

FOLLOW-UP STUDY ON MOVEMENT OF TYPE A  
AND TYPE B BABIES IN HONG KONG  
Final Report

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## 1 Abstract

The return of cross-border children for education became a contestable social issue in the last few years. Little information on cross-border activities of the parents of cross-border students sometimes can provoke conflicts between the locals and these parents. Accurate estimates on the return rate and returning pattern of these children would be essential for future policy planning and resource allocation to settle these social conflicts. This study is a follow-up study done in 2014, which provides estimates for the return rates of Type A and Type B children. This study updates the estimates using updated arrival and departure records of these children provided by the Immigration department. We examine the profile of children's parents in order to understand their backgrounds (education levels and occupations) related to their children's return rate, and how their profiles differ between Type A and Type B children. We also study movement pattern to project more accurate figures on cross-border students in the coming years. The return rate of both Type A and Type B children we estimated is lower than those with the assumption used by the Census and Statistics Department in Hong Kong Population Projections 2015-2064. Consistent with the previous study, this study shows that parents of Type B children with better backgrounds are associated with lower return rate of the children.

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## 2 Executive Summary

Definition of Type A and Type B children: On the basis of the data set provided by the Immigration Department, Type A children are those born in Hong Kong to Mainland women whose spouses are Hong Kong residents (either permanent or non-permanent) and Type B children are those born in Hong Kong to Mainland women whose spouses are also not Hong Kong residents.

1. The movements of 303,639 Type A and Type B children born between 1997 and 2016 are recorded in the data set. This study focuses on those born on or after 1<sup>st</sup> July 2004 due to the reliability of the data.
2. Lo Wu is the busiest checking point for recording Type A children's movements, while Shenzhen Bay is the busiest one for recording Type B children. Lok Ma Chau Spur Line is the busiest checking point for cross-border students.
3. The new findings generally confirm the findings reported in the 2014 study. Nonetheless, the predicted return rates based on the previous study are lower than the actual values in 2014 and 2015, except Type B children born between 2010 and 2012. This probably reflects the increasing prevalence of cross-border students in recent years.
4. The new findings predict that in 2016, about 71% of Type A and 16% of Type B children born on or after 1<sup>st</sup> July 2004 return to Hong Kong.
5. The parents of Type B children have better educational and occupational qualifications (on proportion) than those of Type A children.
6. The better qualification of the parents of Type B children are associated with lower rate of return: It is less likely that they would let their children return to Hong Kong.
7. An analysis of the data set shows that in 2015/16, there were:
  - (a) 2,609 (8.0% of all Type A and Type B children in the same cohort) 3-year-old cross-border students,
  - (b) 4,001 (9.2% of all Type A and Type B children in the same cohort) 4-year-old cross-border students,
  - (c) 3,583 (8.8% of all Type A and Type B children in the same cohort) 5-year-old cross-border students, and
  - (d) 3,288 (8.9% of all Type A and Type B children in the same cohort) 6-year-old cross-border students.

### 3 Recommendations

1. Comparing to the estimates based on the assumptions used by the Census and Statistics Department in Hong Kong Population Projections 2015-2064, this study predicts that there will be less than expected Type A and Type B children return to and settle in Hong Kong. Estimates from this study should be taken into account in the future population projections of Hong Kong.
2. The number of cross-border students has been predicted and this provides a basis for Education Bureau to re-examine the provision of the number of school places and its related supporting services.
3. Streamlining the movement process for cross-border students should be considered to reduce the unpleasant long journey time everyday, especially the relative large number of students travelling through Lok Ma Chau Spur Line and Shenzhen Bay.
4. Type B children account for around 90% of cross-border students. Due to the implementation of “zero-quota” policy in 2013, there is no doubt that the number of Type B cross-border students will eventually vanish. According to the prediction of this study, if the current pattern continues, the number of Type B cross-border students will maintain at around 18,000 and start declining since the school year 2024-25. Relevant government departments and business activities around cross-border students should be prepared for the impact of the changes.
5. The movement data of Type A and Type B children captured by Immigration Department provides very useful information about the population flow of Hong Kong population. The monitoring and surveillance exercise should be in place as a regular basis to assess changes of inflow and outflow of the population, which in turn provides important information for any population policy formulation in Hong Kong.
6. Some registry for the Type B children should be considered to track their movement.

## 4 Introduction

This study is an updated investigation of the movement pattern for Type A and Type B children born on or after 1<sup>st</sup> July 2004. The previous study<sup>1</sup> provided an updated estimates to the Census and Statistics Department’s estimation. The current study is to examine the movement pattern of Type A and Type B children born after 2004 based on an updated data set provided by the Immigration Department, and to compare the findings to the results with that 2014 exercise.

There are two differences between the current report and the previous report (2015).

- The birth cohort in the current study is set for all the children born between January and December in a specific year (compared to the previous study in which the children born between July of a specific year and June of the next year have the same birth cohort).
- Instead of calculating the cumulative return rate, we calculate the non-cumulative return rate for each birth cohort. The cumulative rate in the previous study gives the percentage of returning children before a certain age, while the non-cumulative one used in this report gives the percentage of returning children in a certain year. The non-cumulative rate is superior in the sense that the cumulative one ignores the fact that a children may “return” at a certain age but “leave” later. Thus the current study provides a better estimation method for the proportion of children who return to Hong Kong in a specific year.

### 4.1 Classifications of Returning Children

In this study, similar to the study in 2014, returning children are classified into Type A and Type B, a classification which is slightly different from that adopted by the HKSAR Census and Statistics Department (hereinafter, C&SD), which classifies the children born in Hong Kong to Mainland women into Type I, children whose fathers are Hong Kong permanent residents, and Type II, children whose fathers are not Hong Kong permanent residents. Given that we use data provided by the Immigration Department, we adopt a typology of Type A and Type B children instead. Type A children are those whose fathers are Hong Kong residents, regardless of whether the fathers are permanent or non-permanent residents, and Type B children are those whose fathers are not Hong Kong residents. The difference between our typology and that of the C&SD relates to the treatment of those fathers who are non-permanent Hong Kong residents. Table 1 demonstrates the differences between the typology of our study and that of the C&SD.

The difference between the numbers of Type A and Type I<sup>2</sup> children from 2006 to 2014 is shown in Table 2. Such difference can be regarded as an estimation on the number of those children who are given birth to mothers from Mainland China but their fathers were non-permanent Hong Kong residents.

<sup>1</sup>A Study of the Movement of Type A and B Babies in Hong Kong, 2014.

<sup>2</sup>The number of children born to Mainland women whose spouses are Hong Kong permanent residents is obtained from C&SD.



**Table 1:** Classification of types of children based on father's residency status.

Type A	Permanent Hong Kong Resident	Type I
	Non-permanent Hong Kong Resident (2931 cases from 2006 to 2014)	Type II
Type B	Non-Hong Kong Resident	

**Table 2:** Numbers of Type A and Type I children from 2006 to 2014.

Year	Type A	Type I	Difference
2006	9732	9438	294
2007	8067	7989	78
2008	7510	7228	282
2009	6404	6213	191
2010	6611	6169	442
2011	6426	6110	316
2012	5073	4698	375
2013	5025	4670	355
2014	5777	5179	598
<b>Total</b>	<b>60625</b>	<b>57694</b>	<b>2931</b>

## 4.2 Aims of Study

In this study, we calculate the proportions of returning Type A and Type B children using arrival and departure data provided by the Immigration Department. We also examine their movement patterns to project more accurate figures on their return for education purpose in the coming years. The association between backgrounds of these children's parents and the return status of children is also investigated. Results are compared with those derived from the previous study.

