Estimating child labour in Jordan 1991-2005

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ESTIMATING CHILD LABOUR IN JORDAN 1991-2005

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EXECUTIVE SUMMARY

This report is a moderate attempt to estimate the size of child labour in Jordan during the years 1991-2001 and to make short-range projections for the period of 2002-2005. It comes as a part of the efforts exerted by the Ministry of Labour to know the size of the problem and to prevent the spread of child labour, in view of the Ministry's realisation of the paramount role of the child.

The report depends mainly on the database of the Child Labour Unit at the Ministry of Labour and annual growth of students and dropouts. Combining these two resources, the report utilises statistical estimation and prediction techniques in making these estimations and projections.

The present report provides estimates and short-range projections for the size of child labour over the period 1991-2005 under three different scenarios of future trends for the number of working children. These estimates and projections are in no way an accurate provision of the future trend of child labour. They do illustrate, however, the evolution of child labour under possible -and hypothetical- scenarios of future levels of some educational variables.

The report uses three scenarios (high, medium, and low) of future trends for the number of working children. According to the medium estimation, the number of working children is estimated to be about 40 thousand in 1991 and 39 thousand in 2001. The number of working children is projected to grow gradually thereafter making the projected figure to reach about 42 thousand in 2005.

When comparing the results of the three scenarios, there are negligible differences. The worst scenario indicates that the number of working children in Jordan will be around 48 thousand in 2005. Since there is a narrow range of uncertainty regarding the future size of child labour, the optimistic projection puts this number at nearly 42 thousand.

Perhaps, the most important characteristic of this report is the fact that it is the first of its kind that comes at a time when efforts focus on the availability of information on working children at the international level and while Jordan is focusing the efforts on eliminating the worst forms of child labour.

ESTIMATION APPROACH AND ASSUMPTIONS

The estimates and short-range projections for the size of child labour over the period 1991-2005 are provided in this report under three different scenarios of future trends for the number of working children. These estimates and projections illustrate, to a large extent, the evolution of child labour under possible -and hypothetical- scenarios of future levels of some educational and economic variables. In theory, there is unlimited set of future scenarios that could be hypothesised. However, in practical terms, they are established a priori, since they are designed to consist with the growth of the number of dropouts and students underlying the three scenarios of child labour projections in 2001.

This report uses three scenarios (high, medium, and low) of future trends for the number of working children. It depends mainly on the data base at the Child Labour Unit at the Ministry of Labour. The steps of estimation are given below:

Step 1: The numbers of dropouts, by grade and sex, are calculated by multiplying the percentages of dropouts by the number of students. This is done on annual bases from 1990/1991 to 1999/2000. These numbers are shown in Appendices A1-A10.

Step 2: The number of dropouts, by grade and sex, for 2000/2001 is estimated depending on the estimated number of students in 2000/2001 and the growth rates of dropouts and students during the previous two years. These estimates are shown in Appendix A.11.

Step 3: To estimate the number of working children in 2001, the age structure of working children in 2001, provided by the Child Labour Unit at the Ministry of Labour, is applied to the number of dropouts and students. In other words, it is assumed that only 90.5% of dropouts from grades 8, 9, 10, 11, and 12 will join the labour market. It is also assumed that 9.5% of dropouts from grades 1, 2, 3, 4, 5, 6, and 7 will join the labour market. Dropouts from first grade are assumed to be at the age of 7 while dropouts from the second grade are at the age of 8 and so on.

Step 4: The number of working children, in 2001, consists of the flow of dropouts in 1991 throughout 2000 that will join the labour market according to the previous two assumptions.

Step 5: Dropouts and students for the years 2002, 2003, 2004, and 2005 are projected using the simple linear model. The forecasting is dynamic in the sense that estimates for 2002 use the time series 1991-2001, estimates for 2003 use the time series 1991-2002 and so on.

Step 6: Since dropouts and students have relatively similar growth patterns, the geometric mean of the two growths is calculated and used in the estimation of child labour. The base year is 2001 which is the year that the Ministry of Labour carried out its well-known child labour survey.

Step 7: The above steps produced high (pessimistic) estimates. The low (optimistic) estimates are obtained by multiplying high estimates by the ratio of the total flow (not the stock) of estimated child labour as computed by this method by the total flow of child labour as computed in steps 2 and 3. This ratio is 0.948731. These computations are carried out only for 2001. The medium (most likely) estimates are calculated as the arithmetic means of high and low estimates. The results of the three scenarios are provided in Table 1.

Step 8: Estimates are verified by means of plotting the time series. Irregular estimates, such as those for 1995, are treated by taking the average of previous and following years.

Step 9: Finally, the characteristics of working children in 2001, provided by the Child Labour Unit at the Ministry of Labour, are used to derive the number of working children by geographic location, age, and level of education. These estimates are shown in Tables 2, 3, and 4, respectively.

RESULTS OF THE PROJECTIONS

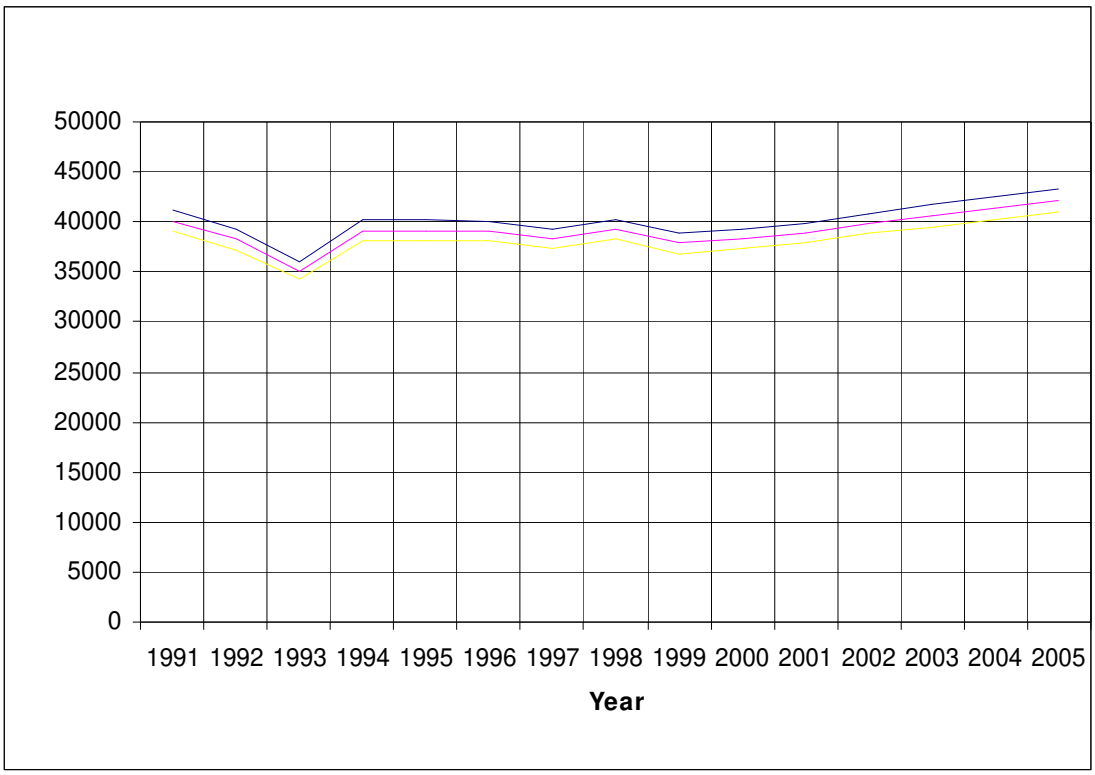
Historical development of child labour

As can be seen, from Table 1, optimistic (low) projections reveal that Jordan will have some 41 thousand working children in 2005 while the pessimistic (high) projections put the estimated number of working children at nearly 43 thousand, at the same year.

