

Gross employment flows (or employment churn) for Wales, 2011 to 2014¹

Introduction

Jobs are created and destroyed in the Welsh economy on an on-going basis. This takes place as some businesses expand and others contract. It takes place as new businesses start up in, or enter into, Wales for the first time; whilst others abruptly leave or gradually disappear. The difference between these processes of job creation and job destruction, or employment churn, is the net increase (or decrease) in employment in the Welsh economy.

This article provides the latest evidence² about these changes in employment in Wales. The aim is to provide a perspective from which to judge any discussion about jobs created and jobs lost in Wales. It is based on detailed analysis of extracts from the Inter-Departmental Business Register (IDBR), maintained by the Office for National Statistics (ONS).

Summary

This analysis suggests that every year around 9 per cent of all jobs in Wales were destroyed and around 10 per cent of all jobs were created (average for the three year period 2011 to 2014). This means that on average over 100 thousand jobs are created and over 100 thousand jobs are destroyed every year (see Table 1). Employment churn dwarfs the resulting net average increase in employment of around 1 per cent (around 12,000 people) of all jobs each year over this three year period.

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, and expanded in Table A1 in the Annex), then by employee size band (Table 2, and expanded in Table A2 in the Annex) and also by legal status to give a public and private sector breakdown (Table 3, and expanded in Table A3 in the Annex).

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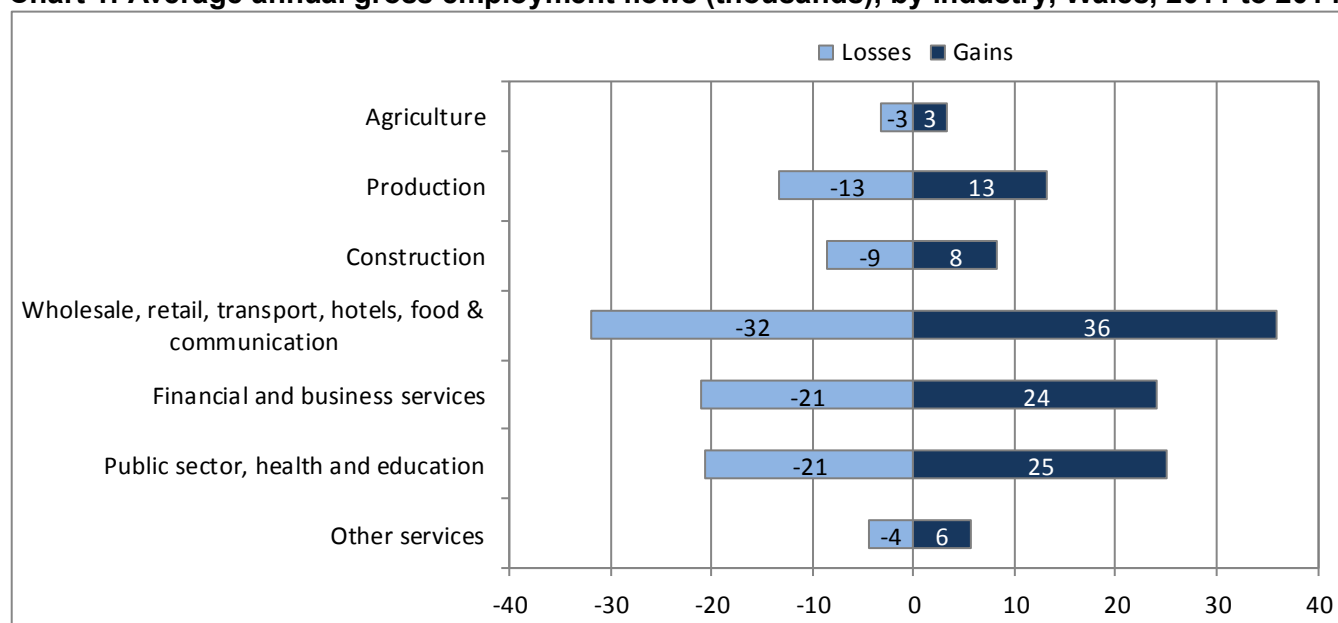
¹ Notes on the use of statistical articles can be found at the end of this document.

² For estimates covering the period 2001 to 2004 see 'Gross employment flows (or employment churn) for Wales' published on 8 November 2005.

