

Title:

Gross employment flows (or employment churn) for Wales

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Notes on the use of statistical articles:

Statistical articles generally relate to one-off analyses for which there are no updates planned, at least in the short-term, and serve to make such analyses available to a wider audience than might otherwise be the case. They are mainly used to publish analyses that are exploratory in some way, for example:

- Introducing a new experimental series of data;
- A partial analysis of an issue which provides a useful starting point for further research but that nevertheless is a useful analysis in its own right;
- Drawing attention to research undertaken by other organisations, either commissioned by the Welsh Assembly Government or otherwise, where it is useful to highlight the conclusions, or to build further upon the research;
- An analysis where the results may not be of as high quality as those in our routine statistical releases and bulletins, but where meaningful conclusions can still be drawn from the results.

Fuller notes on the use of statistical articles are given at the [end](#) of this document.

Next update:

Not a regular output

Gross employment flows (or employment churn) for Wales

Introduction

Based on detailed analysis of extracts from the Inter-Departmental Business Register (IDBR), maintained by the Office for National Statistics (ONS), this article sets out some estimates of gross employment flows (or employment churn) for Wales.

Current estimates of employment only allow the user the opportunity to consider *net* change between two time points, by comparing employment levels at each of those time points. Estimates of *gross* employment flows provide the user with an idea of the total numbers of jobs both created and lost in the Welsh economy in a given year, and not just the difference between the two.

Results

The methodology employed in deriving these estimates is set out later, with more detailed results given in Annex A (along with detailed footnotes that should be read carefully). The methodology has first been applied at a broad industry grouping according to the Standard Industrial Classification (table 1 below, and expanded in table A1 in the Annex), and then by legal status to give public and private sector breakdown (table 2 over the page, and expanded in table A2 in the Annex).

Table 1: Average annual gross employment flows and flow-rates, by industry, Wales (a)

Industry	Gross flows (thousands) (b)		Gross flow rates (c)	
	Losses	Gains	Losses	Gains
Agriculture, hunting, forestry and fishing	3	3	9%	9%
Energy and water	3	2	26%	20%
Manufacturing	26	20	14%	10%
Construction	7	9	14%	18%
Motor trades, wholesale, retail and repair	19	23	11%	12%
Hotels, restaurants and catering	11	11	16%	17%
Transport, storage and communication	5	7	11%	15%
Banking, insurance, finance and business	21	26	16%	20%
Public administration, health and education	22	34	6%	10%
Other	5	7	12%	17%
All industries	122	141	11%	13%

Source: Inter-Departmental Business Register (IDBR), Office for National Statistics

- (a) Figures relate to the annual average change between approximately 2001 and 2004 in enterprises which either register for VAT, or which operate a PAYE scheme. Counts have been rounded to avoid disclosure and the sum of the parts may not equal the totals.
- (b) Figures relate to the gross employment flows in Welsh sites for all enterprises active in Wales, regardless of the region of registration of those enterprises.
- (c) Gross flow rates are the gross flows expressed as a percentage of average employment (over the same period) derived from the IDBR.

Table 1 shows that average annual gross employment losses (for the period 2001 to 2004 approximately) were about 120,000, whilst average annual gross employment gains for the same period were about 140,000. Of the industries analysed, only the manufacturing and energy and water industries had gross losses that exceeded gross gains; with manufacturing being the industry with the highest average annual gross losses (26,000). Public administration, health and education had the highest average annual gross gains (34,000).

The last two columns of table 1 express these losses and gains as proportions of total employment (using an average from the IDBR extracts over the same period) to give “loss and gain rates.” This shows that energy and water had the highest “loss rate” (26%) and, along with banking, insurance, finance and business services, the highest “gain rate” (20%). Although there were 22,000 losses per year in the public administration, education and health industries, this represented a “loss rate” of only 6%, whilst agriculture, hunting, forestry and fishing exhibited low rates for both losses and gains.