Table 1: Estimated and projected child labour, 1991-2005

Year	Pessimistic (High)	Most likely (Medium)	Optimistic (Low)
1991	41,123	40,069	39,015
1992	39,241	38,235	37,229
1993	36,065	35,140	34,216
1994	40,182	39,152	38,122
1995	40,155	39,126	38,097
1996	40,129	39,100	38,071
1997	39,323	38,315	37,307
1998	40,301	39,268	38,235
1999	38,833	37,837	36,842
2000	39,364	38,355	37,346
2001	39,918	38,894	37,871
2002	40,898	39,850	38,801
2003	41,669	40,601	39,533
2004	42,441	41,353	40,265
2005	43,212	42,104	40,996

Figure 1: Distribution of working children, 1991-2005



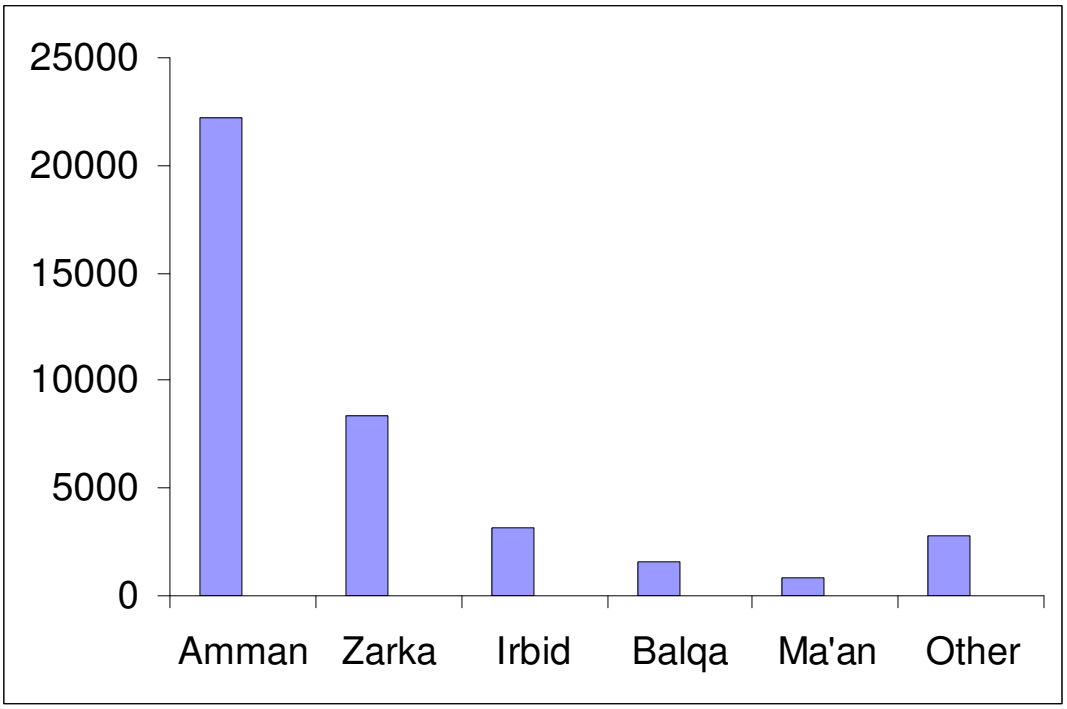
Geographical detail

Table 2 shows that, in 2001, about 22 thousand children are working in Amman, followed by Zarka governorate (8,323), then Irbid governorate (3,189), and Balqa governorate (1,622). Ma'an governorate had 840 working children while the rest of the country had less than 3 thousands.

Table 2: Distribution of working children by governorate, 2001

Governorate	Number	Percentage
Amman	22,170	57.00
Zarka	8,323	21.40
Irbid	3,189	8.20
Balqa	1,622	4.17
Ma’an	840	2.16
Other	2,750	7.07
Total	38,894	100.00

Figure 2: Distribution of working children by governorate, 2001



In conclusion, the relatively high numbers of working children are in the governorates of Amman the Capital, Zerka, and Balqa.

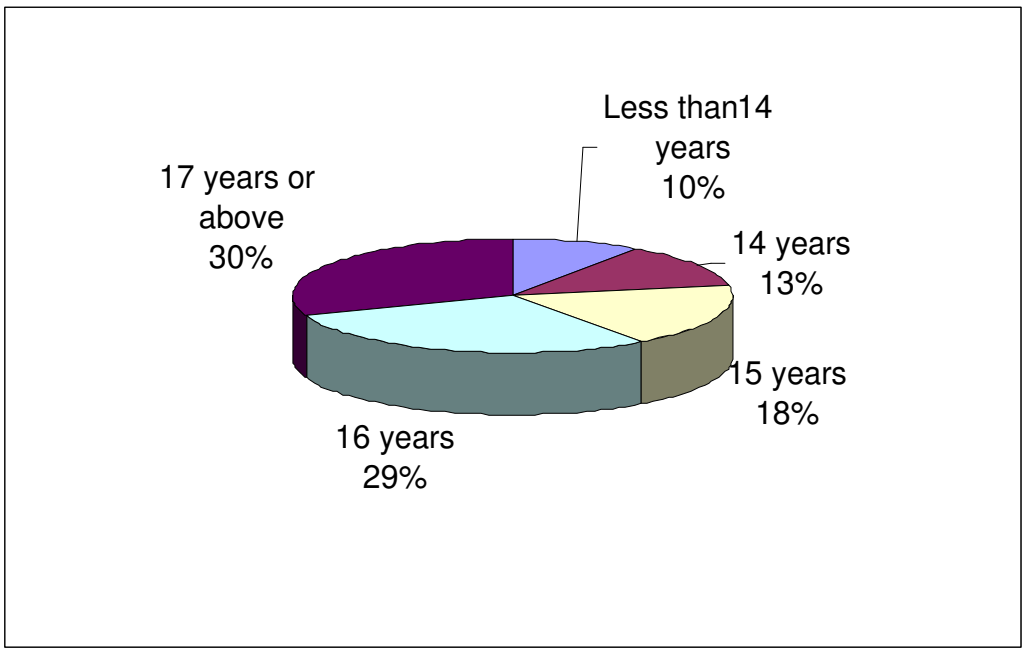
Age structure

Table 3 shows that, in 2001, more than two thirds of working children belong to age group 15-17 years. However, children under the age of 14 years constitute a percentage that does not exceed 10% from the total number of working children.

Table 3: Distribution of working children by age, 2001

Age	Number	Percentage
Less than 14	3,695	9.5
14	4,901	12.6
15	6,962	17.9
16	11,357	29.2
17 or above	11,979	30.8
Total	38,894	100.0