## 5 Data Management

### 5.1 Data Set 1: Movement Records of Type A and Type B Children

The movement records of Type A and Type B children were updated by a new batch of movement records received from the Immigration department. Same as the 2014 data sets, the 2016 data were stored in files with a fixed width text format. Columns 1-11 indicated the ID of the child, column 12 the child's type, column 13 the child's gender, columns 14-19 the child's birth date, columns 20-31 the date and time of moving, column 32 the control point, and the last column the type of movement (i.e. A (arrival) or D (departure)).

All of the files (the 2014 and 2016 batches) were read and processed at the same time, and an indicator field was added to the data to show the status of the fathers based on their HKID cards. There was a total of 44,543,849 records for 303,639 children (compared to 25,042,835 records for 289,765 children in the previous study). Table 3 gives the distribution of these 303,639 children across sex and child type in each year of birth.

Time of moving (i.e. arrival time or departure time) was missing in a number of records (12,781,551 records compared to 4,345,210 records in the previous study). When the arrival or departure time of an individual was unavailable and they happen on a specific day, we assumed that the arrival happened before the departure. For each individual, we tracked her/his movements and deleted those records where the arrival or departure was not recorded (i.e. we removed the observations where the arrival was recorded but the departure was not or where the departure was recorded but the arrival was not). For children born after 1 June 2004, there was a total of 1,198,924 (708,091 records in the 2014 data sets) such cases (791,052 for Type A and 407,872 for Type B). This processing helped us trace the total frequency of a child's arrivals and departures. When the times of arrival and departure were not missing, we calculated the total time (to minute) that a child stayed in Hong Kong, and when the times were missing, we calculated the total number of days that a child stayed in Hong Kong.

Table 4 summarizes the numbers of arrivals and departures recorded in the database for children born after 1 June 2004 categorized by the checking point and the type of child. The data indicates that (a) Shenzhen Bay is the busiest checking point (in the previous study we found that Lo Wu is the busiest checking point), and (b) Type B children usually use it to travel to/from Hong Kong. There are 1,250 records which the checking point is recorded with an unknown value "R".

Table 3: Distribution of Type A and Type B children in each birth year.

Birth year	Sex						Total		
	F			M			A	B	All
	A	B	All	A	B	All			
1997	814	7	821	831	5	836	1645	12	<b>1657</b>
1998	2098	17	2115	2266	14	2280	4364	31	<b>4395</b>
1999	2711	33	2744	2955	26	2981	5666	59	<b>5725</b>
2000	3170	67	3237	3537	75	3612	6707	142	<b>6849</b>
2001	3180	120	3300	3480	136	3616	6660	256	<b>6916</b>
2002	3054	421	3475	3401	486	3887	6455	907	<b>7362</b>
2003	957	230	1187	1044	315	1359	2001	545	<b>2546</b>
2004	1069	495	1564	1247	601	1848	2316	1096	<b>3412</b>
2005	1367	1257	2624	1445	1434	2879	2812	2691	<b>5503</b>
2006	4581	7670	12251	5151	8867	14018	9732	16537	<b>26269</b>
2007	3761	8739	12500	4306	10459	14765	8067	19198	<b>27265</b>
2008	3614	11408	15022	3896	14488	18384	7510	25896	<b>33406</b>
2009	3063	13405	16468	3341	17192	20533	6404	30597	<b>37001</b>
2010	3142	14950	18092	3469	19138	22607	6611	34088	<b>40699</b>
2011	3037	16140	19177	3389	20883	24272	6426	37023	<b>43449</b>
2012	2396	12081	14477	2677	15459	18136	5073	27540	<b>32613</b>
2013	2344	83	2427	2681	128	2809	5025	211	<b>5236</b>
2014	2773	66	2839	3004	99	3103	5777	165	<b>5942</b>
2015	2436	27	2463	2755	30	2785	5191	57	<b>5248</b>
2016	1021	5	1026	1111	9	1120	2132	14	<b>2146</b>
All	<b>50588</b>	<b>87221</b>	<b>137809</b>	<b>55986</b>	<b>109844</b>	<b>165830</b>	<b>106574</b>	<b>197065</b>	<b>303639</b>

Table 4: Use of arrival and departure points.

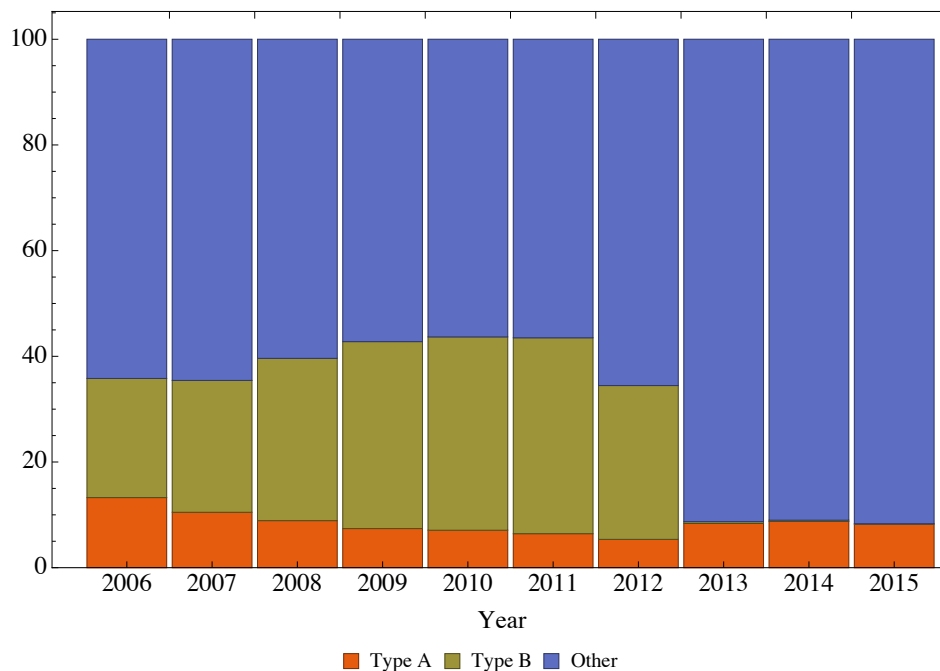
Checking point	Arrival	Departure	Total	%
	Type A			
Airport Terminal 1	121705	105777	227482	1.42
China Ferry Terminal	71736	72622	144358	0.90
Harbour Control	1131	1138	2269	0.01
Hung Hom	49467	51034	100501	0.63
Lok Ma Chau	800981	768244	1569225	9.82
Lo Wu	3709259	3724770	7434029	46.54
Macau Ferry Terminal	74982	74526	149508	0.94

Continued on next page

Table 4: Continued from previous page

Checking point	Arrival	Departure	Total	%
Man Kam To	150866	144513	295379	1.85
Sha Tau Kok	151040	154720	305760	1.91
R	595	521	1116	0.01
Airport Terminal 2	13	15387	15400	0.10
Shenzhen Bay	759426	775617	1535043	9.61
Lok Ma Chau Spur Line	2080507	2111009	4191516	26.24
Kai Tak Cruise Terminal	1683	1721	3404	0.02
<b>Total</b>	<b>7973391</b>	<b>8001599</b>	<b>15974990</b>	<b>100</b>
Type B				
Airport Terminal 1	103187	82561	185748	0.65
China Ferry Terminal	103053	110542	213595	0.75
Harbour Control	701	715	1416	0.00
Hung Hom	91854	104212	196066	0.69
Lok Ma Chau	602814	674519	1277333	4.47
Lo Wu	3226823	3274732	6501555	22.76
Macau Ferry Terminal	30576	35900	66476	0.23
Man Kam To	570832	536393	1107225	3.88
Sha Tau Kok	354521	351935	706456	2.47
R	70	64	134	0.00
Airport Terminal 2	20	20660	20680	0.07
Shenzhen Bay	4728367	4771951	9500318	33.25
Lok Ma Chau Spur Line	4377173	4410553	8787726	30.76
Kai Tak Cruise Terminal	2001	2130	4131	0.01
<b>Total</b>	<b>14191992</b>	<b>14376867</b>	<b>28568859</b>	<b>100</b>

Figure 1: Distribution of Type A, Type B, and other children from 2006 to 2015.



