STATISTICAL RELEASE
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Land transport
(Preliminary)

January 2023

This release provides an analysis of revisions. If you have any questions or comments, please send these to Keshnee Naidoo, keshneen@statssa.gov.za.

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ENQUIRIES:
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Contents

Freight transportation: results for January 2023

Table A – Year-on-year percentage change in freight transportation (income at current prices)

	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23
Freight payload	20,6	19,0	23,9	17,7	12,9	18,3
Freight income	24,2	22,1	19,7	20,2	15,1	19,8

The volume of goods transported (payload) increased by 18,3% in January 2023 compared with January 2022. The corresponding income increased by 19,8% over the same period.

Table B – Freight transportation income at current prices for the latest three months by type of commodity

Type of commodity	Nov 2021 – Jan 2022 (R million)	Weight (%)	Nov 2022 – Jan 2023 (R million)	% change between Nov 2021 – Jan 2022 and Nov 2022 – Jan 2023	Contribution (% points) to the total % change
Agriculture and forestry primary products	3 201	7,4	4 294	34,1	2,5
Primary mining and quarrying products	14 197	32,6	16 268	14,6	4,8
Manufactured food, beverages and tobacco products	5 311	12,2	6 552	23,4	2,9
Textiles, clothing and leather goods	1 129	2,6	1 204	6,6	0,2
Chemicals, coke, petroleum, rubber, plastic and other mineral products	3 521	8,1	3 919	11,3	0,9
Basic metals and fabricated metal products	630	1,4	680	7,9	0,1
Non-metallic products	384	0,9	449	16,9	0,2
Electrical machinery, transport machinery and equipment	542	1,2	629	16,1	0,2
Motor vehicles, parts and accessories	1 050	2,4	1 428	36,0	0,9
Paper and paper products	208	0,5	256	23,1	0,1
Commercial products	510	1,2	701	37,5	0,5
Used household and office products	1 225	2,8	1 666	36,0	1,0
Containers	1 793	4,1	1 943	8,4	0,3
Parcels	1 254	2,9	1 292	3,0	0,1
Other freight	8 590	19,7	10 281	19,7	3,9
Total income	**43 547**	**100,0**	**51 562**	**18,4**	**18,4**

Income from freight transportation increased by 18,4% in the three months ended January 2023 compared with the three months ended January 2022. The main contributors to this increase were:
- primary mining and quarrying products (14,6% and contributing 4,8 percentage points);
- 'other' freight (19,7% and contributing 3,9 percentage points);
- manufactured food, beverages and tobacco products (23,4% and contributing 2,9 percentage points); and
- agriculture and forestry primary products (34,1% and contributing 2,5 percentage points) – see Table B.

Figure 1 – Freight transportation: year-on-year percentage change in payload
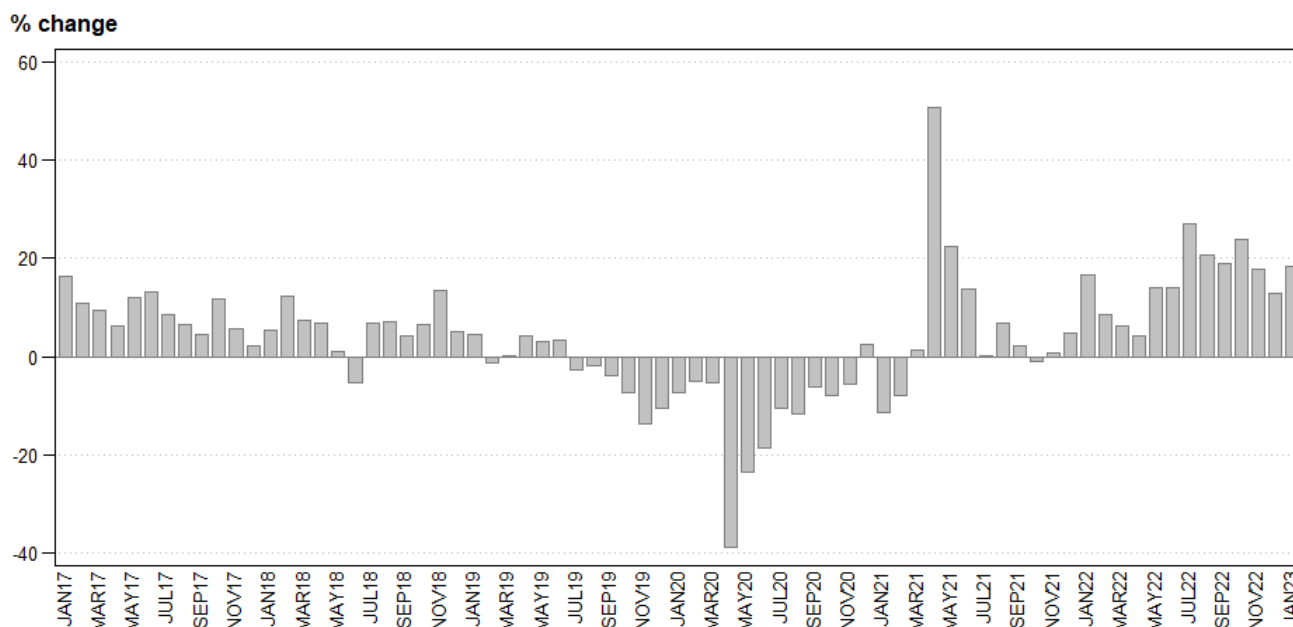
Table C – Seasonally adjusted payload for the latest three months by type of transport

Payload	Aug – Oct 2022 (000 tons)	Weight (%)	Nov 2022 – Jan 2023 (000 tons)	% change between Aug – Oct 2022 and Nov 2022 – Jan 2023	Contribution (% points) to the total % change
Rail	37 565	14,5	34 466	-8,2	-1,2
Road	221 979	85,5	228 016	2,7	2,3
Total	**259 543**	**100,0**	**262 481**	**1,1**	**1,1**

Seasonally adjusted payload increased by 1,1% in the three months ended January 2023 compared with the previous three months. Road freight increased by 2,7% (contributing 2,3 percentage points) while rail freight decreased by 8,2% (contributing -1,2 percentage points) – see Table C.

Passenger transportation: results for January 2023

Table D – Year-on-year percentage change in passenger transportation (income at current prices)

	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23
Passenger journeys	6,0	5,0	10,5	14,5	13,5	19,0
Passenger income	17,8	22,4	20,1	20,3	45,3	30,7

The number of passenger journeys increased by 19,0% in January 2023 compared with January 2022. The corresponding income increased by 30,7% over the same period.