Table 2 repeats this analysis by public and private sector, from which it can be seen that around 85% of the average annual gross employment flows (from 2001 to 2004 approximately) were due to the private sector. This is partly due to the private sector being larger than the public sector, and partly due to employment flow rates in the private sector being around twice as high as those in the public sector.

Table 2: Average annual gross employment flows and flow-rates, by public / private sector, Wales (a)

Sector	Gross flows (thousands) (b)		Gross flow rates (c)	
	Losses	Gains	Losses	Gains
Public sector organisations	16	22	6%	8%
Private sector organisations	107	119	13%	14%
All organisations	122	141	11%	13%

Source: Inter-Departmental Business Register (IDBR), Office for National Statistics

- (a) Figures relate to the annual average change between approximately 2001 and 2004 in enterprises which either register for VAT, or which operate a PAYE scheme. Counts have been rounded to avoid disclosure and the sum of the parts may not equal the totals.
- (b) Figures relate to the gross employment flows in Welsh sites for all enterprises active in Wales, regardless of the region of registration of those enterprises.
- (c) Gross flow rates are the gross flows expressed as a percentage of average employment (over the same period) derived from the IDBR.

Methodology

The method for calculating gross flows is set out below.

By comparing successive annual IDBR extracts of enterprises that are *active* in Wales (regardless of where the enterprise is based), it is possible to identify:

1. enterprises in the first extract but not the second (referred to as a closure);
2. enterprises that are present in both extracts for which employment has decreased by at least 1 person (referred to as a contraction)
3. enterprises that are present in both extracts for which employment has not changed (referred to as a no change enterprise);
4. enterprises that are present in both extracts for which employment has increased by at least 1 person (referred to as an expansion); and
5. enterprises not in the first extract but in the second (referred to as an opening).

The number of enterprises exhibiting each trait above can be counted, along with the aggregate employment change associated with each trait (which in the case of a closure or opening is the employment at the time of the first or second extract respectively).

Using these data, gross employment losses can be calculated as the aggregate employment loss due to closure plus the aggregate employment loss due to contraction. Similarly, gross employment gains can be calculated as the aggregate employment gain due to expansion plus the aggregate employment gain due to opening.

In making the calculations, consideration has been given to the differences between successive IDBR extracts for 2002, 2003, 2004 and 2005. Although the dates of the IDBR extracts used for this purpose are known (namely March of each year), changes in employment in a given enterprise are not always immediately reflected on the IDBR. It is therefore difficult to put an exact time frame on any figures produced from the IDBR, and hence to specify the exact time period for changes between the extracts.

Changes between successive extracts have therefore been combined to give *average* annual gross employment flows. It is reasonable to assume that the averages approximately cover the period from 2001 to 2004.

Issues in estimating gross employment flows

Not all enterprises will feature on the IDBR, in particular enterprises that neither register for VAT, nor operate a PAYE scheme (generally enterprises without employees). The methodology as set out above clearly relies on the enterprises being present on the IDBR and so any gross flows caused by closure of / change in / opening of such enterprises are ignored.

The methodology provides estimates of gross flows by considering change in each enterprise. However, as the enterprise extracts are annual, only the net change in employment in each enterprise during the year can be measured, so that any in-year opposing job flows within an enterprise are excluded. Although both these issues contribute to some under-estimation of gross flows, the following issues work in the opposite direction in over-estimating the flows.

Closures are defined as all enterprises that were present in Wales in one year, but not in the next, which also includes enterprises which ceased being active in Wales but which remained active in the UK. As well as these genuine closures, there are also other reasons why the enterprise might leave the IDBR. For example, it may have been taken over and merged into another enterprise; or it might have temporarily suspended activities in Wales by closing at its only Welsh location and re-opening later at a different Welsh location.

Similarly, openings are defined as all enterprises that were not present in Wales in one year, but then present in the next, which also includes enterprises which were already active in the UK, but which became active in Wales at that time. As well as these genuine openings, there are also other reasons why the enterprise might enter the IDBR. For example, it may have been created as a result of one enterprise splitting into two or more; or it might have restarted activities in Wales by re-opening at a new Welsh location after having closed earlier at a different Welsh location.

