female or 19.84% vs 262 males or 3.29%)
  - A few look after children (519 females or 50.68% vs 11 males or 3.38%)
  - Look after incapacity (1.56% females vs 0.31% males)
  - Other reasons (11.04% females and 27.38% males; 12.04% female GPs)

## Average hours worked

**Table 3.2.**

	GPs			FT			PT		
	Male	Female	Diff	Male	Female	Diff	Male	Female	Diff
Total actual hours (tachr)	40.40 0.34	28.77 0.33	<b>11.63</b>	45.09 0.35	37.79 0.48	<b>7.3</b>	14.03 0.45	19.09 0.31	<b>-5.06</b>
Basic Actual hours (bacthr)	38.11 0.34	26.18 0.34	<b>11.93</b>	42.63 0.35	34.89 0.50	<b>7.74</b>	12.69 0.50	16.84 0.34	<b>-4.15</b>
Total usual hours (ttushr)	46.51 0.29	34.48 0.28	<b>12.03</b>	51.94 0.26	45.48 0.35	<b>6.46</b>	16.04 0.43	22.65 0.23	<b>-6.61</b>
Basic usual hours (bushr)	44.22 0.27	32.30 0.26	<b>11.92</b>	49.31 0.23	42.5 0.29	<b>6.81</b>	15.64 0.41	21.35 0.21	<b>-5.71</b>
Total hours main & 2nd job (tothrs)	42.32 0.36	30.45 0.35	<b>11.87</b>	46.93 0.36	39.59 0.50	<b>7.34</b>	16.45 0.57	20.63 0.36	<b>-4.18</b>

## Average hours worked

**Table 3.4.**

	FT Salaried GPs			PT Salaried GPs		
	Male	Female	Diff	Male	Female	Diff
Total actual hours (ttachr)	42.88 0.87	36.38 0.83	<b>6.5</b>	14.77 0.99	16.89 0.48	<b>-2.12</b>
Basic Actual hours (bacthr)	39.7 0.84	33.38 0.86	<b>6.32</b>	13.19 1.10	14.54 0.55	<b>-1.35</b>
Total usual hours (ttushr)	48.16 0.62	44.99 0.50	<b>3.17</b>	17.12 0.93	21.18 0.36	<b>-4.06</b>
Basic usual hours (bushr)	44.49 0.55	42.2 0.43	<b>2.29</b>	15.83 0.85	19.89 0.33	<b>-4.06</b>
Total hours main & 2nd job (tothrs)	43.57 0.88	37.85 0.85	<b>5.72</b>	17.84 1.26	18.19 0.59	<b>-0.35</b>

## Average hours worked

**Table 3.5.**

	FT Contracted GPs			PT Contracted GPs		
	Male	Female	Diff	Male	Female	Diff
Total actual hours (ttachr)	45.45 0.37	38.44 0.57	<b>7.01</b>	13.86 0.49	20.2 0.39	<b>-6.34</b>
Basic Actual hours (bacthr)	43.11 0.37	35.59 0.60	<b>7.52</b>	12.58 0.57	18 17.17	<b>-5.42</b>
Total usual hours (ttushr)	52.54 0.27	45.71 0.39	<b>6.83</b>	15.8 0.48	23.4 0.29	<b>-7.6</b>
Basic usual hours (bushr)	50.09 0.25	42.71 0.37	<b>7.38</b>	15.6 0.46	22.08 21.55	<b>-6.48</b>
Total hours main & 2nd job (tothrs)	47.48 0.39	40.38 0.60	<b>7.1</b>	16.14 0.63	21.87 0.45	<b>-5.73</b>

## Caveats

- PT workers may be the cornerstone, especially females. We are testing this at the moment
- Should the NHS train 8,000 new more doctors?
  - Probably not, but we do not have enough evidence to reject/accept
- How much labour supply (in terms of hours) we could get if women worked as hard as men? Female GPs work more an less 12 hours less than their male peers. An average GP work 6. So adding 6 more hours to females we could get extra 15% increase. Official figures show that GPs headcount is about 40,000. Then we could get 6,000 extra GPs on average.
  - But these are very preliminary results based on weak assumptions and should be taken into account with caution.
- How many extra hours would we get if we got 8,000 more doctors and they behaved the same as existing ones? And we could add 96,000 more hours.

# Limitations

- We must look at panel datasets and provide a more consistent life-cycle model
- Why not applying weights to get homogeneous figures?
- Include training costs and also some incentive mechanism
- Overestimated average number of hours
- Need to account for earnings if possible as well as check dual practice
- Unable to check early retirement intentions or emmigration

# Conclusion

- We observe hours worked hugely differ between PT and FT workers

## Policy implications

- If female GPs worked as hard as males we could disentangle the current shortage
- But if they worked even harder, there will be a GP oversupply
- Check existing incentives to female GPs.