Figure 3: Distribution of working children by age, 2001



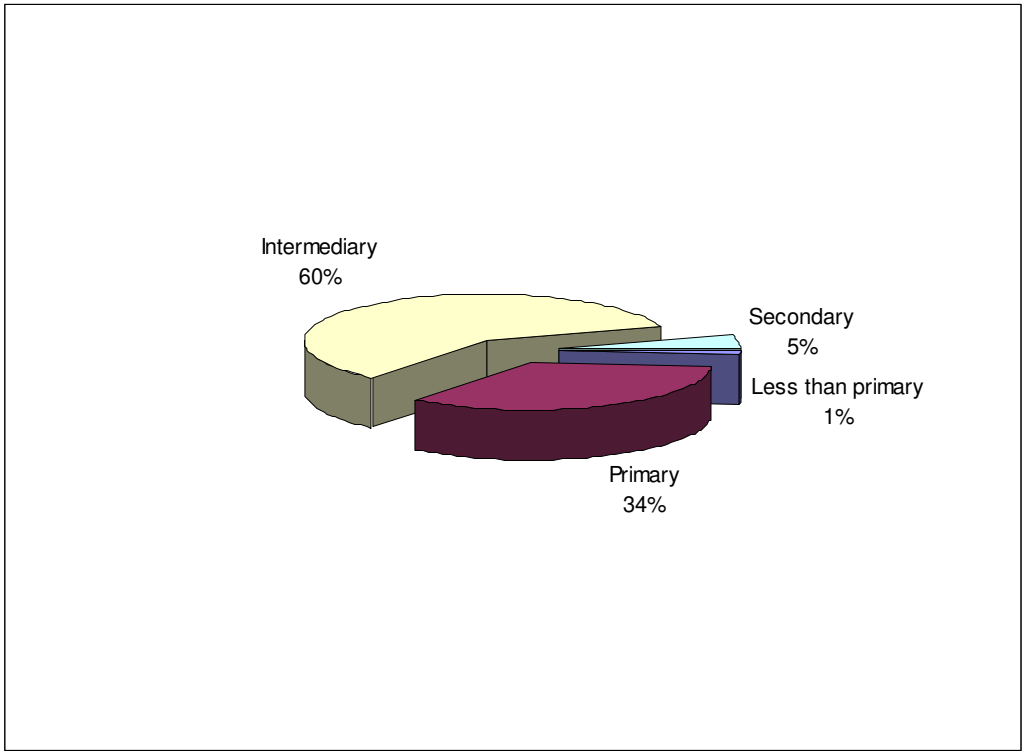
Level of education

As can be seen, from Table 4, nearly 60% of working children have intermediary education (grades 7, 8, and 9). Examining the pattern of dropouts across grades, shown in Appendices A.1-A.11, it is very clear that most dropouts occur after completing grades 9, 10, and 11.

Table 4: Distribution of working children by level of education, 2001

Level of education	Number	Percentage
Less than primary	506	1.3
Primary	13,380	34.4
Intermediary	23,142	59.5
Secondary	1,867	4.8
Total	38,895	100

Figure 4: Distribution of working children by level of education, 2001



APPENDIX: STATISTICAL TABLES

Table A. 1: Distribution of dropouts and students, 1990/1991

Grade	Students M	Students F	Students T	% Drop M	% Drop F	Drop M	Drop F	Drop T
1	54702	52626	107328	0.3	0.24	164	126	290
2	52918	49665	102583	0.16	0.17	85	84	169
3	52317	48903	101220	0.2	0.2	105	98	202
4	53948	51146	105094	0.43	0.38	232	194	426
5	54841	50014	104855	0.98	0.64	537	320	858
6	50445	46749	97194	1.62	0.86	817	402	1219
7	47802	44602	92404	2.86	1.35	1367	602	1969
8	42087	38598	80685	3.31	1.47	1393	567	1960
9	36028	33848	69876	4	1.78	1441	602	2044
10	33259	31947	65206	5.09	3.24	1693	1035	2728
11	28552	27469	56021	2.17	1.35	620	371	990
12	27651	25758	53409	1.17	1.02	324	263	586
Total	**534550**	**501325**	**1035875**			**8777**	**4666**	**13443**

M=Male F=Female T=Total

Figure A. 1: Distribution of dropouts, 1990/1991

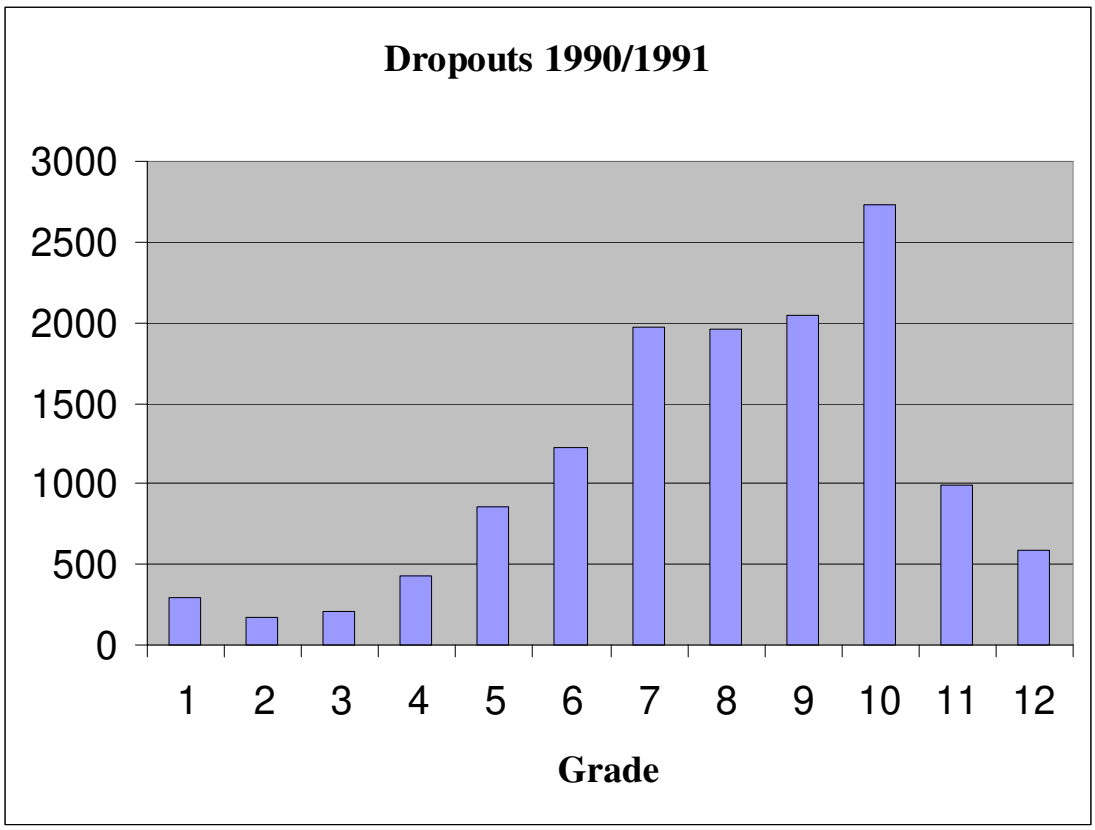


Table A. 2: Distribution of dropouts and students, 1991/1992

Grade	Students M	Students F	Students T	% Drop M	% Drop F	Drop M	Drop F	Drop T
1	57389	54621	112010	0.2	0.17	115	93	208
2	55368	53482	108850	0.1	0.14	55	75	130
3	54700	51367	106067	0.14	0.19	77	98	174
4	57512	54275	111787	0.32	0.28	184	152	336
5	57085	53846	110931	0.83	0.52	474	280	754
6	53864	49481	103345	1.47	0.74	792	366	1158
7	49894	48600	98494	2.21	1.08	1103	525	1628
8	43800	43243	87043	2.74	1.25	1200	541	1741
9	38653	37987	76640	3.2	1.45	1237	551	1788
10	33360	34163	67523	3.26	2.08	1088	711	1798
11	28552	27469	56021	2.17	1.35	620	371	990
12	27651	25758	53409	1.17	1.02	324	263	586
Total	**557828**	**534292**	**1092120**			**7267**	**4024**	**11291**