Finally, enterprises that experience a change in employment may also do so as the result of a take-over of another enterprise, or the splitting of one enterprise into two or more.

By way of example, consider a take-over where one enterprise closes while another increases in size by taking on all of the employment in the first at the site of the former enterprise. In this case, despite no actual job losses occurring, the methodology applied will effectively treat the take-over as a closure on one side of the equation and an expansion on the other. In other words, a more inclusive definition of job loss and gain is applied in which the number of jobs involved in the take-over serves to add to both the gross loss and the gross gain.

Given that there is no information to directly identify or quantify either the under- or over-estimation effects mentioned above, it is not possible to say how much they affect the true gross flows. However, there will be some cancelling out of these two effects and other evidence (see the following section) suggests it is likely that the combination of the two is *not* significant.

Evidence supporting these estimates

Table B1 in the Annex shows job separation rates for Wales derived from the Welsh Local Labour Force Survey, which is based on a boosted sample of around 20,000 households in Wales. These rates are defined as the number of persons who have separated from a job in the last three months divided by those in employment three months ago.

Using these rates, estimates of the numbers of employed people who move from one job, either into another job or otherwise, in a given year can be derived. To do this the three-month (or quarterly) rates are multiplied by 4 to derive annual rates, and then these rates can be applied to employment levels to give annual estimates of the number of people leaving their jobs.

Table B1 suggests that over the period 2001 to 2004, an average of 225,000 persons per year left their jobs. These figures represent job separation from an employed person's perspective, which does not necessarily imply that the job itself has been lost, as it may reflect the person's choice to move on. The level of separation implied from these figures will therefore be higher than the estimate of 120,000 *jobs* lost per year seen in this analysis, so that the two numbers are consistent, at least in terms of their order of magnitude.

Furthermore, there is also evidence to suggest the IDBR is a reasonable indicator of employment change, despite the exclusion of enterprises that neither register for VAT, nor operate a PAYE scheme. The *average annual net growth* in employment as indicated by the IDBR extracts (see table A1 in the Annex), is about 19,000, which is very similar to the average annual net growth in employment suggested by the Welsh Local Labour Force Survey data over the period 2001 to 2004 (see chart 1 in the Annex).

Conclusion

Taking all the facts presented above, it is suggested that the numbers derived can be used to give a broad feel for the scale of employment flows in Wales, such as in contextualising situations where jobs have been lost, or new jobs have been created. For example, the figures suggest that most individual plant openings or closures (and similarly expansions or contractions) are relatively small when compared to employment flows into and out of the Welsh labour market as a whole.

Table A1: Average annual gross employment flows, by industry, Wales (a)

Industry and variable	Closures (d)	Contractions (e)	No change (f)	Expansions (g)	Openings (h)	Net change (i)	Gross flows (employment)		
							Losses (j)=(d)+(e)	Gains (k)=(g)+(h)	
Employment (thousands) (b)									
Agriculture, hunting, forestry and fishing	-2	-1	0	1	1	0	-3	3	
Energy and water	-1	-2	0	1	1	-1	-3	2	
Manufacturing	-13	-14	0	12	8	-7	-26	20	
Construction	-4	-3	0	5	4	2	-7	9	
Motor trades, wholesale, retail and repair	-11	-9	0	15	8	3	-19	23	
Hotels, restaurants and catering	-6	-5	0	6	6	1	-11	11	
Transport, storage and communication	-2	-3	0	5	2	2	-5	7	
Banking, insurance, finance and business	-12	-9	0	14	12	5	-21	26	
Public administration, health and education	-5	-17	0	25	9	12	-22	34	
Other	-2	-3	0	4	3	2	-5	7	
All industries	-57	-65	0	87	53	19	-122	141	
Enterprises (c)									
Agriculture, hunting, forestry and fishing	1,115	555	13,955	750	695	-420	.	.	
Energy and water	20	20	55	25	25	5	.	.	
Manufacturing	720	950	3,535	1,080	720	0	.	.	
Construction	995	805	6,160	880	1,305	310	.	.	
Motor trades, wholesale, retail and repair	1,925	1,835	11,585	2,145	1,815	-110	.	.	
Hotels, restaurants and catering	1,175	1,350	3,580	1,155	1,310	135	.	.	
Transport, storage and communication	460	375	2,290	510	500	40	.	.	
Banking, insurance, finance and business	2,315	1,445	10,530	1,875	3,455	1,140	.	.	
Public administration, health and education	295	575	2,030	990	645	350	.	.	
Other	595	560	4,060	685	800	205	.	.	
All industries	9,610	8,465	57,780	10,095	11,265	1,655	.	.	