<http://gov.wales/statistics-and-research/gross-employment-flows-wales>

Contents

Gross employment flows, by industry	3
Gross employment flows, by employee size band	4
Gross employment flows, by public/private sector	5
Methodology	6
Annex	8
Notes	14

Chart 1: Average annual gross employment flows (thousands), by industry, Wales, 2011 to 2014**Table 1: Average annual gross employment flows and flow-rates, by industry, Wales, 2011 to 2014 (a)**

Industry	Gross flows (thousands) (b)		Gross flow rates (c)	
	Losses	Gains	Losses	Gains
Agriculture	3	3	10%	10%
Production	13	13	9%	9%
Construction	9	8	16%	15%
Wholesale, retail, transport, hotels, food & communication	32	36	9%	11%
Financial and business services	21	24	13%	15%
Public sector, health and education	21	25	5%	6%
Other services	4	6	11%	14%
All industries	103	115	9%	10%

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

(a) Figures relate to the annual average change between approximately 2011 and 2014 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 2011 to 2014 approximately) were about 103,000, whilst average annual gross employment gains for the same period were about 115,000. Of the industries analysed, only construction had gross losses that exceeded gross gains. Wholesale, retail, transport, hotels, food & communication was the industry with the highest average annual gross losses (32,000) and also the highest average annual gross gains (36,000).

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 construction had the highest “loss rate” (16 per cent) whilst the construction industry and financial and business services had the joint highest “gain rate” (15 per cent). Although there was an average annual loss of 21,000 in public sector, health and education, this represented the lowest “loss rate” of 5 per cent.

Chart 2: Average annual gross employment flows (thousands), by employee size band of enterprise, Wales, 2011 to 2014

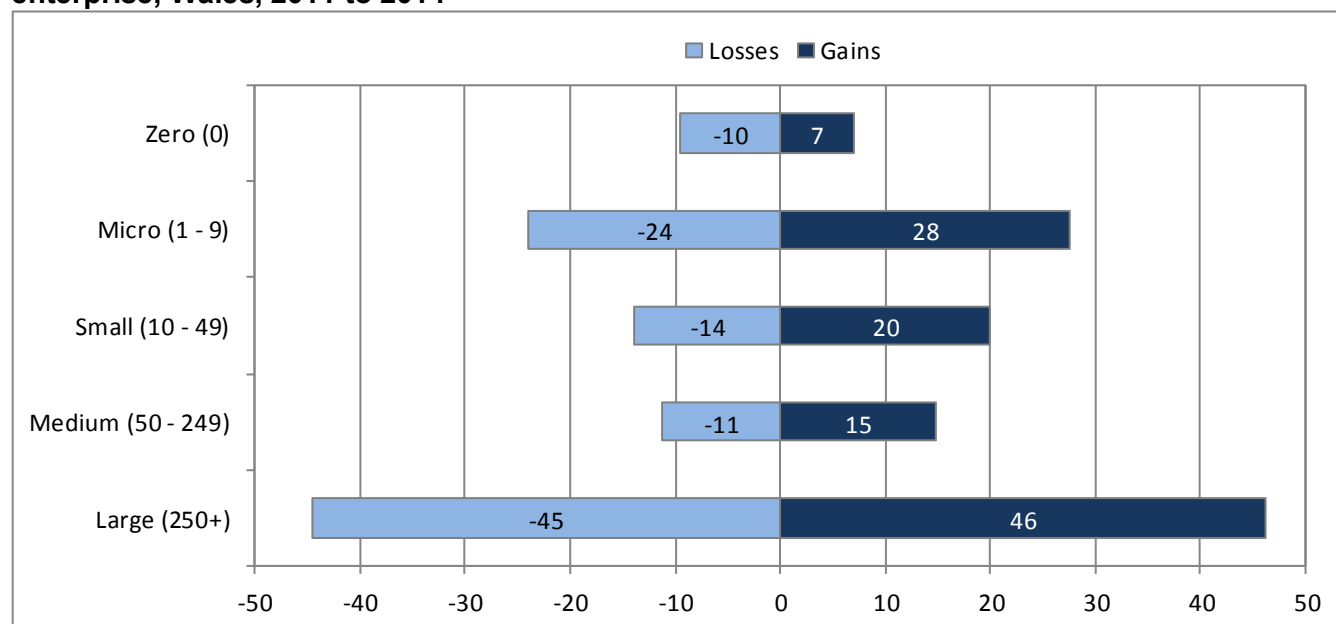


Table 2: Average annual gross employment flows and flow-rates, by employee size band of enterprise, Wales, 2011 to 2014 (a)

Size band of enterprise (b)	Gross flows (thousands) (c)		Gross flow rates (d)	
	Losses	Gains	Losses	Gains
Zero (0)	10	7	20%	15%
Micro (1 - 9)	24	28	15%	17%
Small (10 - 49)	14	20	9%	13%
Medium (50 - 249)	11	15	9%	11%
Large (250+)	45	46	6%	6%
All organisations	103	115	9%	10%

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

(a) Figures relate to the annual average change between approximately 2011 and 2014 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) The size band of the enterprise is based on the number of UK employees (whether full-time or part-time) in the enterprise. This ensures that an enterprise employing 10,000 UK staff but only a handful in Wales is categorised as a large, and not a micro, enterprise.