Figure 2 – Passenger transportation: year-on-year percentage change in passenger journeys
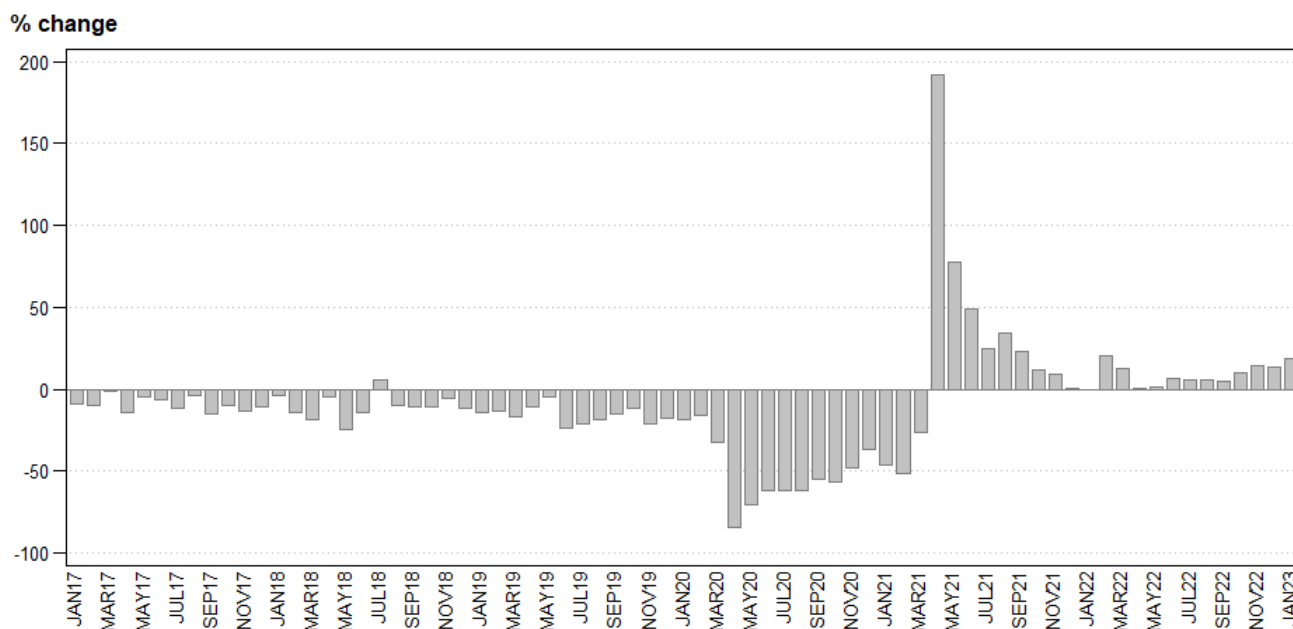
Table E – Seasonally adjusted passenger journeys for the latest three months by type of transport

Passenger journeys	Aug – Oct 2022 (000)	Weight (%)	Nov 2022 – Jan 2023 (000)	% change between Aug – Oct 2022 and Nov 2022 – Jan 2023	Contribution (% points) to the total % change
Rail	4 267	6,4	7 600	78,1	5,0
Road	62 843	93,6	66 065	5,1	4,8
Total	**67 111**	**100,0**	**73 664**	**9,8**	**9,8**

Seasonally adjusted passenger journeys increased by 9,8% in the three months ended January 2023 compared with the previous three months. Rail passenger journeys increased by 78,1% (contributing 5,0 percentage points) and road passenger journeys increased by 5,1% (contributing 4,8 percentage points) – see Table E.

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Statistician-General

Tables

Table 1 – Freight transportation (income at current prices)

Year and month 1/		Rail		Road		Total	
		Payload (000 tons)	Income (R million)	Payload (000 tons)	Income (R million)	Payload (000 tons)	Income (R million)
2022	Jan	13 861	2 868	57 819	11 329	71 680	14 197
	Feb	14 638	3 028	57 303	11 419	71 941	14 447
	Mar	13 101	2 741	64 602	12 920	77 703	15 661
	Apr	14 292	3 100	60 374	12 229	74 665	15 329
	May	13 619	2 950	71 273	14 196	84 892	17 146
	Jun	13 134	3 034	70 961	14 247	84 094	17 282
	Jul	12 154	2 825	76 165	15 326	88 319	18 150
	Aug	14 370	3 274	79 548	15 894	93 918	19 168
	Sep	14 659	3 467	74 754	14 934	89 413	18 401
	Oct	9 901	2 058	79 188	15 316	89 088	17 374
	Nov	9 047	2 276	78 998	15 849	88 045	18 125
	Dec	11 903	2 761	68 233	13 661	80 136	16 422
	Total	**154 679**	**34 382**	**839 218**	**167 320**	**993 894**	**201 702**
2023	Jan	13 094	2 960	71 705	14 056	84 800	17 015

1/ Figures for the latest month are preliminary.

Table 2 – Year-on-year percentage change in freight transportation (income at current prices)

Year and month		Rail		Road		Total	
		Payload	Income	Payload	Income	Payload	Income
2022	Jan	7,1	4,0	19,1	21,0	16,6	17,1
	Feb	-1,5	-3,1	11,3	12,6	8,5	8,9
	Mar	-13,4	-16,5	11,2	14,8	6,1	7,7
	Apr	-7,6	-6,9	7,4	12,4	4,1	7,9
	May	-6,9	-5,1	19,3	22,8	14,1	16,9
	Jun	-18,4	-10,6	23,2	28,6	14,1	19,4
	Jul	-0,2	9,4	32,9	39,5	27,1	33,7
	Aug	-11,5	-4,6	29,0	32,5	20,6	24,2
	Sep	-8,4	1,8	26,4	28,1	19,0	22,1
	Oct	-23,0	-27,4	34,2	31,1	23,9	19,7
	Nov	-37,0	-24,2	30,7	31,2	17,7	20,2
	Dec	-20,6	-10,5	21,8	22,2	12,9	15,1
	Total	**-12,0**	**-7,9**	**22,5**	**25,0**	**15,4**	**17,8**
2023	Jan	-5,5	3,2	24,0	24,1	18,3	19,8

Table 3 – Seasonally adjusted freight transportation (income at current prices)