Source: Inter-Departmental Business Register (IDBR), Office for National Statistics

(a) Figures relate to the annual average change between approximately 2001 and 2004 in enterprises which either register for VAT, or which operate a PAYE scheme. Counts have been rounded to avoid disclosure and the sum of the parts may not equal the totals.

- (b) Figures relate to the employment in Welsh sites for all enterprises **active** in Wales, regardless of the region of registration of those enterprises.
- (c) Figures relate to the counts of enterprises **active** in Wales, regardless of the region of registration of those enterprises.
- (d) Closures are defined as all enterprises which were present in Wales in one year, but not in the next. This includes existing enterprises which cease being active in Wales in the year in question but which remain active in the UK. As well as genuine closures, this figure will also include enterprises which have been taken over and merged into another enterprise; and may also include some enterprises which temporarily suspend activities in Wales; or which close at one Welsh location and re-open later at a different Welsh location. All these factors will contribute to some over-estimation of gross employment losses.
- (e) Figures relate to all enterprises present in successive years, whose employment at Welsh sites within the enterprise decreased by at least 1 (i.e. taking no account of any changes in employment in non-Welsh sites of the enterprise). This will include enterprises which decrease in size as a result of the splitting of an enterprise into two or more smaller enterprises, and will contribute to some over-estimation of gross employment losses.
- (f) Figures relate to all enterprises present in successive years, whose employment at Welsh sites within the enterprise was unchanged (i.e. taking no account of any changes in employment in non-Welsh sites of the enterprise).
- (g) Figures relate to all enterprises present in successive years, whose employment at Welsh sites within the enterprise increased by at least 1 (i.e. taking no account of any changes in employment in non-Welsh sites of the enterprise). This will include enterprises which increase in size as a result of the merger of two or more smaller enterprises, and will contribute to some over-estimation of gross employment gains.
- (h) Openings are defined as all enterprises which were not present in Wales in one year, but which were in the next. This includes existing enterprises which were already active in the UK, and which become active in Wales in the year in question. As well as genuine openings, this figure will also include enterprises created where an existing enterprise splits into more than one new enterprise; and may also include some enterprises which return after a temporary suspension of activities in Wales; or which re-open at a new Welsh location after closing earlier at a different Welsh location. All these factors will contribute to some over-estimation of gross employment losses.
- (i) For employment, this is employment gains due to expansions and openings, offset by losses due to closures and contractions. For enterprise counts, this is openings less closures, as defined above.
- (j) Gross losses in employment are calculated by adding employment change due to closures and contractions, and may be over-stated (see footnotes (d) and (e)). However, note also that the figures exclude any changes in enterprises which operate below the VAT threshold and are not included on the IDBR.
- (k) Gross gains in employment are calculated by adding employment change due to openings and expansions, and may be over-stated (see footnotes (f) and (g)). However, note also that the figures exclude any changes in enterprises which operate below the VAT threshold and are not included on the IDBR.

Table A2: Average annual gross employment flows, by public/private sector, Wales (a)

Sector and variable	Closures (d)	Contractions (e)	No change (f)	Expansions (g)	Openings (h)	Net change (i)	Gross flows (employment)	
							Losses (j)=(d)+(e)	Gains (k)=(g)+(h)
Employment (thousands) (b)								
Public sector organisations	*	-15	0	15	7	6	-16	22
Private sector organisations	-56	-51	0	72	47	12	-107	119
All organisations	-57	-65	0	87	53	19	-122	141
Enterprises (c)								
Public sector organisations	*	55	180	80	30	20	.	.
Private sector organisations	9,595	8,405	57,605	10,015	11,230	1,635	.	.
All organisations	9,610	8,465	57,780	10,095	11,265	1,655	.	.