## 5.2 Data Set 2: Birth Information

Table 5: Numbers of births of Type A and Type B children per year.

Year	Type A		Type B		Total births in Hong Kong <sup>3</sup>
	N	%	N	%	
2006	9732	14.8	16537	25.1	65626
2007	8067	11.4	19198	27.1	70875
2008	7510	9.5	25896	32.9	78822
2009	6404	7.8	30597	37.3	82095
2010	6611	7.5	34088	38.4	88584
2011	6426	6.7	37023	38.7	95451
2012	5073	5.5	27540	30.0	91558
2013	5025	8.0	211	0.3	57084
2014	5777	8.5	165	0.2	62305
2015	5191	8.0	57	0.1	59878
<b>Total</b>	<b>65816</b>	<b>8.0</b>	<b>191312</b>	<b>23.0</b>	<b>752278</b>

<sup>3</sup>Table 5 : The number of total births in Hong Kong are sourced from C&SD, and the Type A and Type B figures are based on the data from the Immigration Department.

The data set was provided by the Immigration Department that contained information on the family backgrounds of the children, which were obtained from the information forms the parents completed upon the birth of their babies. The forms contain information such as the occupation, education level, residence, and age of the father and mother. In total, there were 305,945 records in the data set. However, as the forms were self-administrated and it was not compulsory to fully complete them, some of the fields in the data could be randomly missed. Consequently, in some of the list-wise statistical procedures, there was a variation in the total number of data items available for calculation purposes.

The distribution of the number of births was calculated on the basis of the birth information data in Table 5. The term “total births” means the total number of live births in Hong Kong in a given year. Along the report of 2014, the number of Type A children decreased slowly from 2006 to 2012, and the number of Type B children increased from 2006 to 2011, followed by an abrupt decline in numbers since 2013. The decline in the number of Type B children was due to the introduction of the government’s policy of forbidding hospitals from making appointments for Mainlanders to give birth in Hong Kong (Figure 1).

## 6 Return Rates

### 6.1 Return Rate by Year and Birth Cohorts

According to the definition by C&SD, a child is regarded as having “returned” to Hong Kong if she/he stayed in Hong Kong for at least one month (31 nights, not necessarily consecutive) during the 6-month period either before or after mid-year (i.e. 30 June of each year). For each child, we computed the number of nights she/he stayed in Hong Kong for each year and considered the child as having returned to Hong Kong if she/he stayed in Hong Kong for at least one month in either the first or second half of the year. Children who have already lived in Hong Kong are classified as “returned”. Table 6 shows the percentages of children who returned to Hong Kong in different years. The percentage is calculated for age 1 (the immediate year after the year of birth) and above. The findings from 2005 to 2013 are consistent with the results in the previous study, Table 30.

*Table 6: Return rate of Type A and Type B children in different years by birth cohort.*

Birth year	Child type	Year of movement										
		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
2004	A	66.4	63.7	70.3	74.6	74.0	76.2	76.3	76.5	80.3	80.6	82.6
	B	17.8	11.6	18.1	18.5	21.9	25.9	25.9	27.7	31.4	33.6	40.0
2005	A		62.4	61.7	68.4	71.3	71.6	72.3	73.3	74.6	74.8	78.8
	B		12.3	8.3	13.6	14.8	18.0	21.1	23.3	25.4	26.9	29.7
2006	A			59.2	60.7	67.3	69.4	70.6	72.1	74.5	74.4	77.7
	B			5.7	6.2	9.7	11.2	14.0	18.0	19.5	20.3	22.3
2007	A				60.6	61.6	66.5	68.2	69.6	72.4	72.5	75.3
	B				4.5	5.1	8.8	10.4	13.6	17.5	18.7	20.3
2008	A					58.2	57.9	64.6	66.7	69.8	70.4	73.4
	B					3.8	4.6	7.9	9.6	12.9	16.4	18.2
2009	A						55.9	56.6	64.0	67.7	68.1	71.2
	B						4.2	4.9	8.7	10.3	13.5	17.1
2010	A							54.0	55.2	64.0	67.0	69.5
	B							3.8	5.0	9.3	11.1	14.2
2011	A								53.0	56.6	63.7	68.9
	B								3.5	5.0	9.5	11.1
2012	A									54.2	55.7	65.8
	B									3.6	5.3	11.0
2013	A										56.5	59.2
	B										25.9	23.4
2014	A											58.2
	B											39.0

By looking at each column of Table 6, we can see that the percentage of children returning to Hong

Kong decreases for almost all ages. Figures 2 and 3 show this trend for Type A and Type B children, respectively. The decreasing return rate for Type B children changes for children born since 2013, as depicted in Figure 3. The sharp increase in return rate is owing to the small number of type B children born (2013: 211 and 2014: 165), following the introduction of the government policy of forbidding hospitals from making appointments for Mainlanders to give birth in Hong Kong.

Figure 2: Return rate of Type A children of all ages by birth cohort.

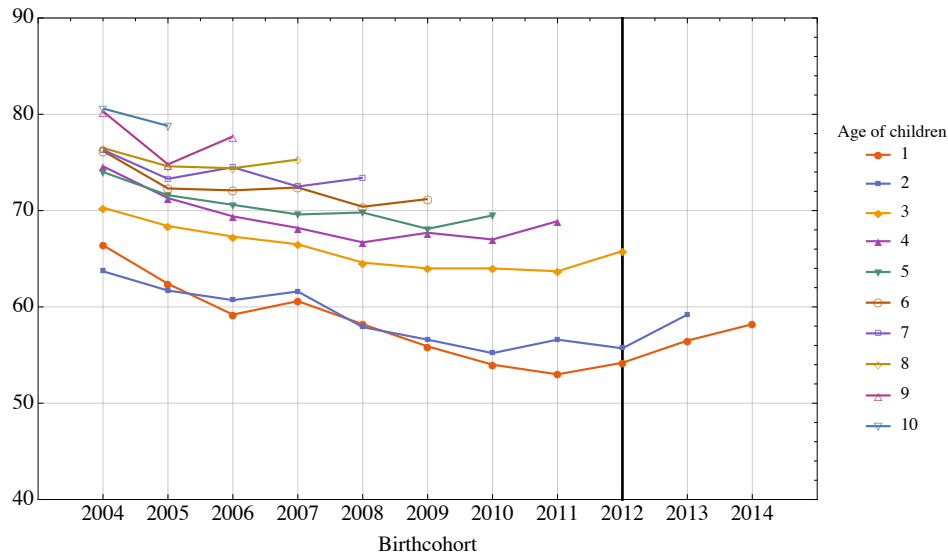
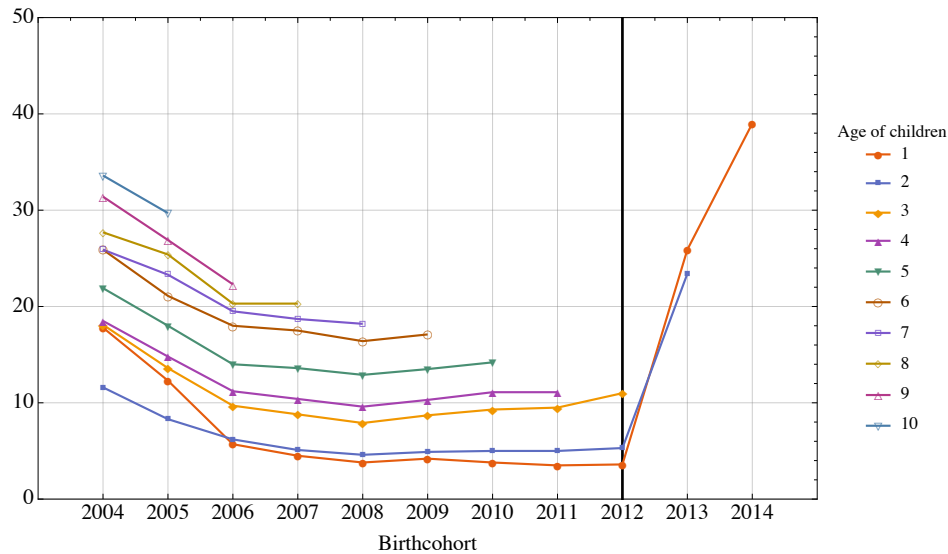


Figure 3: Return rate of Type B children of all ages by birth cohort.