Year and month		Rail		Road		Total	
		Payload (000 tons)	Income (R million)	Payload (000 tons)	Income (R million)	Payload (000 tons)	Income (R million)
2022	Jan	14 085	2 969	64 675	12 671	78 760	15 640
	Feb	14 475	3 058	62 025	12 261	76 501	15 319
	Mar	13 384	2 931	63 864	12 832	77 248	15 762
	Apr	13 914	2 998	63 252	12 801	77 166	15 799
	May	13 582	3 000	68 424	13 679	82 006	16 678
	Jun	12 914	2 909	70 111	14 123	83 025	17 032
	Jul	13 513	3 093	74 425	14 976	87 939	18 069
	Aug	13 118	3 037	73 358	14 735	86 475	17 772
	Sep	13 241	3 163	72 359	14 445	85 600	17 608
	Oct	11 206	2 166	76 262	14 867	87 468	17 034
	Nov	8 808	2 223	75 067	14 914	83 875	17 137
	Dec	12 377	2 797	74 441	14 754	86 817	17 551
2023	Jan	13 281	3 064	78 508	15 429	91 789	18 493

Table 4 – Month-on-month percentage change in seasonally adjusted freight transportation (income at current prices)

Year and month		Rail		Road		Total	
		Payload	Income	Payload	Income	Payload	Income
2022	Jan	-9,7	-5,7	7,7	6,0	4,1	3,6
	Feb	2,8	3,0	-4,1	-3,2	-2,9	-2,1
	Mar	-7,5	-4,2	3,0	4,7	1,0	2,9
	Apr	4,0	2,3	-1,0	-0,2	-0,1	0,2
	May	-2,4	0,1	8,2	6,9	6,3	5,6
	Jun	-4,9	-3,0	2,5	3,2	1,2	2,1
	Jul	4,6	6,3	6,2	6,0	5,9	6,1
	Aug	-2,9	-1,8	-1,4	-1,6	-1,7	-1,6
	Sep	0,9	4,1	-1,4	-2,0	-1,0	-0,9
	Oct	-15,4	-31,5	5,4	2,9	2,2	-3,3
	Nov	-21,4	2,6	-1,6	0,3	-4,1	0,6
	Dec	40,5	25,8	-0,8	-1,1	3,5	2,4
2023	Jan	7,3	9,5	5,5	4,6	5,7	5,4

Table 5 – Freight transportation income at current prices by type of commodity (R million)

Type of commodity	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23 1/
Agriculture and forestry primary products	1 620	1 492	1 464	1 521	1 435	1 338
Primary mining and quarrying products	6 589	6 184	5 272	5 300	5 227	5 741
Manufactured food, beverages and tobacco products	2 219	2 208	2 149	2 248	2 190	2 114
Textiles, clothing and leather products	404	419	449	513	360	331
Chemicals, coke, petroleum, rubber, plastic and other mineral products	1 495	1 406	1 429	1 406	1 226	1 287
Basic metals and fabricated metal products	226	251	196	263	226	191
Non-metallic products	192	185	154	189	134	126
Electrical machinery, transport machinery and equipment	225	203	211	258	176	195
Motor vehicles, parts and accessories	473	468	468	497	482	449
Paper and paper products	99	88	93	105	78	73
Commercial products	256	260	255	288	213	200
Used household and office products	584	560	520	618	566	482
Containers	698	654	590	718	600	625
Parcels	476	450	443	574	359	359
Other freight	3 613	3 574	3 680	3 629	3 148	3 504
Total	**19 168**	**18 401**	**17 374**	**18 125**	**16 422**	**17 015**

1/ Figures are preliminary.

Table 6 – Year-on-year percentage change in freight transportation income at current prices by type of commodity

Type of commodity	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23
Agriculture and forestry primary products	36,2	31,2	32,5	38,7	35,5	28,0
Primary mining and quarrying products	24,9	21,7	13,4	11,0	9,7	23,3
Manufactured food, beverages and tobacco products	23,3	24,5	24,2	25,8	21,9	22,4
Textiles, clothing and leather products	18,8	23,2	19,1	14,0	0,0	3,8
Chemicals, coke, petroleum, rubber, plastic and other mineral products	21,5	15,6	16,7	14,2	6,6	12,9
Basic metals and fabricated metal products	-25,4	-10,0	-18,7	11,4	29,1	-12,8
Non-metallic products	13,6	7,6	17,6	28,6	19,6	0,8
Electrical machinery, transport machinery and equipment	29,3	9,7	13,4	14,7	5,4	30,0
Motor vehicles, parts and accessories	25,1	37,2	26,8	34,7	43,9	29,8
Paper and paper products	33,8	20,5	29,2	43,8	18,2	5,8
Commercial products	96,9	79,3	30,8	47,7	35,7	26,6
Used household and office products	65,9	64,2	42,1	54,5	38,4	15,9
Containers	20,1	4,8	-6,9	17,3	8,1	-0,2
Parcels	25,9	5,1	5,0	13,9	-3,5	-5,0
Other freight	18,2	22,0	30,8	21,8	12,9	24,2
Total	**24,2**	**22,1**	**19,7**	**20,2**	**15,1**	**19,8**

Table 7 – Contribution of each type of commodity to the year-on-year percentage change in freight transportation income at current prices (percentage points)

Type of commodity	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23
Agriculture and forestry primary products	2,8	2,4	2,5	2,8	2,6	2,1
Primary mining and quarrying products	8,5	7,3	4,3	3,5	3,2	7,6
Manufactured food, beverages and tobacco products	2,7	2,9	2,9	3,1	2,8	2,7
Textiles, clothing and leather products	0,4	0,5	0,5	0,4	0,0	0,1
Chemicals, coke, petroleum, rubber, plastic and other mineral products	1,7	1,3	1,4	1,2	0,5	1,0
Basic metals and fabricated metal products	-0,5	-0,2	-0,3	0,2	0,4	-0,2
Non-metallic products	0,1	0,1	0,2	0,3	0,2	0,0
Electrical machinery, transport machinery and equipment	0,3	0,1	0,2	0,2	0,1	0,3
Motor vehicles, parts and accessories	0,6	0,8	0,7	0,8	1,0	0,7
Paper and paper products	0,2	0,1	0,1	0,2	0,1	0,0
Commercial products	0,8	0,8	0,4	0,6	0,4	0,3
Used household and office products	1,5	1,5	1,1	1,4	1,1	0,5
Containers	0,8	0,2	-0,3	0,7	0,3	0,0
Parcels	0,6	0,1	0,1	0,5	-0,1	-0,1
Other freight	3,6	4,3	6,0	4,3	2,5	4,8
Total	**24,2**	**22,1**	**19,7**	**20,2**	**15,1**	**19,8**