Source: Inter-Departmental Business Register (IDBR), Office for National Statistics

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- (e) Figures relate to all enterprises present in successive years, whose employment at Welsh sites within the enterprise decreased by at least 1 (i.e. taking no account of any changes in employment in non-Welsh sites of the enterprise). This will include enterprises which decrease in size as a result of the splitting of an enterprise into two or more smaller enterprises, and will contribute to some over-estimation of gross employment losses.
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- (h) Openings are defined as all enterprises which were not present in Wales in one year, but which were in the next. This includes existing enterprises which were already active in the UK, and which become active in Wales in the year in question. As well as genuine openings, this figure will also include enterprises created where an existing enterprise splits into more than one new enterprise; and may also include some enterprises which return after a temporary suspension of activities in Wales; or which re-open at a new Welsh location after closing earlier at a different Welsh location. All these factors will contribute to some over-estimation of gross employment losses.
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- (j) Gross losses in employment are calculated by adding employment change due to closures and contractions, and may be over-stated (see footnotes (d) and (e)). However, note also that the figures exclude any changes in enterprises which operate below the VAT threshold and are not included on the IDBR.
- (k) Gross gains in employment are calculated by adding employment change due to openings and expansions, and may be over-stated (see footnotes (f) and (g)). However, note also that the figures exclude any changes in enterprises which operate below the VAT threshold and are not included on the IDBR.

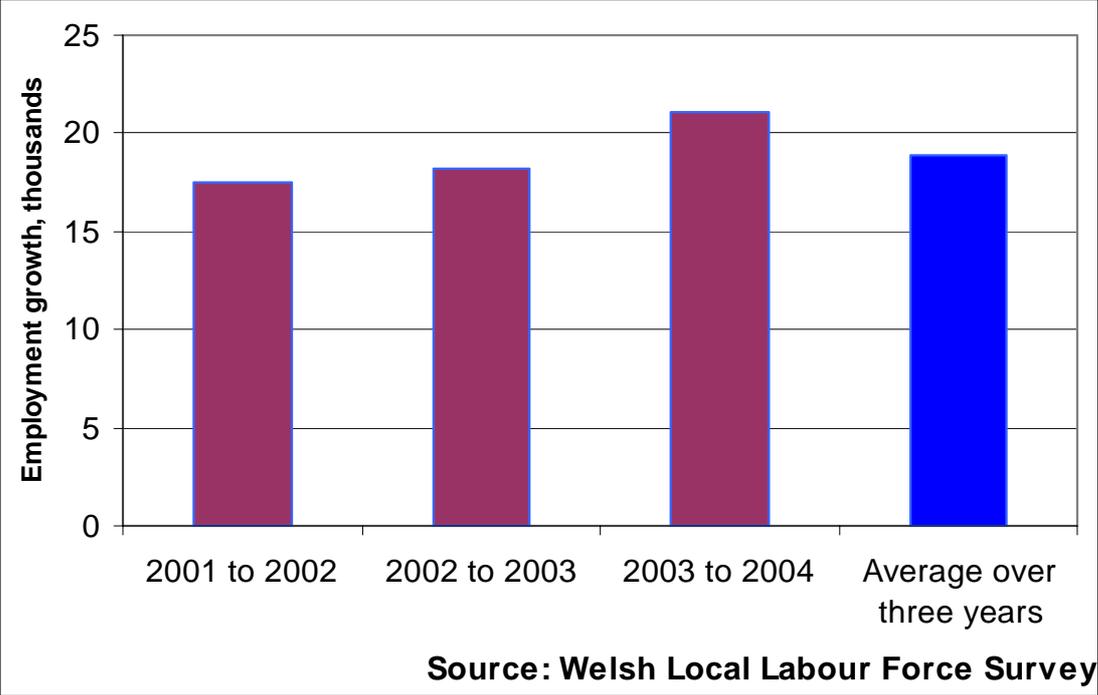
Table B1: Summary of job separation rates, Wales, 2001 to 2004 (a)