Comparing the actual return rates in 2014 and 2015 with those predicted in the 2014 exercise (Table 30), one may observe that the actual rates of return are generally higher than the predicted rates. The increments are larger among Type B children born between 2004 and 2009 and Type A children



born in 2011 and 2012. The increase in return rate of Type B children is probably a result of increasing prevalence of cross-border education in the recent years.

## 6.2 Return Rate by Parents' Education Level

Table 7 shows the return rates in 2016 based on mother's education level by birth cohort. For all education levels of mothers, Type A children usually had a higher return rate than Type B children. For both Type A and Type B children, there was a higher probability of mothers with a lower education level bringing their children back to Hong Kong, except 2014 in which there were very few type B children. It should be noted that the return rates of children whose mothers received no schooling or only kindergarten education varied enormously across years, as the number of these mothers was very small (Table 13). Table 24 in Appendix A shows more detailed return rates by mother's education level per birth cohort in each year.

Table 7: Return rate by mother's education level per birth cohort in 2016.

Birth year	Child type	Mother's education level <sup>4</sup>					
		0	1	2	3	4	X
2004	A	100.0	77.6	77.7	68.8	73.5	72.2
	B	50.0	41.0	39.5	45.5	38.9	33.3
2005	A	100.0	77.8	75.6	74.5	63.6	25.0
	B	66.7	31.1	30.4	25.0	22.6	50.0
2006	A	94.7	76.1	74.4	66.5	57.7	85.7
	B	26.4	21.9	22.1	18.5	18.1	50.0
2007	A	72.7	74.8	72.3	67.6	55.0	70.4
	B	18.9	21.4	20.1	19.9	17.4	19.8
2008	A	68.2	74.0	71.3	63.4	56.8	72.0
	B	13.6	19.3	19.5	15.2	15.1	16.2
2009	A	84.6	74.3	70.0	61.0	55.1	66.4
	B	17.9	20.7	18.7	14.9	14.5	18.5
2010	A	72.7	73.5	68.3	63.1	49.2	68.0
	B	16.0	18.7	16.4	13.9	11.6	18.9
2011	A	60.0	71.7	68.3	61.0	52.5	65.0
	B	13.9	13.7	12.9	10.6	11.3	11.3
2012	A	100.0	68.0	64.9	60.5	54.8	64.3
	B	20.0	14.6	11.9	11.2	10.7	11.7
2013	A	40.0	58.5	57.0	55.0	44.2	52.4
	B	.	60.0	29.3	19.2	12.5	19.5
2014	A	85.7	58.2	52.2	52.5	41.2	48.7
	B	.	.	22.4	12.0	37.5	15.6

Table 8 shows the return rates in 2016 based on father's education level by birth cohort. The pattern

<sup>4</sup>Keys for education levels: 0=No schooling / Kindergarten; 1=Primary; 2=Secondary / Matriculation; 3=Tertiary(non-degree); 4=Tertiary(degree); X=Unknown

of return rates based on father's education level is very similar to that based on mother's education level, in which lower return rates are usually found in children whose fathers received a tertiary (degree) education. Table 25 in Appendix A shows more detailed return rates by father's education level per birth cohort in each year.

**Table 8:** Return rate by father's education level per birth cohort in 2016.

Birth year	Child type	Father's education level <sup>4</sup>					
		0	1	2	3	4	X
2004	A	88.9	77.3	78.0	71.7	72.3	73.7
	B	.	41.4	39.4	34.4	29.2	47.7
2005	A	100.0	76.0	77.2	64.3	59.0	37.5
	B	60.0	32.3	29.3	24.5	28.3	43.1
2006	A	84.6	76.6	75.1	65.0	62.1	63.6
	B	18.8	20.9	21.3	20.9	18.0	39.0
2007	A	73.1	76.0	72.8	63.2	62.2	68.7
	B	12.5	21.1	19.6	18.4	17.3	30.4
2008	A	90.9	73.8	72.4	64.2	57.8	70.9
	B	20.6	18.2	18.5	15.9	14.9	25.0
2009	A	61.5	74.2	70.6	64.2	56.8	69.5
	B	21.6	19.5	18.1	14.8	14.5	13.3
2010	A	75.0	70.0	70.1	63.4	51.7	67.1
	B	27.8	20.0	16.0	13.4	11.5	18.3
2011	A	69.2	71.0	68.9	64.1	53.8	65.2
	B	10.3	17.3	12.3	10.4	10.4	11.5
2012	A	33.3	71.8	66.0	63.0	54.2	64.6
	B	8.3	13.0	11.3	10.5	10.5	11.1
2013	A	66.7	57.1	58.1	52.9	45.5	52.5
	B	.	50.0	26.3	26.3	19.5	21.6
2014	A	100.0	47.8	53.5	49.4	43.3	49.0
	B	.	.	21.6	13.6	35.7	13.8

### 6.3 Return Rate by Parents' Occupation

Table 9 shows the return rate of Type A and Type B children in 2016 for each birth cohort across occupation of mother. Type A children typically have a higher return rate than Type B children for all occupations of mother. It also shows that the children with their mother at a lower level of occupation have higher rates of returning to Hong Kong. Return rate generally increased with increasing age for all occupations of mother, especially from age 4 to 7. Remarkable increment can be found among Type B children whose mothers were blue-collar workers or economically inactive. More detailed return rates by occupation of mother per birth cohort in each year are shown in Appendix B, Table 26.

Table 9: Return rate by mother's occupation per birth cohort in 2016.

Birth year	Child type	Mother's occupation <sup>5</sup>											
		1	2	3	4	5	6	7	8	9	10	EI	X
2004	A	.	57.9	54.5	77.8	58.6	80.0	66.7	100.0	100.0	.	78.3	78.6
	B	.	29.2	60.0	45.5	28.6	31.6	.	33.3	33.3	.	41.3	31.8
2005	A	.	52.9	66.7	75.0	66.7	67.3	50.0	100.0	100.0	100.0	76.5	44.4
	B	.	16.8	25.0	29.4	17.8	30.6	44.4	33.3	.	27.3	31.6	37.5
2006	A	100.0	54.8	76.3	74.7	72.8	72.9	81.8	100.0	75.0	66.7	74.5	77.8
	B	33.3	16.5	16.3	22.8	18.6	23.0	13.6	22.2	30.3	16.7	22.3	19.3
2007	A	100.0	50.7	52.2	66.7	65.1	68.0	66.7	66.7	80.0	59.7	72.6	75.5
	B	33.3	15.8	18.1	16.3	17.7	17.8	16.2	27.9	7.7	23.1	21.1	21.6
2008	A	50.0	47.6	55.3	65.5	66.3	70.6	60.0	74.7	.	63.2	72.1	72.8
	B	15.4	13.5	16.0	17.7	15.5	19.7	25.0	19.6	20.8	18.6	20.3	19.3
2009	A	61.1	47.4	55.7	67.9	64.5	67.5	90.0	73.6	.	67.0	71.2	67.8
	B	14.7	12.7	13.9	18.3	16.5	24.5	24.8	20.1	.	21.7	20.4	22.1
2010	A	88.9	46.0	52.1	63.0	61.0	69.8	80.0	76.5	60.0	68.6	69.8	69.2
	B	14.8	11.1	12.3	12.1	14.4	23.8	22.1	21.3	18.2	21.5	18.4	17.7
2011	A	69.6	42.8	54.8	62.7	61.6	66.9	40.0	67.6	40.0	71.5	69.4	68.4
	B	18.9	9.8	9.9	11.9	12.7	14.7	19.3	15.4	16.7	18.7	14.3	11.9
2012	A	75.0	44.2	53.5	56.0	64.1	64.7	57.1	59.6	50.0	57.5	66.8	64.7
	B	13.0	10.4	10.7	12.7	10.4	11.8	12.2	13.4	22.2	12.6	13.2	11.4
2013	A	33.3	37.4	42.0	51.0	55.1	51.1	62.5	57.1	50.0	60.4	57.8	56.1
	B	.	16.7	9.1	.	14.3	52.4	.	50.0	.	.	23.0	20.0
2014	A	39.1	37.2	38.0	44.2	47.9	50.0	50.0	60.3	.	45.7	54.3	51.6
	B	.	22.7	25.0	.	9.1	.	.	.	.	100.0	22.4	22.5