Table 8 – Passenger transportation (income at current prices)

Year and month 1/		Rail		Road		Total	
		Passenger journeys (000)	Income (R million)	Passenger journeys (000)	Income (R million)	Passenger journeys (000)	Income (R million)
2022	Jan	1 367	35	16 634	663	18 001	698
	Feb	1 974	59	19 389	690	21 363	749
	Mar	2 218	68	22 372	831	24 590	899
	Apr	1 441	76	18 401	721	19 842	797
	May	1 285	77	19 814	716	21 099	793
	Jun	1 021	64	20 538	790	21 559	854
	Jul	1 056	91	19 528	780	20 584	871
	Aug	1 335	96	21 145	757	22 480	853
	Sep	1 400	104	23 049	859	24 449	963
	Oct	1 824	110	21 080	738	22 904	848
	Nov	2 311	104	22 689	786	25 000	890
	Dec	1 886	61	19 848	907	21 734	968
	Total	**19 118**	**945**	**244 487**	**9 238**	**263 605**	**10 183**
2023	Jan	2 483	125	18 941	787	21 424	912

1/ Figures for the latest month are preliminary.

Table 9 – Year-on-year percentage change in passenger transportation (income at current prices)

Year and month		Rail		Road		Total	
		Passenger journeys	Income	Passenger journeys	Income	Passenger journeys	Income
2022	Jan	21,2	45,8	-1,5	4,9	0,0	6,4
	Feb	36,1	103,4	18,6	11,8	20,1	15,9
	Mar	25,2	65,9	12,0	7,1	13,1	10,0
	Apr	-11,7	85,4	2,2	15,7	1,0	20,0
	May	-26,7	79,1	4,2	4,1	1,6	8,5
	Jun	-30,1	113,3	9,9	17,9	7,0	22,0
	Jul	-26,2	378,9	8,5	18,9	6,0	29,0
	Aug	-42,4	182,4	11,9	9,7	6,0	17,8
	Sep	-45,1	121,3	11,2	16,1	5,0	22,4
	Oct	-30,5	107,5	16,5	13,0	10,5	20,1
	Nov	1,0	108,0	16,0	13,9	14,5	20,3
	Dec	38,9	84,8	11,6	43,3	13,5	45,3
	Total	**-12,1**	**112,8**	**10,1**	**14,5**	**8,2**	**19,6**
2023	Jan	81,6	257,1	13,9	18,7	19,0	30,7

Table 10 – Seasonally adjusted passenger transportation (income at current prices)

Year and month		Rail		Road		Total	
		Passenger journeys (000)	Income (R million)	Passenger journeys (000)	Income (R million)	Passenger journeys (000)	Income (R million)
2022	Jan	1 554	34	17 965	671	19 519	705
	Feb	1 882	57	19 117	737	20 999	795
	Mar	2 009	64	20 268	786	22 278	849
	Apr	1 476	79	19 514	785	20 991	864
	May	1 274	78	19 505	720	20 779	799
	Jun	1 007	70	20 239	795	21 246	865
	Jul	1 057	91	19 509	752	20 566	843
	Aug	1 277	92	20 642	752	21 919	844
	Sep	1 341	98	21 794	834	23 136	932
	Oct	1 649	98	20 407	721	22 056	820
	Nov	2 220	103	22 476	787	24 695	890
	Dec	2 555	79	23 109	894	25 664	973
2023	Jan	2 825	120	20 480	797	23 305	917

Table 11 – Month-on-month percentage change in seasonally adjusted passenger transportation (income at current prices)

Year and month		Rail		Road		Total	
		Passenger journeys	Income	Passenger journeys	Income	Passenger journeys	Income
2022	Jan	-15,5	-20,9	-13,3	7,5	-13,4	5,7
	Feb	21,1	67,6	6,4	9,8	7,6	12,8
	Mar	6,7	12,3	6,0	6,6	6,1	6,8
	Apr	-26,5	23,4	-3,7	-0,1	-5,8	1,8
	May	-13,7	-1,3	0,0	-8,3	-1,0	-7,5
	Jun	-21,0	-10,3	3,8	10,4	2,2	8,3
	Jul	5,0	30,0	-3,6	-5,4	-3,2	-2,5
	Aug	20,8	1,1	5,8	0,0	6,6	0,1
	Sep	5,0	6,5	5,6	10,9	5,6	10,4
	Oct	23,0	0,0	-6,4	-13,5	-4,7	-12,0
	Nov	34,6	5,1	10,1	9,2	12,0	8,5
	Dec	15,1	-23,3	2,8	13,6	3,9	9,3
2023	Jan	10,6	51,9	-11,4	-10,9	-9,2	-5,8

Analysis of revisions

Introduction

Preliminary monthly values for land transport are published approximately seven to eight weeks after the reference month, e.g. preliminary land transport values for March are published in the second half of May. The preliminary values are revised the following month, using additional information received from respondents. This and other reasons for revising land transport values from time to time are shown in the following revisions schedule.

Revisions schedule for land transport

Reason for revision	Schedule
Additional information from respondents	Monthly (revision of previous month)
New sample	Annual (July reference month published in September)

Note that seasonally adjusted values are revised monthly.

Analysis

Revisions may be analysed in terms of several dimensions, namely levels and/or growth rates (e.g. month-on-month percentage changes, year-on-year percentage changes); seasonally adjusted and/or unadjusted data; totals and/or components; preliminary estimate compared with first revision and/or latest available revision; and various combinations of these options.

This analysis is confined to the following:

• Total freight payload, year-on-year growth rate, unadjusted.

• Total passenger journeys, year-on-year growth rate, unadjusted.

• Preliminary growth rates are compared with the latest available revised growth rates, where the preliminary growth rate refers to the first year-on-year growth rate published for the month in question.

• Time period: January 2012 to December 2022.

Figures 3 and 4 show the preliminary and revised growth rates for freight payload and passenger journeys (line chart, left vertical axis) and the difference between them (bar chart, right vertical axis, where difference = revised - preliminary).

Table 12 provides key results relating to revisions.