(c) 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.

(d) Gross flow rates are the gross flows expressed as a percentage of average employment (over the same period) derived from the IDBR.

Table 2 shows that only zero employee³ businesses had gross losses that exceeded gross gains. Large (250+ employees) businesses had the highest number of gross employment losses and gains, but the lowest gross loss and gain rates.

The gross flow rates generally decrease as the employment size of businesses increase. Zero employee businesses had the highest gross loss rate (20 per cent) and Micro (1-9 employees) businesses had the highest gross gain rate (17 per cent).

³ Enterprises with zero employees are either i) sole proprietorships and partnerships comprising only the self-employed owner-manager(s), or ii) companies comprising only one employee director.

Table 3: Average annual gross employment flows and flow-rates, by public / private sector, Wales, 2011 to 2014 (a)

Sector	Gross flows (thousands) (b)		Gross flow rates (c)	
	Losses	Gains	Losses	Gains
Public sector organisations	14	13	4%	4%
Private sector organisations	89	102	10%	12%
All organisations	103	115	9%	10%

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

(a) Figures relate to the annual average change between approximately 2011 and 2014 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 3 shows that around 88 per cent of the average annual gross employment flows (from 2011 to 2014 approximately) occurred in 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 more than twice as high as those in the public sector.

In the public sector, gross losses exceeded gross gains by 1,000. However, in the private sector, gross gains exceeded gross losses by 13,000.

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:

- enterprises in the first extract but not the second (referred to as a closure);
- enterprises that are present in both extracts for which employment has decreased by at least 1 person (referred to as a contraction)
- enterprises that are present in both extracts for which employment has not changed (referred to as a no change enterprise);
- enterprises that are present in both extracts for which employment has increased by at least 1 person (referred to as an expansion); and
- 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 2011, 2012, 2013 and 2014. 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 2011 to 2014.

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

There is 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 12,000, which is similar to the average annual net growth in employment suggested by the Annual Population Survey data over the period 2011 to 2014 (see Chart 3 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 giving context for 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, 2011 to 2014 (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	-2	-2	0	2	1	0	-3	3
Production	-6	-8	0	9	4	0	-13	13
Construction	-5	-4	0	5	3	0	-9	8
Wholesale, retail, transport, hotels, food & communication	-16	-16	0	23	13	4	-32	36
Financial and business services	-10	-11	0	16	8	3	-21	24
Public sector, health and education	-7	-13	0	18	7	4	-21	25
Other services	-2	-3	0	4	2	1	-4	6
All industries	-47	-57	0	76	39	12	-103	115
Enterprises (c)								
Agriculture	790	1,000	11,050	1,030	775	-15	.	.
Production	635	815	3,305	1,120	690	55	.	.
Construction	1,430	1,085	6,875	1,415	1,405	-20	.	.
Wholesale, retail, transport, hotels, food & communication	3,645	3,755	17,300	5,330	3,675	30	.	.
Financial and business services	2,290	1,850	11,700	2,475	3,010	720	.	.
Public sector, health and education	495	805	2,985	1,180	635	140	.	.
Other services	560	705	3,385	955	610	45	.	.
All industries	9,845	10,010	56,600	13,505	10,795	950	.	.

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

- (a) Figures relate to the annual average change between approximately 2011 and 2014 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 employee size band of enterprise, Wales, 2011 to 2014 (a)

							Gross flows (employment)	
	Closures	Contractions	No change	Expansions	Openings	Net change	Losses	Gains
Size band and variable	(d)	(e)	(f)	(g)	(h)	(i)	(j)=(d)+(e)	(k)=(g)+(h)
Employment (thousands) (b)								
Zero (0)	-6	-4	0	0	7	-2	-10	7
Micro (1 - 9)	-13	-11	0	15	12	4	-24	28
Small (10 - 49)	-8	-5	0	14	6	6	-14	20
Medium (50 - 249)	-5	-6	0	11	4	3	-11	15
Large (250+)	-14	-31	0	36	10	1	-45	46
All organisations	-47	-57	0	76	39	12	-103	115
Enterprises (c)								
Zero (0)	5,170	2,180	28,375	80	6,420	1,255	.	.
Micro (1 - 9)	3,965	5,500	23,070	9,445	3,765	-200	.	.
Small (10 - 49)	495	1,225	4,095	2,605	405	-90	.	.
Medium (50 - 249)	110	505	655	760	110	0	.	.
Large (250+)	105	600	405	615	95	-15	.	.
All organisations	9,845	10,010	56,600	13,505	10,795	950	.	.