Table 10: Return rate by father's occupation per birth cohort in 2016.

Birth year	Child type	Father's occupation <sup>5</sup>											
		1	2	3	4	5	6	7	8	9	10	EI	X
2004	A	80.0	66.0	77.8	84.1	72.5	80.1	80.4	82.0	75.3	73.8	77.5	75.0
	B	.	28.9	37.5	33.3	27.5	31.9	44.1	48.6	68.0	58.3	38.0	47.7
2005	A	81.3	58.5	63.2	75.3	69.6	78.7	85.6	77.0	76.8	76.1	79.8	37.5
	B	14.3	22.4	21.7	30.4	23.7	27.0	38.5	36.7	32.3	35.9	30.3	43.1
2006	A	84.6	59.2	68.3	74.1	73.1	75.1	83.6	76.8	76.8	75.4	74.2	62.5
	B	7.4	16.6	21.4	21.6	17.7	22.3	19.8	24.3	26.2	23.6	22.0	38.6
2007	A	73.3	60.2	67.9	67.4	70.9	73.7	74.4	77.1	75.1	73.7	69.4	68.6
	B	5.9	16.0	19.5	20.7	17.8	20.7	22.0	20.8	25.5	22.0	21.5	29.6
2008	A	74.7	56.1	64.4	74.1	69.9	74.2	66.7	76.6	71.5	73.5	70.9	71.5
	B	23.0	13.8	17.5	19.4	16.7	20.1	23.6	20.8	27.0	22.3	18.7	25.0
2009	A	73.1	54.8	67.6	67.5	68.1	72.0	81.0	73.8	70.4	74.9	70.0	69.6
	B	16.8	12.9	16.0	21.5	18.5	22.5	22.1	21.6	27.3	26.1	21.7	17.6
2010	A	76.7	49.9	64.0	68.3	73.4	74.8	77.8	72.4	70.6	70.6	70.4	71.6
	B	23.6	11.2	13.9	18.7	17.6	24.0	21.4	18.8	19.4	25.6	23.2	17.7
2011	A	70.5	50.9	64.8	68.6	69.8	71.7	67.9	72.7	69.8	74.8	62.3	67.5
	B	18.7	9.8	11.0	13.2	12.9	15.9	20.2	13.0	20.0	14.5	20.0	11.4
2012	A	80.8	49.0	61.4	66.4	72.6	68.5	75.0	67.4	72.7	70.0	65.7	65.1
	B	8.3	10.2	10.3	11.3	12.2	12.7	23.3	11.3	17.5	13.7	16.0	11.0
2013	A	64.7	43.5	51.5	54.8	56.6	56.5	45.8	60.8	63.6	63.5	55.3	53.9
	B	.	16.1	26.7	.	55.6	33.3	.	25.0	100.0	.	37.5	20.0
2014	A	60.8	40.1	47.6	53.8	49.1	52.3	57.1	55.2	65.1	58.8	51.4	50.3
	B	100.0	20.0	20.0	.	14.3	22.2	.	28.6	50.0	37.5	25.0	15.6

Table 10 shows the return rate of Type A and Type B children in 2016 for each birth cohort across occupation of father. The pattern of return rate in 2016 is quite similar to that of mother's. Nonetheless, based on more detailed figures in Table 27 in Appendix B, one may note that the variation is less significant across occupation of father.

<sup>5</sup>Keys for occupations: 1=Armed forces & Other occupation; 2=Managers & Administrators; 3=Professionals; 4=Associate professionals; 5=Clerks; 6=Service & Shop sales workers; 7=Skilled agricultural & Fishery workers; 8=Craft & Related workers; 9=Plant & Machine operators & Assemblers; 10=Elementary occupation; EI=Economically inactive and X=Unknown

## 6.4 Return Rate Prediction

We adopt a Markov Chain model to predict the return rate. In this subsection we briefly introduce the methodology and provide the results based on such model. Let  $Y_n \in \{0, 1\}, n = 0, 1, \dots$  be the “returned” status of a child at age  $n$ , where 0 stands for “not returned” and 1 stands for “returned”. We assume that the status of a child at age  $n + 1$  only depends on her/his status at age  $n$  (i.e. probability of changing the status for a child only depends on her/his previous year’s status);  $\Pr(Y_{n+1} = y_{n+1} | Y_0 = y_0, \dots, Y_n = y_n) = \Pr(Y_{n+1} = y_{n+1} | Y_n = y_n)$ , where  $y_j \in 0, 1, j = 0, \dots, n + 1$ , see Ching and Ng (2006).  $\Pr(Y_{n+1} = 0 | Y_n = 0)$ ,  $\Pr(Y_{n+1} = 0 | Y_n = 1)$ ,  $\Pr(Y_{n+1} = 1 | Y_n = 0)$  and  $\Pr(Y_{n+1} = 1 | Y_n = 1)$  respectively indicate the probability that a child will not return at age  $n + 1$  given she/he does not return at age  $n$ , the probability that a child will not return at age  $n + 1$  given she/he returns at age  $n$ , the probability that a child will return at age  $n + 1$  given she/he does not return at age  $n$ , and the probability that a child will return at age  $n + 1$  given she/he returns at age  $n$ . Under this assumption, we have a homogeneous two-state discrete Markov Chain with the following transition matrix for a child  $i$

$$\begin{matrix} & Y_{i,t} = 0 & Y_{i,t} = 1 \\ \begin{matrix} Y_{i,t-1} = 0 \\ Y_{i,t-1} = 1 \end{matrix} & \begin{pmatrix} \theta_1 & 1 - \theta_1 \\ 1 - \theta_2 & \theta_2 \end{pmatrix} \end{matrix}$$

where  $\theta_1$  is the probability that a child will not return given she/he does not return in the previous year, and  $\theta_2$  is the probability that a case will return given she/he returns in the previous year. To simplify the model, we assume that both  $\theta_1$  and  $\theta_2$  linearly depend on birth cohort. Thus the transition matrix has a form of

$$\begin{pmatrix} \theta_1^j & 1 - \theta_1^j \\ 1 - \theta_2^j & \theta_2^j \end{pmatrix}$$

where  $j$  indicates the birth cohort. We estimate  $\theta_1^j$  and  $\theta_2^j$  on the basis of the return pattern of cases in the database, see Anderson and Goodman (1957) and Craig and Sendi (2002).