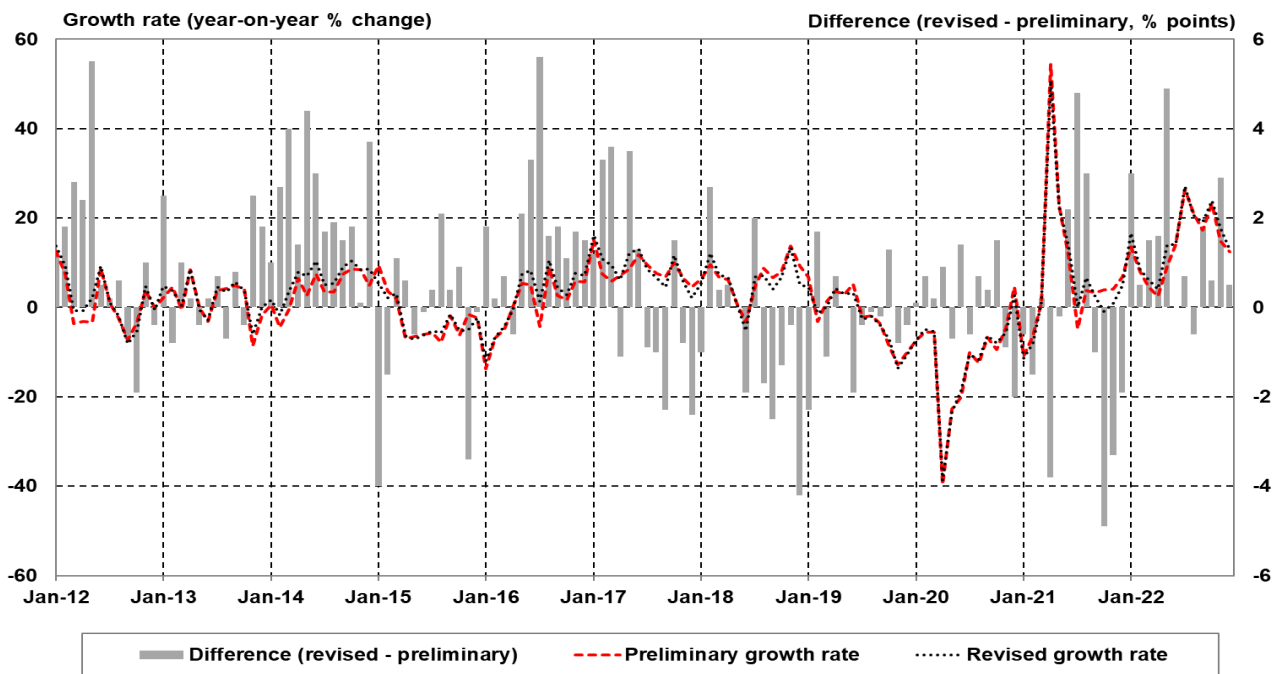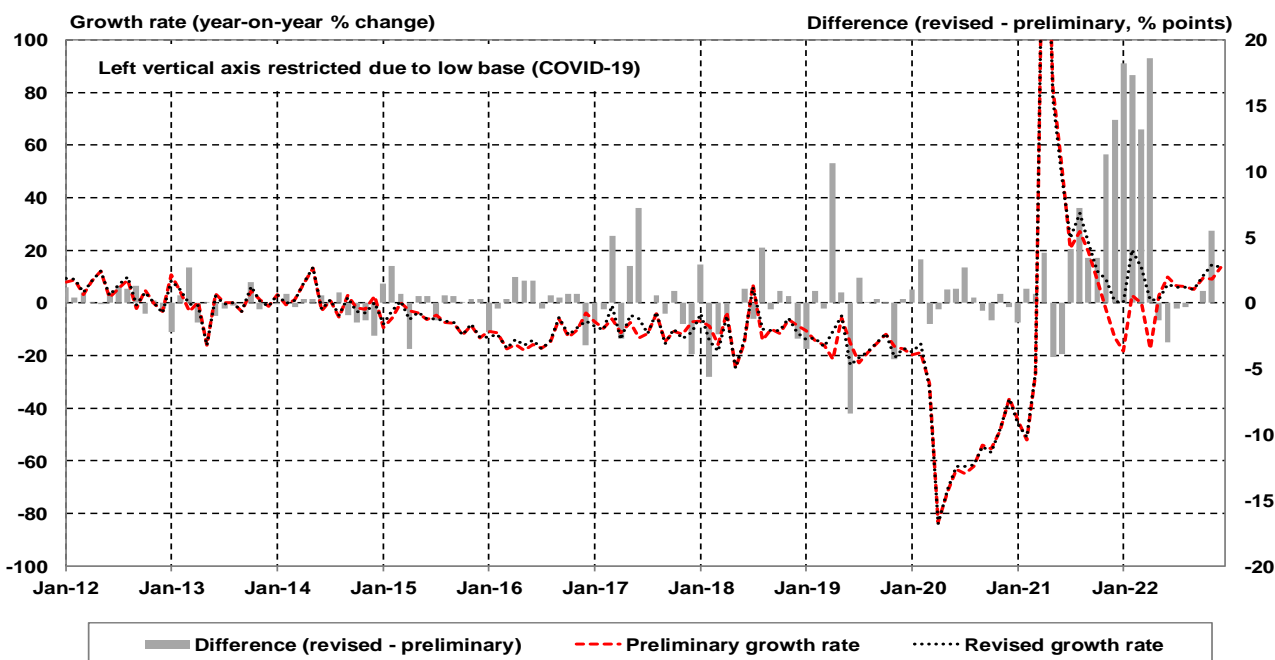**Figure 3 – Freight payload year-on-year growth rates: preliminary and revised**

Figure 4 – Passenger journeys year-on-year growth rates: preliminary and revised

Table 12 – Transportation estimates year-on-year growth rates: preliminary and revised