M=Male F=Female T=Total

Figure A. 2: Distribution of dropouts, 1991/1992

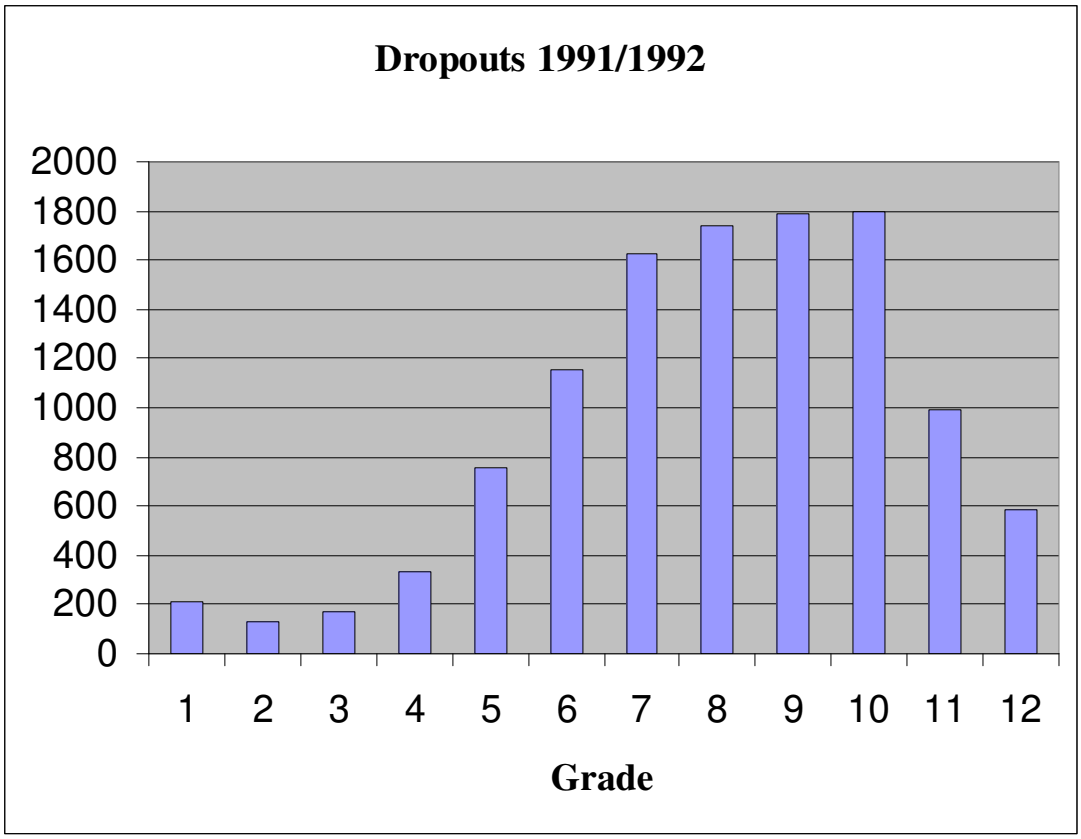


Table A. 3: Distribution of dropouts and students, 1992/1993

Grade	Students M	Students F	Students T	% Drop M	% Drop F	Drop M	Drop F	Drop T
1	58737	55543	114280	0.21	0.16	123	89	212
2	57496	54491	111987	0.11	0.14	63	76	140
3	55950	53995	109945	0.12	0.15	67	81	148
4	58127	55089	113216	0.28	0.2	163	110	273
5	58802	55043	113845	0.61	0.46	359	253	612
6	55134	51555	106689	1.2	0.72	662	371	1033
7	51593	49187	100780	1.66	0.78	856	384	1240
8	46379	46099	92478	1.84	0.95	853	438	1291
9	39984	41065	81049	2.14	1.21	856	497	1353
10	34997	35629	70626	2.11	1.42	738	506	1244
11	29628	29939	59567	1.99	1.58	590	473	1063
12	27961	26649	54610	1.27	0.98	355	261	616
Total	**574788**	**554284**	**1129072**			**5685**	**3539**	**9225**

M=Male F=Female T=Total

Figure A. 3: Distribution of dropouts, 1992/1993

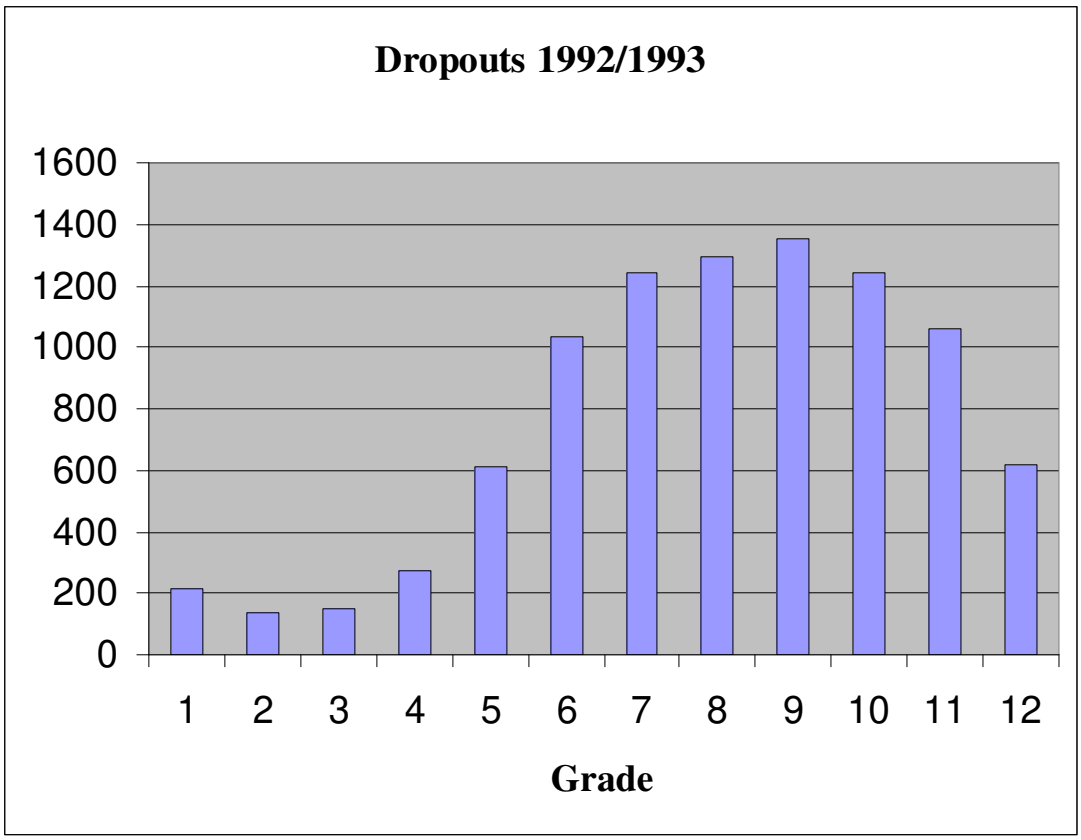


Table A. 4: Distribution of dropouts and students, 1993/1994

Grade	Students M	Students F	Students T	% Drop M	% Drop F	Drop M	Drop F	Drop T
1	58673	55507	114180	0.34	0.23	199	128	327
2	57785	54967	112752	0.19	0.14	110	77	187
3	57318	54427	111745	0.15	0.14	86	76	162
4	56443	54485	110928	0.31	0.26	175	142	317
5	58971	56018	114989	0.84	0.51	495	286	781
6	57148	53574	110722	1.23	0.66	703	354	1057
7	52954	50553	103507	1.68	1	890	506	1395
8	48585	47124	95709	2.17	1.23	1054	580	1634
9	43275	43852	87127	2.4	1.51	1039	662	1701
10	36346	38074	74420	2.36	1.45	858	552	1410
11	32294	32720	65014	2.09	1.72	675	563	1238
12	29821	28990	58811	3.34	1.49	996	432	1428
Total	**589613**	**570291**	**1159904**			**7280**	**4356**	**11636**