We use the estimated transition matrix to predict the return rate of children. Table 11 shows the predicted proportions of returned children for years 2016 – 2030. Table 12 shows the predicted numbers of children that will return to Hong Kong during 2016 – 2030. The predicted return rates computed based on the 2014 data are similar to this result (see Appendix, Table 32) with a difference less than 5% for most of the birth cohorts. For the cohort 2004/Type B the difference of the two predictions is 10% and for the birth cohort 2011-2012/Type A the difference is about 6%. The large difference in the 2004 cohort is probably due to a combined effect of the small size of these children and the fact that these children entered the school age of secondary school in the past two years. For Type A children born in 2011-2012, the change may be caused by the increasing prevalence of cross-border students whose fathers are Hong Kong residents.

Figure 4 and Figure 5 depict the predicted return rate by birth cohort. For Type A children, the figure clearly shows that the return rate decreased with more recent birth cohorts. 77.8% (born in 2004) to 58.1% (born in 2014) of Type A children will return to Hong Kong in 2030. For Type B children, the predicted return rates are much less than those of Type A for all birth cohorts, ranging from 20.2%

(born in 2012) to 29.4% (born in 2004) in the year 2030.

Figure 4: The predicted return rate of Type A children by birth cohort.

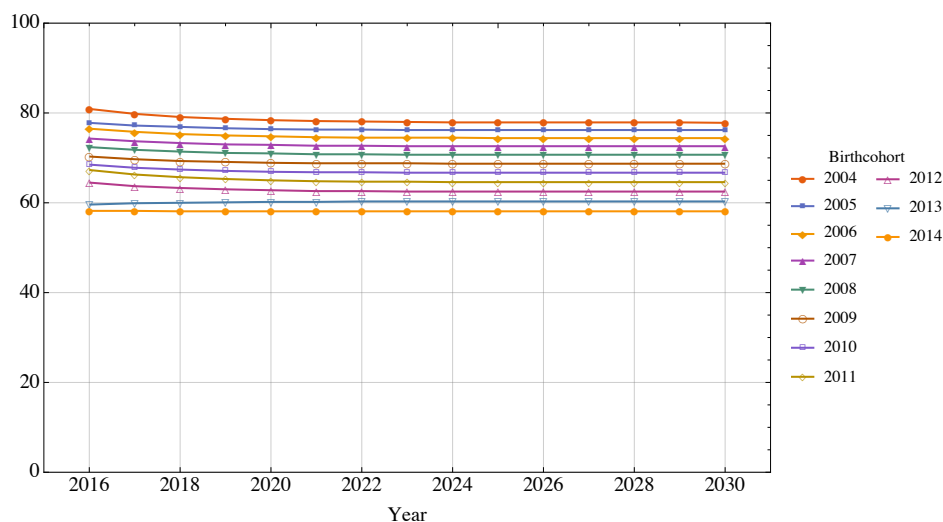
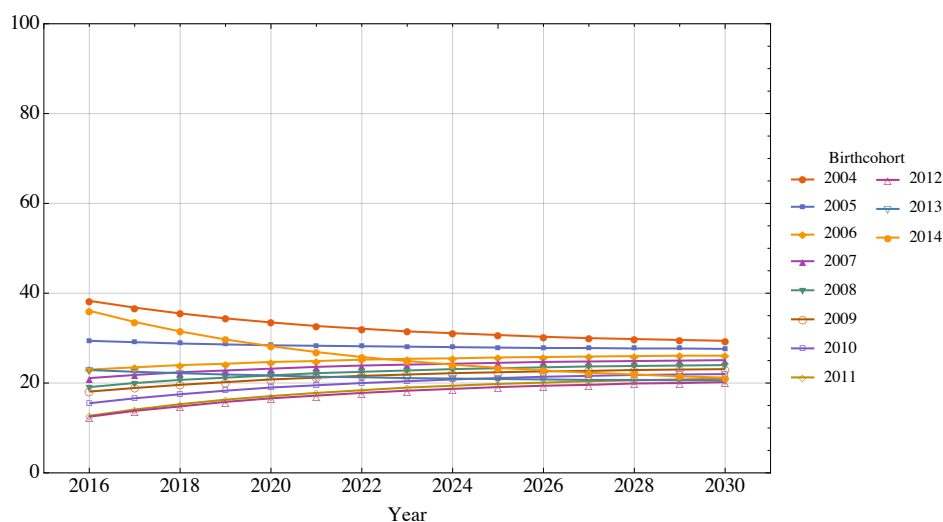


Figure 5: The predicted return rate of Type B children by birth cohort.



A longer-period prediction to the year 2064 is given in Appendix, Table 28. In Hong Kong population projections 2015-2064 published by C&SD (2015), it was assumed that all Type I Babies and around 30% of Type II Babies would settle in Hong Kong before age 21. By using the actual movement records across border of Type A and Type B children to estimate non-cumulative return rates, this study finds that these assumptions lead to an overestimation of the settlement of these children. It may be true that 90% to almost 100% of Type A children will “return” to Hong Kong before some specific ages (as shown by cumulative return rates in the previous study), but they do not necessarily settle in Hong Kong (i.e. leave later). As shown by non-cumulative return rate, it is predicted that only 77.8% Type A children born in 2004 will “return” to and settle in Hong Kong at age 21 (i.e. year 2025). The

corresponding figure for Type B children is 30.7%, which is similar to C&SD estimation. However, the predicted return rate generally decreases with increasing birth cohort. For example, for the birth cohort 2012, the predicted return rates drop to 62.5% for Type A and 20.5% for Type B children at the age of 21 (i.e. year 2033). Among the 65,753 Type A and 195,042 Type B children born between the birth cohorts 2004 and 2014, under assumptions used by C&SD there will be around 124,000 children settling in Hong Kong before age 21. Under the predicted return rates in this study, the corresponding number is only about 89,000.

Table 11: The predicted return rate for 2016-2030.

Year	Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
2004	A	80.9	79.8	79.1	78.7	78.4	78.2	78.1	78.0	77.9	77.9	77.9	77.9	77.9	77.9	77.8
	B	38.3	36.8	35.5	34.4	33.5	32.7	32.1	31.5	31.1	30.7	30.3	30.0	29.8	29.6	29.4
2005	A	77.8	77.2	76.9	76.6	76.4	76.3	76.3	76.2	76.2	76.2	76.2	76.2	76.2	76.2	76.2
	B	29.4	29.1	28.8	28.6	28.4	28.3	28.2	28.1	28.0	27.9	27.8	27.8	27.7	27.7	27.6
2006	A	76.5	75.8	75.3	75.0	74.8	74.6	74.5	74.5	74.5	74.4	74.4	74.4	74.4	74.4	74.4
	B	23.0	23.5	24.0	24.3	24.7	24.9	25.2	25.4	25.5	25.7	25.8	25.9	26.0	26.1	26.1
2007	A	74.3	73.7	73.3	73.0	72.9	72.7	72.7	72.6	72.6	72.6	72.6	72.6	72.6	72.6	72.6
	B	21.1	21.8	22.4	22.8	23.2	23.6	23.9	24.1	24.3	24.5	24.7	24.8	24.9	25.0	25.1
2008	A	72.4	71.8	71.4	71.1	71.0	70.8	70.8	70.7	70.7	70.7	70.7	70.7	70.7	70.7	70.7
	B	19.1	20.0	20.7	21.2	21.7	22.2	22.5	22.8	23.1	23.3	23.5	23.7	23.8	23.9	24.0
2009	A	70.3	69.7	69.3	69.1	68.9	68.8	68.8	68.8	68.7	68.7	68.7	68.7	68.7	68.7	68.7
	B	18.1	18.9	19.6	20.2	20.8	21.2	21.6	21.9	22.2	22.4	22.6	22.7	22.9	23.0	23.1
2010	A	68.5	67.8	67.4	67.1	66.9	66.8	66.8	66.7	66.7	66.7	66.7	66.7	66.7	66.7	66.7
	B	15.5	16.6	17.5	18.3	19.0	19.5	20.0	20.4	20.8	21.1	21.4	21.6	21.8	21.9	22.0
2011	A	67.3	66.3	65.7	65.3	65.0	64.8	64.7	64.7	64.6	64.6	64.6	64.6	64.6	64.6	64.6
	B	12.7	14.1	15.3	16.3	17.1	17.8	18.4	19.0	19.4	19.8	20.1	20.4	20.6	20.8	21.0
2012	A	64.5	63.7	63.3	63.0	62.8	62.6	62.6	62.5	62.5	62.5	62.5	62.5	62.5	62.5	62.5
	B	12.5	13.8	14.8	15.8	16.6	17.2	17.8	18.3	18.7	19.1	19.4	19.6	19.9	20.0	20.2
2013	A	59.6	59.9	60.0	60.1	60.2	60.2	60.3	60.3	60.3	60.3	60.3	60.3	60.3	60.3	60.3
	B	22.9	22.5	22.2	21.9	21.7	21.4	21.3	21.1	21.0	20.9	20.8	20.7	20.7	20.6	20.6
2014	A	58.2	58.2	58.1	58.1	58.1	58.1	58.1	58.1	58.1	58.1	58.1	58.1	58.1	58.1	58.1
	B	36.1	33.6	31.5	29.7	28.2	26.9	25.8	24.9	24.1	23.4	22.8	22.3	21.9	21.5	21.2