	2001	2002	2003	2004	Average: 2001 to 2004
Quarterly rates (b)					
Involuntary job separation rate (c)	1.6%	1.4%	1.4%	1.2%	1.4%
Voluntary job separation rate (d)	3.0%	3.4%	3.0%	3.3%	3.2%
Overall job separation rate (e)	4.6%	4.8%	4.5%	4.6%	4.6%
Annual rates (f)					
Involuntary job separation rate (c)	6.2%	5.8%	5.7%	4.9%	5.7%
Voluntary job separation rate (d)	12.2%	13.6%	12.2%	13.4%	12.8%
Overall job separation rate (e)	18.4%	19.3%	17.9%	18.2%	18.5%
Annual rates applied to working age employment level (thousands) (a) (g)					
Involuntary job separation rate (c)	74	70	71	61	69
Voluntary job separation rate (d)	145	164	150	166	156
Overall job separation rate (e)	219	234	220	227	225

Source: Welsh Local Labour Force Survey

- (a) These figures are actually rates based on people employed, rather than jobs. Job separation from an employed person's perspective does not necessarily imply that the job itself has been lost, as it may reflect that person's choice to move on. The level of separation implied from these figures will be higher than that derived from a job perspective.
- (b) These are defined as job separations in the last three months as a percentage of job separations in the last 3 months plus those employed for over 3 months, based on the working age population.
- (c) Involuntary separations are defined as resulting from dismissal, redundancy (including voluntary redundancy) and the termination of a temporary job. Voluntary redundancy and the termination of a temporary job are seen as involuntary separations as they are symptoms of a contraction in labour demand.
- (d) Voluntary separations are defined as resulting from resignation, giving up work for health, family or personal reasons, retirement (including early retirement) and other reasons. Early retirement is considered to be voluntary as in the majority of cases it is the normal retirement age of the organisation that is early.
- (e) This is the sum of involuntary and voluntary rates.
- (f) These are the quarterly rates multiplied by 4.
- (g) These figures are derived by multiplying the annual rates by the number of people of working age in employment.

Chart 1: Net growth in employment, Wales, 2001 to 2004



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- Introducing a new experimental series of data;
- A partial analysis of an issue which provides a useful starting point for further research but that nevertheless is a useful analysis in its own right;
- Drawing attention to research undertaken by other organisations, either commissioned by the Welsh Assembly Government or otherwise, where it is useful to highlight the conclusions, or to build further upon the research;
- An analysis where the results may not be of as high quality as those in our routine statistical releases and bulletins, but where meaningful conclusions can still be drawn from the results.

Where quality is an issue, this may arise in one or more of the following ways:

- being unable to accurately specify the timeframe used (as can be the case when using an administrative source);
- the quality of the data source or data used; or
- other specified reasons.

However, the level of quality will be such that it does not significantly impact upon the conclusions. For example, the exact timeframe may not be central to the conclusions that can be drawn, or it is the order of magnitude of the results, rather than the exact results, that are of interest to the audience.

The analysis presented does not constitute a National Statistic, but may be based on National Statistics outputs and will nevertheless have been subject to careful consideration and detailed checking before publication. An assessment of the strengths and weaknesses in the analysis will be included in the article, for example comparisons with other sources, along with guidance on how the analysis might be used, and a description of the methodology applied.

Articles are subject to the release practices as defined by the [release practices protocol](#), and so, for example, are published on a pre-announced date in the same way as other statistical outputs.

Missing value symbols used in the article follow the standards used in other statistical outputs, as outlined below.

- .. The data item is not available
- . The data item is not applicable
- The data item is not exactly zero, but estimated as zero or less than half the final digit shown
- * The data item is disclosive or not sufficiently robust for publication