M=Male F=Female T=Total

Figure A. 4: Distribution of dropouts, 1993/1994

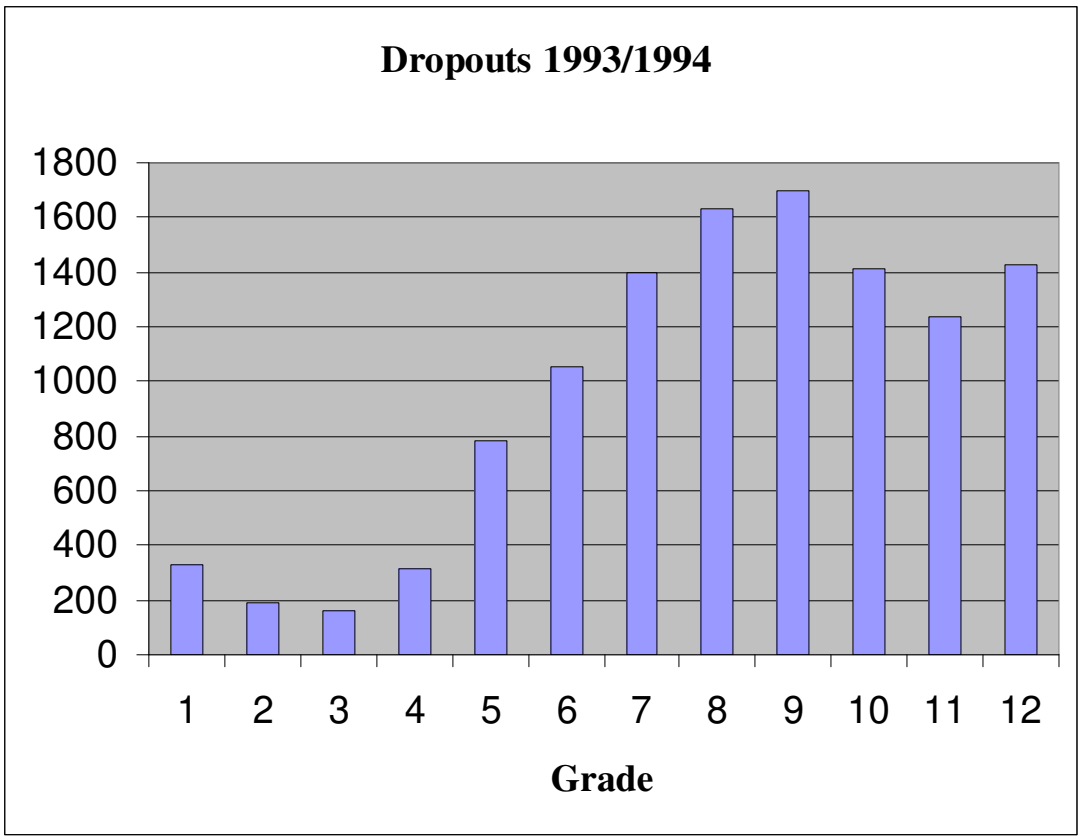


Table A. 5: Distribution of dropouts and students, 1994/1995

Grade	Students M	Students F	Students T	% Drop M	% Drop F	Drop M	Drop F	Drop T
1	59991	57450	117441	0.27	0.28	162	161	323
2	57963	55060	113023	0.22	0.17	128	94	221
3	57700	54804	112504	0.18	0.19	104	104	208
4	57647	54698	112345	0.32	0.22	184	120	305
5	57503	55365	112868	0.78	0.55	449	305	753
6	57735	54548	112283	1.09	0.73	629	398	1028
7	55291	52397	107688	1.46	1.03	807	540	1347
8	50512	48831	99343	1.99	1.2	1005	586	1591
9	45726	44485	90211	1.95	1.39	892	618	1510
10	39833	41072	80905	1.83	1.37	729	563	1292
11	34054	35275	69329	6.36	1.06	2166	374	2540
12	31765	31225	62990	4.77	1.87	1515	584	2099
Total	**605720**	**585210**	**1190930**			**8770**	**4446**	**13216**

M=Male F=Female T=Total

Figure A. 5: Distribution of dropouts, 1994/1995

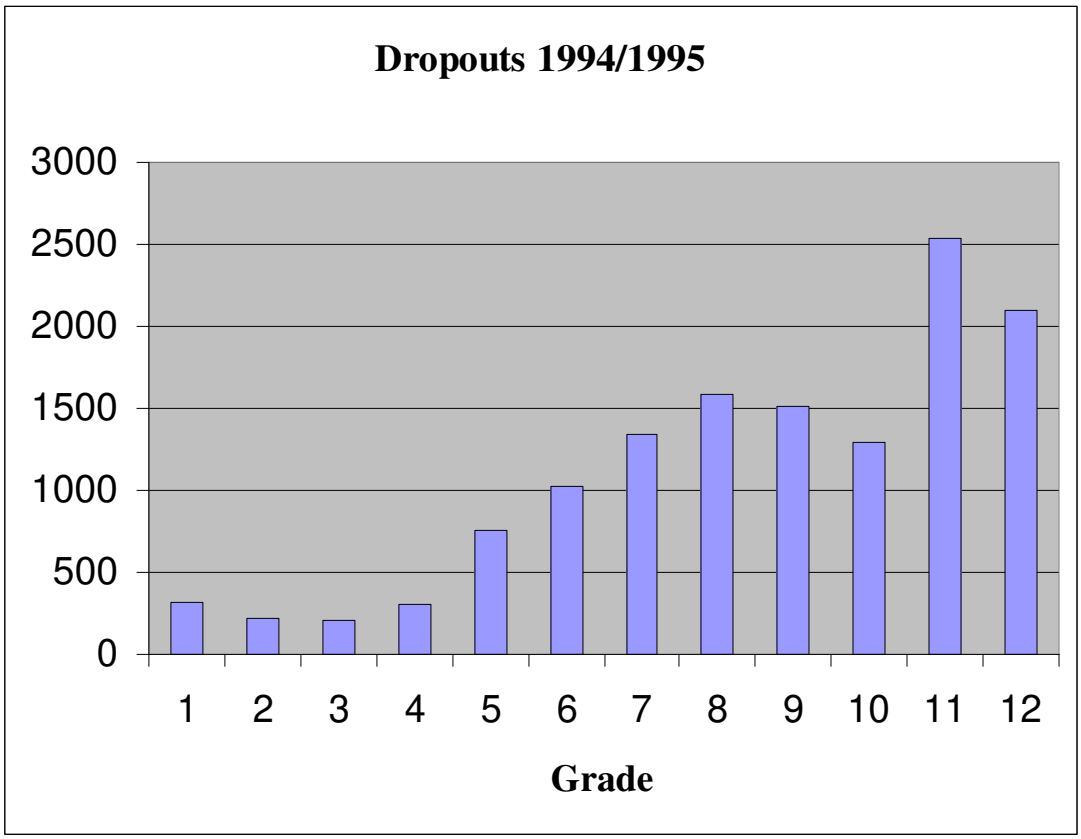


Table A. 6: Distribution of dropouts and students, 1995/1996

Grade	Students M	Students F	Students T	% Drop M	% Drop F	Drop M	Drop F	Drop T
1	60110	57277	117387	0.21	0.18	126	103	229
2	59471	56811	116282	0.14	0.12	83	68	151
3	57707	54808	112515	0.16	0.12	92	66	158
4	57729	55016	112745	0.29	0.19	167	105	272
5	58107	55572	113679	0.57	0.34	331	189	520
6	56333	54459	110792	1.01	0.49	569	267	836
7	56024	53165	109189	1.41	0.83	790	441	1231
8	53296	50677	103973	1.87	1	997	507	1503
9	47602	46407	94009	2.19	1.26	1042	585	1627
10	42532	41774	84306	1.82	1.19	774	497	1271
11	37164	37859	75023	2.44	1.22	907	462	1369
12	33870	34121	67991	2.73	1.45	925	495	1419
Total	**619945**	**597946**	**1217891**			**6804**	**3784**	**10588**