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

- (a) Figures relate to the annual average change between approximately 2011 and 2014 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.
The size band of the enterprise is based on the number of UK employees (whether full-time or part-time) in the enterprise. This ensures that an enterprise employing 10,000 UK staff but only a handful in Wales is categorised as a large, and not a micro, enterprise.
- (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 A3: Average annual gross employment flows, by public/private sector, Wales, 2011 to 2014 (a)

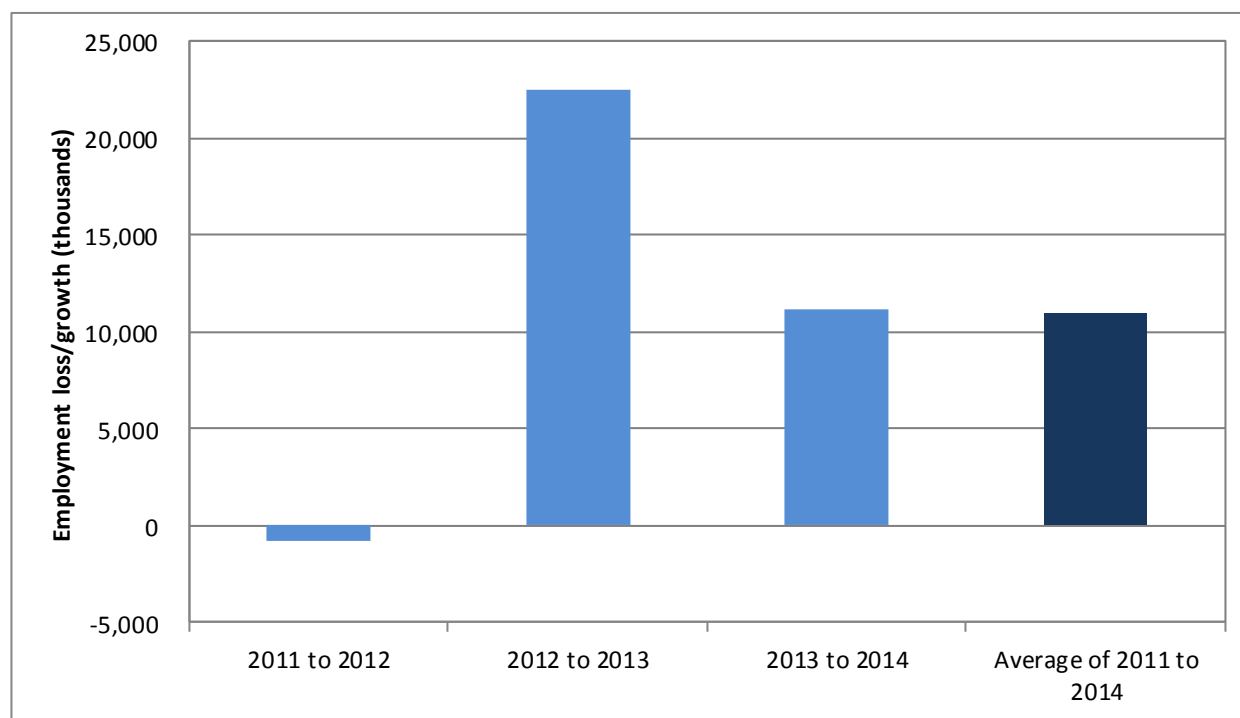
Sector and variable	Closures (d)	Contractions (e)	No change (f)	Expansions (g)	Openings (h)	Net change (i)	Gross flows (employment)	
							Losses (j)=(d)+(e)	Gains (k)=(g)+(h)
Employment (thousands) (b)								
Public sector organisations	-4	-10	0	11	3	-1	-14	13
Private sector organisations	-43	-46	0	65	37	13	-89	102
All organisations	-47	-57	0	76	39	12	-103	115
Enterprises (c)								
Public sector organisations	25	105	225	70	55	30	.	.
Private sector organisations	9,820	9,905	56,375	13,435	10,740	920	.	.
All organisations	9,845	10,010	56,600	13,505	10,795	950	.	.

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

- (a) Figures relate to the annual average change between approximately 2011 and 2014 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.
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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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- (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.

Chart 3: Net growth in employment, Wales, 2011 to 2014 ¹



Source: Annual Population Survey, Office for National Statistics

¹ Sum of those people who have a main job as an employee and people who have a second job as an employee

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 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



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