Description	Type of transportation	Value / outcome	Comment
Average year-on-year growth rate over the whole period	Freight payload	Preliminary: 2,47% Revised: 3,01%	The average of revised growth rates is higher than the average of preliminary growth rates
	Passenger journeys	Preliminary: -6,82% Revised: -5,91%	
Mean revision	Freight payload	0,54 of a percentage point	This is the average of the revisions
	Passenger journeys	0,91 of a percentage point	
Mean absolute revision	Freight payload	1,54 percentage points	Average of the revisions, but based on the absolute value of each revision (positives and negatives do not cancel each other)
	Passenger journeys	2,19 percentage points	
Largest upward revision	Freight payload	5,6 percentage points	Preliminary -4,2% was revised up to 1,4% (July 2016)
	Passenger journeys	18,6 percentage points	Preliminary -17,6% was revised up to 1,0% (April 2022)
Largest downward revision	Freight payload	-4,9 percentage points	Preliminary 4,0% was revised down to -0,9% (October 2021)
	Passenger journeys	-8,4 percentage points	Preliminary -15,3% was revised down to -23,7% (June 2019)
Range for all revisions	Freight payload	-4,9 to 5,6 percentage points	
	Passenger journeys	-8,4 to 18,6 percentage points	
Range within which 90% of the revisions lie	Freight payload	-2,8 to 3,8 percentage points	This may be regarded as the normal range for revisions, with revisions outside this range being outliers
	Passenger journeys	-3,6 to 10,8 percentage points	
Number of upward revisions	Freight payload	81 (or 61,4% of the total observations)	
	Passenger journeys	77 (or 58,3% of the total observations)	
Number of downward revisions	Freight payload	48 (or 36,4% of the total observations)	
	Passenger journeys	49 (or 37,1% of the total observations)	
Number of zero revisions	Freight payload	3 (or 2,3% of the total observations)	
	Passenger journeys	6 (or 4,5% of the total observations)	
Is the mean revision (0,54) significantly different from zero?	Freight payload	Yes	This indicates that there is bias in the preliminary estimate – see Note 1
Is the mean revision (0,91) significantly different from zero?	Passenger journeys	Yes	This indicates that there is bias in the preliminary estimate – see Note 1

Land transport, January 2023

Description	Type of transportation	Value / outcome	Comment
Standard deviation of the revisions	Freight payload	1,93 percentage points	Standard deviation is a measure of dispersion about the mean – see the rows below
	Passenger journeys	4,00 percentage points	
Percentage of revisions that lie within one standard deviation of the mean	Freight payload	71,2%	This is the percentage of revisions that lie between -1,39 and 2,47 percentage points; the higher the percentage, the lower is the dispersion about the mean – see Figure 5
	Passenger journeys	84,8%	This is the percentage of revisions that lie between -3,09 and 4,91 percentage points; the higher the percentage, the lower is the dispersion about the mean – see Figure 6

Note 1: Is the mean revision significantly different from zero?

The formula for the test statistic is as follows:

$$test\ statistic = \frac{\bar{R}}{\sqrt{\left(\frac{1}{n(n-1)}\right)\left(\sum_{t=1}^{n}\hat{\varepsilon}_t^2 + \frac{3}{4}\sum_{t=2}^{n}\hat{\varepsilon}_t\,\hat{\varepsilon}_{t-1} + \frac{2}{3}\sum_{t=3}^{n}\hat{\varepsilon}_t\,\hat{\varepsilon}_{t-2}\right)}}$$

where

$n = number\ of\ observations$

$\bar{R} = mean\ revision$

$\hat{\varepsilon}_t = R_t - \bar{R}, with\ R_t = revision\ in\ period\ t$

Note that if the test statistic shows that the mean revision (MR) is significantly different from zero, then there is bias in the preliminary estimates. Bias in a series suggests there is scope to enhance the compilation of that series in an attempt to remove or minimise the bias. MR > 0 (statistically significant) implies under-estimation of the preliminary estimates. MR < 0 (statistically significant) implies over-estimation of the preliminary estimates.

In the case of freight payload the test statistic is 2,74, which lies above the critical value of 1,98, indicating that the mean revision (MR) is significantly different from zero at a 5% significance level. Accordingly, there is under-estimation of the annual growth rate detected in the preliminary estimates. Note that for the period January 2017 to December 2022 the MR is 0,10, which is much closer to zero than the MR for the whole period (0,54).

In the case of passenger journeys the test statistics is 2,02, which lies above the critical value of 1,98, indicating that the mean revision (MR) is significantly different from zero at a 5% significance level. Accordingly, there is under-estimation of the annual growth rate detected in the preliminary estimates.

The revisions for freight payload and passenger journeys will be monitored going forward to assess whether a change in the methodology for imputations is required.

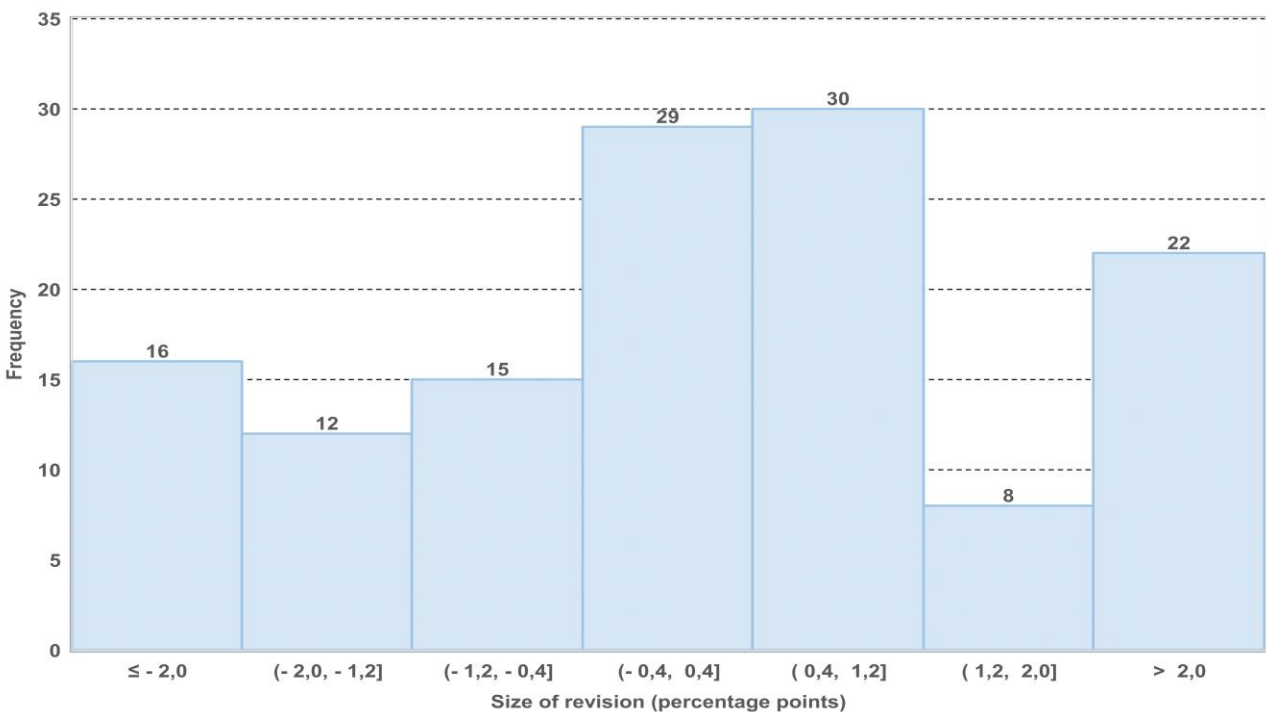Figures 5 and 6 show the revisions in terms of histograms.