M=Male F=Female T=Total

Figure A. 6: Distribution of dropouts, 1995/1996

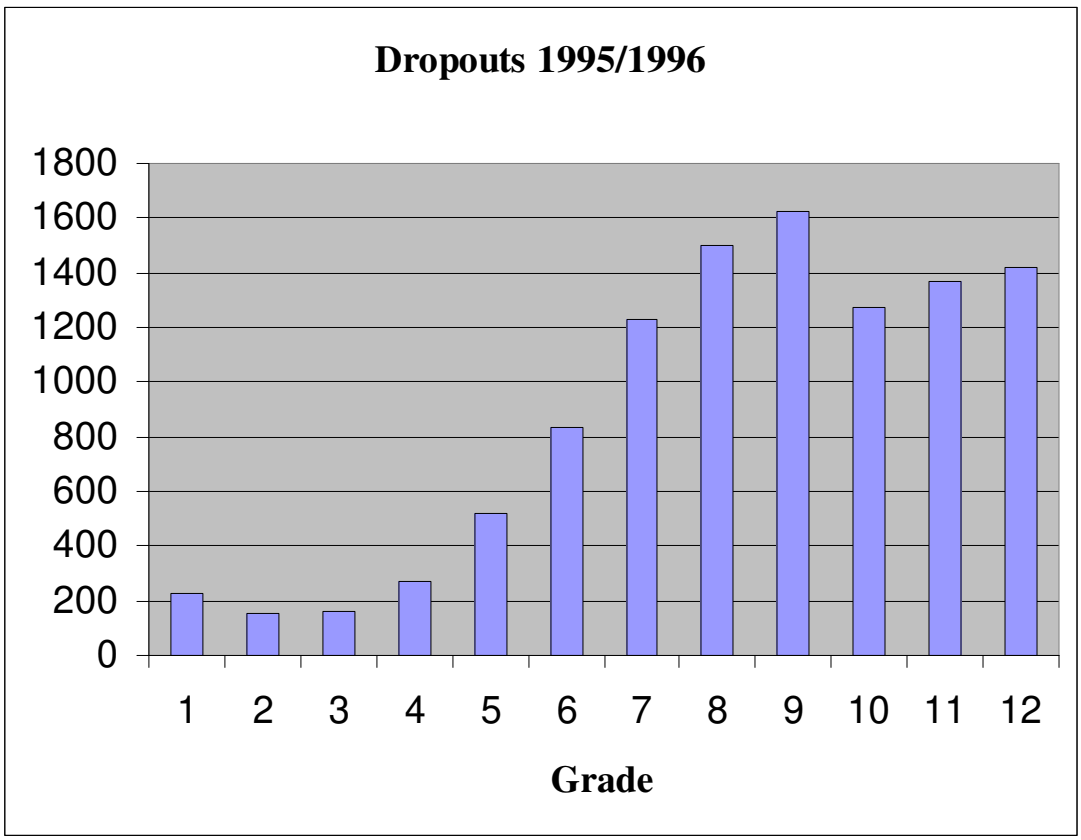


Table A. 7: Distribution of dropouts and students, 1996/1997

Grade	Students M	Students F	Students T	% Drop M	% Drop F	Drop M	Drop F	Drop T
1	59546	56322	115868	0.23	0.18	137	101	238
2	59468	56695	116163	0.16	0.14	95	79	175
3	59008	56674	115682	0.19	0.15	112	85	197
4	57953	55047	113000	0.28	0.19	162	105	267
5	58173	55532	113705	0.54	0.28	314	155	470
6	57244	54968	112212	0.73	0.48	418	264	682
7	55102	53592	108694	1.17	0.87	645	466	1111
8	53682	51505	105187	1.64	1.3	880	670	1550
9	50220	48386	98606	2.05	1.45	1030	702	1731
10	44031	43493	87524	1.68	1.72	740	748	1488
11	38848	38572	77420	1.75	0.95	680	366	1046
12	35345	36298	71643	2.03	0.96	718	348	1066
Total	**628620**	**607084**	**1235704**			**5930**	**4090**	**10020**

M=Male F=Female T=Total

Figure A. 7: Distribution of dropouts, 1996/1997

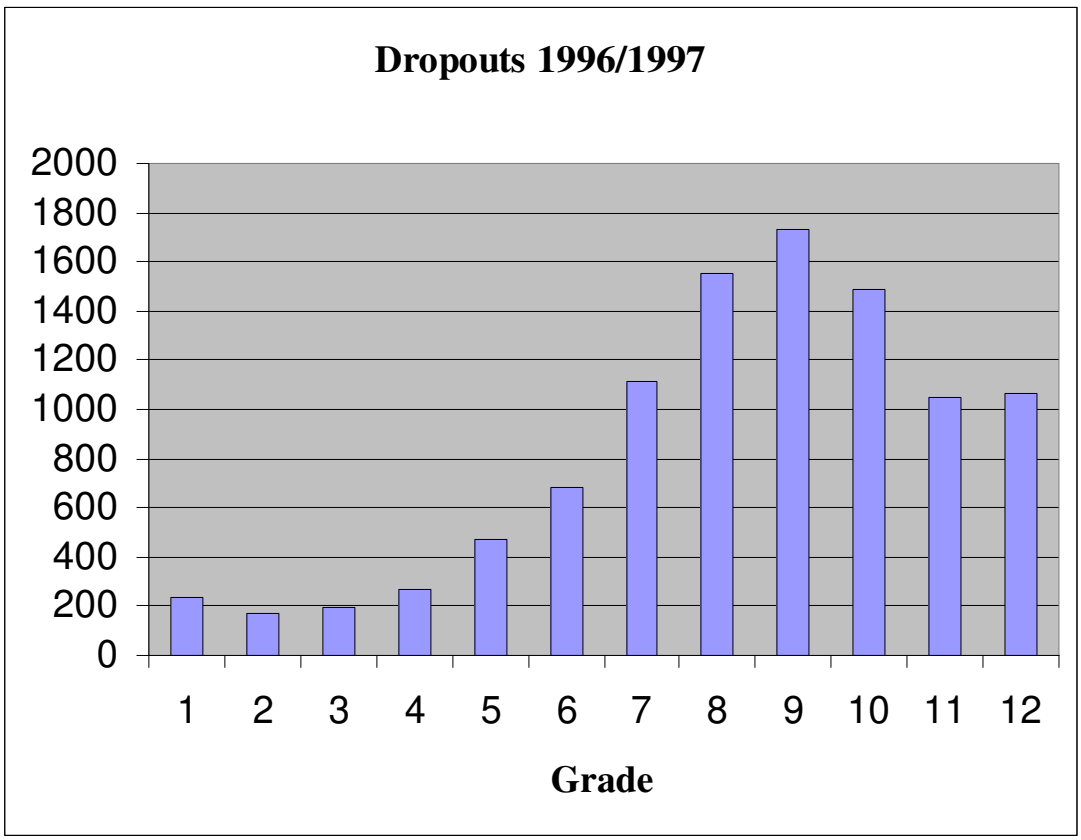


Table A. 8: Distribution of dropouts and students, 1997/1998

Grade	Students M	Students F	Students T	% Drop M	% Drop F	Drop M	Drop F	Drop T
1	62627	59446	122073	0.23	0.18	144	107	251
2	58478	55467	113945	0.16	0.14	94	78	171
3	59085	56326	115411	0.19	0.15	112	84	197
4	59232	57006	116238	0.28	0.19	166	108	274
5	58296	55461	113757	0.54	0.28	315	155	470
6	57592	54780	112372	0.73	0.48	420	263	683
7	56558	54083	110641	1.17	0.87	662	471	1132
8	53437	52193	105630	1.64	1.3	876	679	1555
9	51345	49385	100730	2.05	1.45	1053	716	1769
10	46962	45641	92603	1.68	1.72	789	785	1574
11	40503	40501	81004	1.75	0.95	709	385	1094
12	38368	38113	76481	2.03	0.96	779	366	1145
Total	**642483**	**618402**	**1260885**			**6118**	**4196**	**10315**