Table 12: The predicted number of children that will return for 2016-2030.

Year	Type	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
2004	A	1,214	1,198	1,187	1,181	1,176	1,173	1,172	1,170	1,170	1,169	1,169	1,169	1,169	1,169	1,168
	B	297	286	276	268	260	254	249	245	241	238	236	233	232	230	229
2005	A	2,189	2,172	2,161	2,154	2,150	2,147	2,145	2,144	2,143	2,142	2,142	2,142	2,142	2,142	2,142
	B	790	782	775	770	765	761	758	755	752	750	748	747	746	745	744
2006	A	7,439	7,365	7,318	7,288	7,269	7,256	7,248	7,243	7,240	7,238	7,236	7,235	7,235	7,234	7,234
	B	3,794	3,882	3,956	4,019	4,073	4,118	4,157	4,189	4,217	4,241	4,261	4,278	4,292	4,305	4,315
2007	A	5,989	5,939	5,907	5,887	5,873	5,865	5,860	5,856	5,854	5,853	5,852	5,851	5,851	5,851	5,850
	B	4,051	4,178	4,286	4,378	4,456	4,522	4,578	4,626	4,667	4,701	4,731	4,755	4,777	4,794	4,810
2008	A	5,437	5,389	5,358	5,338	5,326	5,318	5,313	5,309	5,307	5,306	5,305	5,305	5,304	5,304	5,304
	B	4,944	5,157	5,337	5,490	5,620	5,731	5,825	5,904	5,972	6,030	6,079	6,121	6,156	6,186	6,212
2009	A	4,497	4,460	4,437	4,422	4,412	4,406	4,403	4,400	4,399	4,398	4,397	4,397	4,396	4,396	4,396
	B	5,510	5,766	5,983	6,168	6,325	6,459	6,573	6,669	6,751	6,821	6,880	6,931	6,974	7,010	7,041
2010	A	4,522	4,478	4,450	4,433	4,422	4,415	4,410	4,408	4,406	4,405	4,404	4,403	4,403	4,403	4,403
	B	5,247	5,617	5,932	6,200	6,428	6,622	6,786	6,926	7,046	7,147	7,233	7,306	7,369	7,422	7,467
2011	A	4,321	4,256	4,215	4,189	4,173	4,163	4,157	4,153	4,150	4,149	4,148	4,147	4,147	4,146	4,146
	B	4,620	5,121	5,547	5,910	6,218	6,481	6,704	6,894	7,056	7,193	7,310	7,410	7,494	7,566	7,627
2012	A	3,266	3,227	3,202	3,187	3,177	3,171	3,168	3,165	3,164	3,163	3,162	3,162	3,162	3,162	3,162
	B	3,371	3,719	4,015	4,268	4,482	4,665	4,820	4,952	5,065	5,160	5,242	5,311	5,370	5,420	5,463
2013	A	2,970	2,983	2,991	2,996	2,999	3,000	3,002	3,002	3,003	3,003	3,003	3,003	3,003	3,003	3,003
	B	45	44	44	43	43	42	42	42	41	41	41	41	41	41	40
2014	A	3,310	3,309	3,308	3,307	3,307	3,307	3,307	3,307	3,306	3,306	3,306	3,306	3,306	3,306	3,306
	B	51	47	44	42	40	38	36	35	34	33	32	31	31	30	30
<b>All</b>		77,874	79,373	80,730	81,935	82,993	83,914	84,710	85,395	85,984	86,487	86,918	87,285	87,599	87,866	88,093

## 7 Family Backgrounds

This section provides the family backgrounds of Type A and Type B children in terms of parents' education levels and occupations. We focus on children born between 2004 and 2014.

### 7.1 Parents' Education Level

Table 13 and Table 14 show the number of Type A and Type B children by mother's and father's education level in each birth cohort, respectively. The number of parents achieving secondary or matriculation education were higher than other education levels. For Type A children, the distribution of parents' education mainly concentrated on secondary or matriculation, and the number was consistently the highest across birth years. We found an increasing trend among parents of both Type A and Type B children holding a tertiary degree, and this increase was more prominent for parents of Type B children starting from 2007. Among Type B children, there was also a decrease in proportion of parents who achieved secondary education or lower. There is also an increasing proportion in children with unknown information on parents' education since 2010. When compared with the previous study, current results are similar. For the newly included birth cohorts 2013 and 2014, the distribution among Type A children is more or less the same with the previous birth years. The distribution among Type B children may not be meaningful due to its small number.

Table 13: Education levels of mothers of Type A and Type B children (row %).

Birth year	Child type	Mother's education level <sup>4</sup>						Total number
		0	1	2	3	4	X	
2004	A	0.27	28.91	65.22	2.13	2.27	1.20	1501
	B	0.26	31.40	58.69	4.25	2.32	3.09	777
2005	A	0.14	22.94	73.40	1.81	1.56	0.14	2812
	B	0.45	22.68	70.26	3.27	3.12	0.22	2690
2006	A	0.20	20.86	74.37	2.37	2.14	0.07	9723
	B	0.32	19.66	71.27	4.75	3.98	0.01	16515
2007	A	0.41	14.98	73.05	4.71	4.96	1.89	8062
	B	0.28	12.46	65.15	10.24	9.79	2.08	19176
2008	A	0.29	13.58	67.38	9.48	7.26	2.00	7489
	B	0.17	7.04	52.19	19.75	19.39	1.46	25742
2009	A	0.20	9.74	68.93	11.76	7.55	1.81	6395
	B	0.13	4.41	44.96	25.06	24.67	0.77	30453
2010	A	0.17	7.60	63.63	13.80	11.10	3.70	6601
	B	0.07	2.85	35.53	28.15	30.85	2.55	33849

*Continued on next page*

<sup>4</sup>Keys for education levels: 0=No schooling / Kindergarten; 1=Primary; 2=Secondary / Matriculation; 3=Tertiary(non-degree); 4=Tertiary(degree); X=Unknown

Table 13: Continued from previous page

Birth year	Child type	Mother's education level <sup>4</sup>						Total number
		0	1	2	3	4	X	
2011	A	0.08	6.89	59.72	15.08	11.16	7.07	6417
	B	0.10	2.16	32.01	24.56	33.65	7.51	36325
2012	A	0.06	3.83	53.93	14.21	14.31	13.66	5060
	B	0.06	0.56	33.42	19.53	35.78	10.66	27037
2013	A	0.21	4.32	60.79	12.02	11.00	11.67	4792
	B	0.00	2.67	40.11	13.90	21.39	21.93	187
2014	A	0.12	5.17	61.46	10.11	11.69	11.45	5687
	B	0.00	1.42	41.13	17.73	17.02	22.70	141

Table 14: Education levels of fathers of Type A and Type B children (row %).