For freight payload, there were 27 revisions between -0,7 and 0,2 (-0,7 < revision ≤ 0,2) and 26 revisions between 0,2 and 1,1 (0,2 < revision ≤ 1,1). 81,1% of revisions lay between -2,5 and 2,5 percentage points.

Figure 5 – Freight payload year-on-year growth rates: histogram of revisions
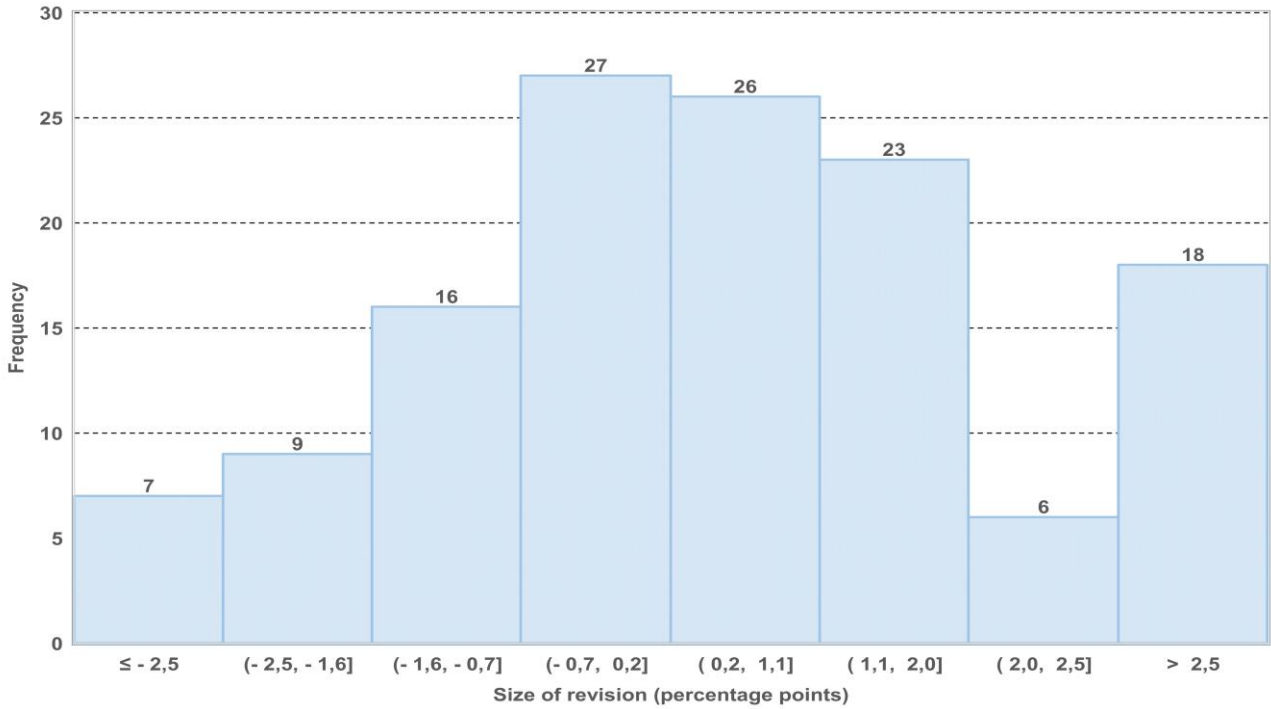
For passenger journeys, there were 15 revisions between -1,2 and -0,4 (-1,2 < revision ≤ -0,4); 29 revisions between -0,4 and 0,4 (-0,4 < revision ≤ 0,4); and 30 revisions between 0,4 and 1,2 (0,4 < revision ≤ 1,2). 71,2% of revisions lay between -2,0 and 2,0 percentage points.

Figure 6 – Passenger journeys year-on-year growth rates: histogram of revisions

Survey information

Introduction	1	Statistics South Africa (Stats SA) conducts a monthly survey of the land transportation industry, covering passenger and freight transportation by rail and road (see paragraph 4 below). This survey is based on a sample drawn from the 2022 business sampling frame (BSF) that contains businesses registered for value-added tax (VAT) and income tax.
	2	In order to improve timeliness, some information for the latest month had to be estimated due to late response. These estimates will be revised in future statistical releases as soon as information becomes available. Published land transportation income estimates exclude VAT.
Purpose of the survey	3	The results of the monthly land transport survey are used to compile estimates of the gross domestic product (GDP) and its components, which are used in monitoring the state of the economy and formulation of economic policy. These statistics are also used in the analysis of comparative business and industry performance.
Scope of the survey	4	This survey covers enterprises involved in land transportation according to the following type of transportation:

- railway transport (including passenger and freight transportation);
- 'other' scheduled passenger land transport – urban, suburban and inter-urban bus and coach passenger lines and school buses;
- 'other' non-scheduled passenger land transport – safaris and sightseeing bus tours, metered taxis and 'other' passenger transport including renting of motor cars with drivers; and
- freight transport by road.

Exclusions	5	Passenger transportation excludes:

- minibus taxis;
- metropolitan buses (including the Bus Rapid Transport system – BRT); and
- rental of private cars/buses without drivers.

Freight transportation excludes:

- renting of trucks without drivers; and
- in-house transportation.