M=Male F=Female T=Total

Figure A. 8: Distribution of dropouts, 1997/1998

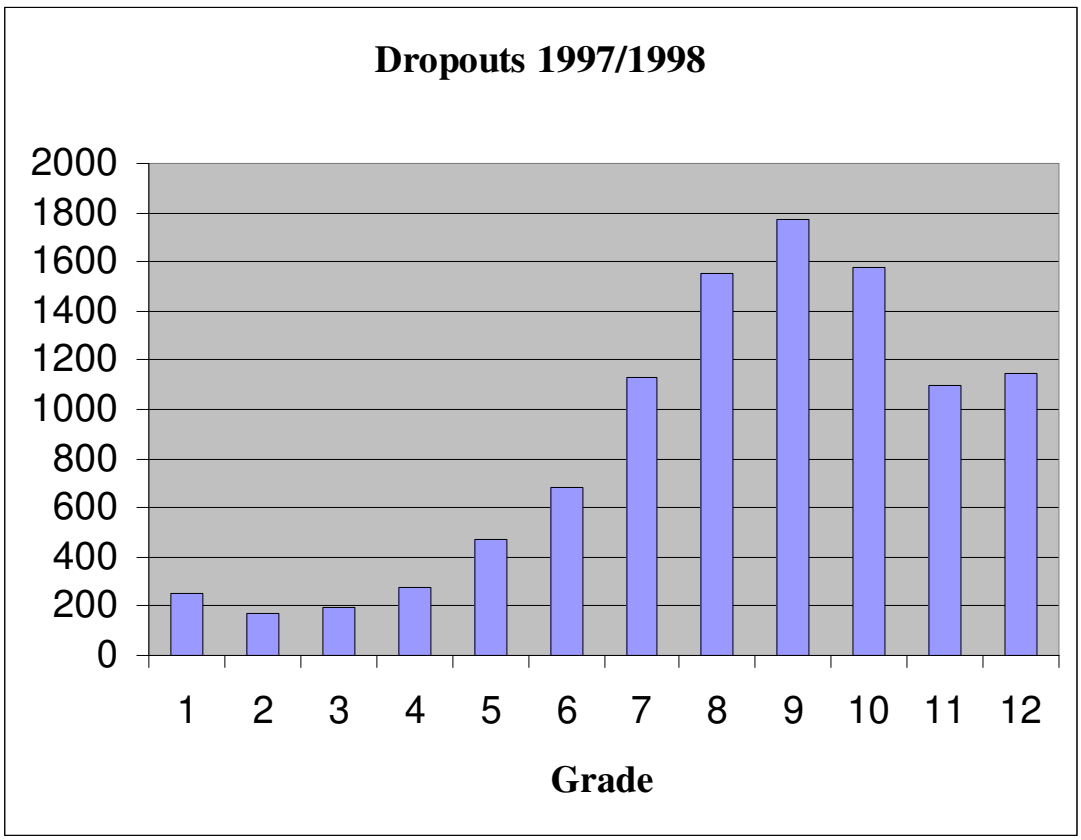


Table A. 9: Distribution of dropouts and students, 1998/1999

Grade	Students M	Students F	Students T	% Drop M	% Drop F	Drop M	Drop F	Drop T
1	64543	61443	125986	0.2	0.18	129	111	240
2	62177	58921	121098	0.14	0.18	87	106	193
3	58290	55253	113543	0.19	0.14	111	77	188
4	59420	57031	116451	0.26	0.23	154	131	286
5	59412	57293	116705	0.51	0.27	303	155	458
6	57466	54949	112415	0.64	0.45	368	247	615
7	56843	54295	111138	0.99	0.74	563	402	965
8	54953	52959	107912	1.38	1.13	758	598	1357
9	51418	50393	101811	1.81	1.46	931	736	1666
10	47961	46746	94707	1.46	1.5	700	701	1401
11	42826	42419	85245	1.42	1.18	608	501	1109
12	39020	39612	78632	1.29	1.04	503	412	915
Total	**654329**	**631314**	**1285643**			**5216**	**4177**	**9392**

M=Male F=Female T=Total

Figure A. 9: Distribution of dropouts, 1998/1999

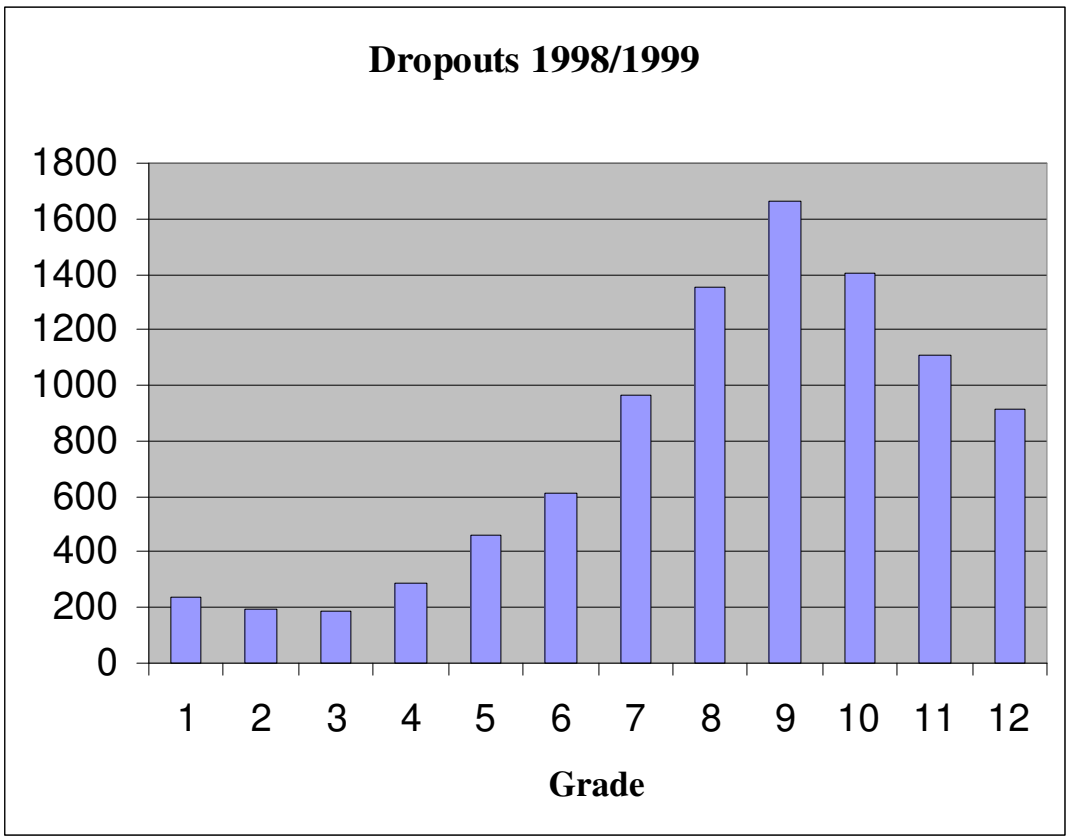


Table A. 10: Distribution of dropouts and students, 1999/2000

Grade	Students M	Students F	Students T	% Drop M	% Drop F	Drop M	Drop F	Drop T
1	67779	64586	132365	0.2	0.18	136	116	252
2	63606	60640	124246	0.14	0.18	89	109	198
3	61732	58725	120457	0.19	0.14	117	82	200
4	58553	55636	114189	0.26	0.23	152	128	280
5	59600	56891	116491	0.51	0.27	304	154	458
6	58864	56896	115760	0.64	0.45	377	256	633
7	56769	54246	111015	0.99	0.74	562	401	963
8	55442	52891	108333	1.38	1.13	765	598	1363
9	52648	50721	103369	1.81	1.46	953	741	1693
10	47936	47296	95232	1.46	1.5	700	709	1409
11	43347	43307	86654	1.42	1.18	616	511	1127
12	38687	40245	78932	1.29	1.04	499	419	918
Total	**664963**	**642080**	**1307043**	**-**	**-**	**5269**	**4224**	**9493**

M=Male F=Female T=Total

Figure A. 10: Distribution of dropouts, 1999/2000

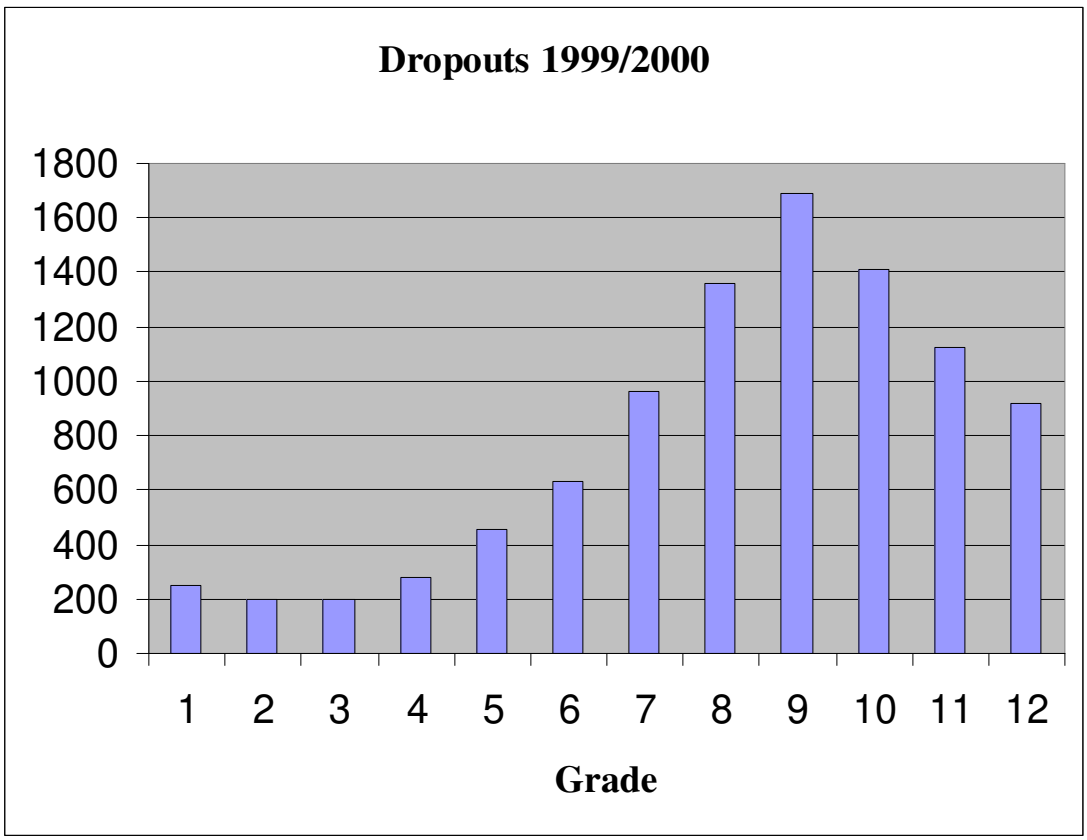
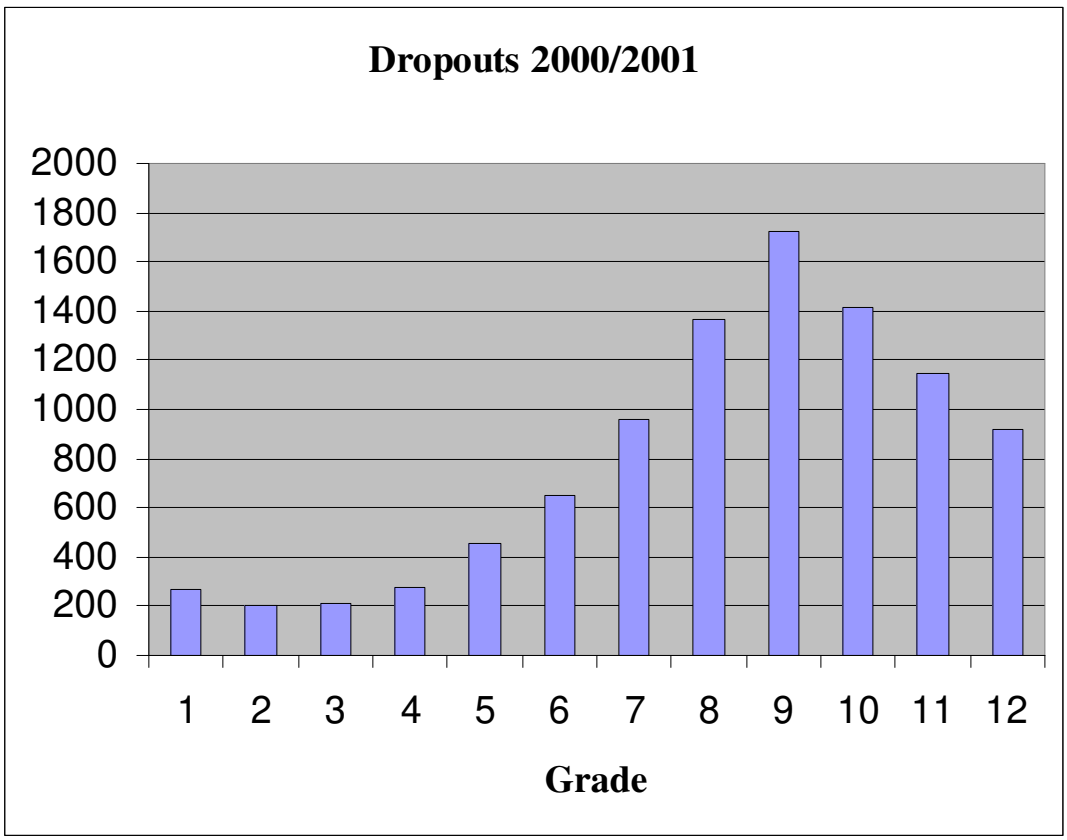


Table A. 11: Distribution of dropouts and students, 2000/2001

Grade	Students M	Students F	Students T	% Drop M	% Drop F	Drop M	Drop F	Drop T
1	71177	67890	139067	0.2	0.18	142	122	265
2	65068	62409	127477	0.14	0.18	91	112	203
3	65377	62415	127792	0.19	0.14	124	87	212
4	57699	54275	111974	0.26	0.23	150	125	275
5	59789	56492	116280	0.51	0.27	305	153	457
6	60296	58912	119208	0.64	0.45	386	265	651
7	56695	54197	110892	0.99	0.74	561	401	962
8	55935	52823	108758	1.38	1.13	772	597	1369
9	53907	51051	104959	1.81	1.46	976	745	1721
10	47911	47852	95763	1.46	1.5	700	718	1417
11	43874	44214	88088	1.42	1.18	623	522	1145
12	38357	40888	79245	1.29	1.04	495	425	920
Total	**676086**	**653418**	**1329504**	**-**	**-**	**5325**	**4272**	**9597**

M=Male F=Female T=Total

Figure A. 11: Distribution of dropouts, 2000/2001



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