Classification	6	The 1993 edition of the *Standard Industrial Classification of All Economic Activities* (SIC), Fifth Edition, Report No. 09-90-02, was used to classify the statistical units in the survey. The SIC is based on the 1990 *International Standard Industrial Classification of All Economic Activities* (ISIC) with suitable adaptations for local conditions. Statistics in this publication are presented at SIC division (two-digit) level. Each enterprise is classified to the industry which reflects its predominant activity.
Collection rate	7	The preliminary collection rate for the survey on land transportation for January 2023 was 75,9%. The improved collection rate for December 2022 was 79,2%.
Statistical unit	8	The statistical unit for which information is compiled and published is an enterprise, defined as a legal unit or a combination of legal units that includes and directly controls all functions necessary to carry out its income activities. The statistical units are derived from and linked to the South African Revenue Service (SARS) administrative data.
Revised figures	9	Revised figures are mainly due to late submission of data to Stats SA, or respondents reporting revisions or corrections to their figures. Preliminary figures, as indicated in the relevant tables, are subject to change and when revised will not be indicated as such.
Related publications	10	Users may also wish to refer to the following publication available from Stats SA –

- *Stats in Brief* issued annually.

Rounding-off of figures	**11**	Where figures have been rounded off, discrepancies may occur between sums of the component items and the totals.
Historical data	**12**	Historical land transport data are available on the Stats SA website. To access the data electronically, use the following link: Click to download historical data
Past publications	**13**	Past land transport releases are available on the Stats SA website. To access the releases electronically, use the following link: Click to download past releases

Technical notes

Survey methodology and design	**1**	The survey is conducted on a monthly basis. Questionnaires are sent to a sample of 769 enterprises from a population of 4 695 enterprises. Completed questionnaires are required to be returned to Stats SA within 10 days after the end of the reference month. Email and telephone reminders are used to follow up on non-respondents.
	2	A stratified random sample was drawn at the SIC four-digit level in April 2022 from Stats SA's business sampling frame (BSF). Strata were formed using a combination of Standard Industrial Classification and the measure of size classes for enterprises (see paragraph 3 below).

The Neyman optimal allocation formula given below was used to allocate samples to each stratum:

$$nh = n * (Nh * Sh) / [\Sigma (Ni * Si)].$$

Neyman allocation formula not only allocates sample sizes to each stratum but also calculates the relative precision for each stratum as well as the relative precision for all strata. The relative precision for these strata was 0,8%.

Sample design and class limits	**3**	The land transportation industry is divided into four size groups. All large enterprises (size group one) are completely enumerated. Simple random sampling is applied to medium sized (size group two) and to small (size group three and four) enterprises. The total value of income of the large enterprises (size group one) is added to the weighted totals of size groups two, three and four to reflect the total value of income.

Measure of size classes (Rand)

Enterprise size	Size group	Lower limit	Upper limit
Very small	4	1 192 270	9 000 000
Small	3	9 000 001	39 000 000
Medium	2	39 000 001	78 000 000
Large	1	78 000 001	

Sample weighting	**4**	For those strata not completely enumerated, the weights to produce estimates are the inverse ratio of the sampling fraction, modified to take account of non-response in the survey. Stratum estimates are calculated and then aggregated with the completely enumerated stratum to form division estimates. These procedures are in line with international best practice.
Reliability of estimates	**5**	Data presented in this publication are based on information obtained from a sample and are, therefore, subject to sampling variability; that is, they may differ from the figures that would have been produced if the data had been obtained from all enterprises in the land transport industry in South Africa. Estimates are subject to sampling and non-sampling errors.
	6	Inaccuracies may occur because of imperfections in reporting by enterprises and errors made in the collection and processing of the data. Inaccuracies of this kind are referred to as non-sampling errors. Every effort is made to minimise non-sampling errors by careful design of questionnaires, testing them in pilot studies, editing reported data and

implementing efficient operating procedures. Fluctuations may occur in consecutive months as a result of seasonal and economic factors.

Relative standard error **7** One measure is the standard error (SE), which indicates the extend to which an estimate might have varied by chance because only a sample of enterprises was used. The relative standard error (RSE) provides an immediate indication of the percentage errors likely to have occurred due to sampling, and thus avoids the need to refer to the size of the estimate.

Estimates of land transport within 95% confidence limits – January 2023

	Lower limit (R million)	Estimate (R million)	Upper limit (R million)	Relative standard error (RSE) %
Freight income	16 003	17 015	18 027	3,0
Passenger income	823	912	1 001	4,9

Year-on-year percentage change **8** The year-on-year percentage change in a variable for any given period is the change between that period and the corresponding period of the previous year, expressed as a percentage of the latter.

Contribution (percentage points) **9** The contribution (percentage points) to the annual percentage change for any given period is calculated by multiplying the percentage change of each type of commodity/service by its corresponding weight, divided by 100. The weight is the percentage contribution of each type of commodity/service to total income in the corresponding period of the previous year.

Seasonal adjustment **10** Seasonally adjusted estimates are generated each month using the X-12-ARIMA Seasonal Adjustment Program developed by the United States Census Bureau. Seasonal adjustment is a means of removing the estimated effects of normal seasonal variation from the series so that the effects of other influences on the series can be recognised more clearly. Seasonal adjustment does not aim to remove irregular or non-seasonal influences which may be present in any particular month. Influences that are volatile or unsystematic can still make it difficult to interpret the movement of the series even after adjustment for seasonal variations. Therefore, the month-to-month movements of seasonally adjusted estimates may not be reliable indicators of trend behaviour. The X-12-ARIMA procedure for land transportation is described in more detail on the Stats SA website at:
Click to download seasonal adjustment land transport February 2022

Trend cycle **11** The trend is the long-term pattern or movement of a time series. The X-12-ARIMA Seasonal Adjustment Program is used for smoothing seasonally adjusted estimates to estimates of the underlying trend cycle.

Glossary

Enterprise An enterprise is a legal entity or a combination of legal units that includes and directly controls all functions necessary to carry out its activities.

Industry An industry is made up of enterprises engaged in the same or similar kinds of economic activity. Industries are defined in the *System of National Accounts* (SNA) in the same way as in the *Standard Industrial Classification of All Economic Activities* (SIC), Fifth Edition, Report No. 09-90-02 of January 1993.

Symbols and abbreviations

BSF	Business sampling frame
GDP	Gross domestic product
ISIC	International Standard Industrial Classification
SIC	Standard Industrial Classification of All Economic Activities
SARS	South African Revenue Service
Stats SA	Statistics South Africa
VAT	Value-added tax

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General information

Stats SA publishes approximately 300 different statistical releases each year. It is not economically viable to produce them in more than one of South Africa's eleven official languages. Since the releases are used extensively, not only locally but also by international economic and social-scientific communities, Stats SA releases are published in English only.

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