Birth year	Child type	Father's education level <sup>4</sup>						Total number
		0	1	2	3	4	X	
2004	A	0.60	16.99	73.75	3.06	4.33	1.27	1501
	B	0.13	23.94	60.36	4.12	3.09	8.37	777
2005	A	0.39	13.66	78.52	2.99	4.16	0.28	2812
	B	0.19	17.36	69.26	3.64	4.46	5.09	2690
2006	A	0.27	11.53	79.46	3.05	5.46	0.23	9723
	B	0.19	15.21	69.47	5.16	6.04	3.92	16515
2007	A	0.32	9.20	74.87	4.35	9.43	1.82	8062
	B	0.17	9.25	61.35	9.81	13.20	6.21	19177
2008	A	0.15	7.20	68.96	8.81	13.00	1.88	7484
	B	0.14	4.79	50.31	17.85	24.40	2.51	24910
2009	A	0.20	5.65	68.55	9.93	14.03	1.64	6387
	B	0.13	2.75	43.63	22.82	29.97	0.70	28929
2010	A	0.18	3.74	61.15	14.24	16.95	3.73	6600
	B	0.06	1.19	32.39	27.23	36.39	2.76	31940
2011	A	0.20	2.90	59.35	12.89	17.45	7.20	6414
	B	0.11	0.96	29.92	21.74	39.04	8.22	34212
2012	A	0.06	1.68	49.83	14.16	21.38	12.89	5057
	B	0.05	0.43	30.77	17.71	40.28	10.77	25387
2013	A	0.06	2.05	58.62	12.06	15.88	11.33	4792
	B	0.00	2.26	42.94	10.73	23.16	20.90	177
2014	A	0.05	1.99	61.17	11.08	15.19	10.52	5687
	B	0.00	0.76	38.93	16.79	21.37	22.14	131

## 7.2 Parents' Occupations

Table 15 and Table 16 shows how distribution of occupations of mothers and fathers change over birth years. Current results are similar with the previous study. The number of the mothers of both Type A and Type B children who are economically inactive decreases, and the decrease is more prominent among Type B children. For Type B children, the decrease is accompanied with an increase mainly in mothers working in the grade of managers and administrators, while it happens in mothers working as managers and administrators and also clerks for Type A children. Comparing the two types of mothers, since 2009, mothers of Type A children are mainly economically inactive while those of Type B children are mainly managers and administrators.

The occupation level of mothers for both Type A and Type B children is usually lower than the occupation level of fathers. In contrast to the occupations of mothers, less than 10% of fathers of Type A children are economically inactive. This proportion also decreases over year among Type B children. For fathers of Type A children, they are usually service and shop sales workers (22.83%-26.95%) in the earlier years (2004-2008), but this shifts to managers and administrators (19.51%-24.03%) since 2009. The increase in proportion of managers and administrators also happens in fathers of Type B children and is more prominent, accompanied with a sharp decrease in proportion of economically inactive from 2004 to 2009. Comparing the fathers of the two types of children, a higher proportion of fathers of Type A children are working in service and shop sales, craft and related occupations, and elementary occupations than those of Type B children. Promotion in terms of level of occupation can be seen among both types of fathers as a natural phenomenon of economic development and title inflation in Hong Kong and China, but such changes have been more rapid among fathers of Type B children than among Type A.

For the newly included birth cohorts 2013 and 2014, the profile among Type A children does not alter much, with a slight decrease in proportion of higher-rank occupations of parents. The distribution for Type B children may not be meaningful due to its small number.

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<sup>5</sup>Keys for occupations: 1=Armed forces & Other occupation; 2=Managers & Administrators; 3=Professionals; 4=Associate professionals; 5=Clerks; 6=Service & Shop sales workers; 7=Skilled agricultural & Fishery workers; 8=Craft & Related workers; 9=Plant & Machine operators & Assemblers; 10=Elementary occupation; EI=Economically inactive and X=Unknown

Table 15: Occupation of mothers of Type A and Type B children (row %).

Birth year	Child type	Mother's occupation <sup>5</sup>										Total number					
		1	2	3	4	5	6	7	8	9	10		EI	X			
2004	A	0.00	1.27	0.73	0.60	1.93	1.00	0.40	0.13	0.07	0.07	0.07	0.07	0.07	92.87	0.93	1501
	B	0.13	3.09	0.64	1.42	3.60	2.45	0.00	0.39	0.39	0.00	0.39	0.00	0.00	85.07	2.83	777
2005	A	0.04	0.60	0.21	0.57	1.60	1.96	0.07	0.04	0.04	0.18	0.82	0.18	0.82	94.38	0.32	2812
	B	0.04	3.98	0.45	1.26	3.98	4.98	0.33	0.22	0.11	0.08	0.28	0.11	0.08	83.53	0.30	2690
2006	A	0.01	0.75	0.61	0.85	1.96	2.92	0.11	0.05	0.08	0.28	0.11	0.05	0.08	91.54	0.83	9723
	B	0.02	5.65	1.01	1.49	4.52	6.52	0.40	0.11	0.20	1.34	0.20	0.11	0.20	78.22	0.53	16515
2007	A	0.01	1.89	0.83	1.23	3.20	2.72	0.04	0.15	0.06	0.77	0.06	0.06	0.77	85.66	3.45	8062
	B	0.02	10.84	1.55	2.75	8.31	4.72	0.35	0.22	0.07	1.63	0.07	0.07	1.63	66.13	3.40	19175
2008	A	0.11	4.13	2.66	1.59	7.84	6.09	0.33	1.21	0.01	1.27	0.01	1.27	70.89	3.87	7490	
	B	0.15	22.85	6.86	3.40	11.86	4.68	0.87	1.48	0.09	1.96	0.09	1.96	43.21	2.58	25753	
2009	A	0.28	5.77	3.99	1.31	9.33	6.83	0.31	1.42	0.02	1.66	0.02	1.66	66.40	2.67	6396	
	B	0.22	33.59	10.15	3.35	12.05	3.59	0.87	1.65	0.05	1.11	0.05	1.11	32.09	1.29	30457	
2010	A	0.27	8.62	5.47	1.51	10.16	7.31	0.15	1.74	0.08	2.12	0.08	2.12	55.74	6.83	6604	
	B	0.18	40.51	12.73	1.63	11.73	3.10	0.63	1.27	0.06	0.89	0.06	0.89	23.77	3.48	33861	
2011	A	0.36	7.60	4.86	0.92	10.92	6.87	0.16	1.64	0.08	2.03	0.08	2.03	53.02	11.55	6417	
	B	0.15	37.95	13.22	1.16	10.90	2.97	0.40	1.02	0.05	0.75	0.05	0.75	22.77	8.66	36332	
2012	A	0.32	8.54	5.40	0.99	9.96	7.33	0.14	1.76	0.04	2.09	0.04	2.09	45.36	18.08	5060	
	B	0.17	35.65	12.74	0.93	9.17	4.85	0.18	1.68	0.03	1.08	0.03	1.08	21.12	12.40	27036	
2013	A	0.19	5.63	4.72	1.02	9.66	6.91	0.17	1.02	0.08	2.00	0.08	2.00	53.38	15.21	4792	
	B	0.00	19.25	5.88	0.53	3.74	11.23	0.00	1.07	0.00	1.60	0.00	1.60	32.62	24.06	187	
2014	A	0.40	5.77	4.40	0.91	9.62	7.88	0.04	1.11	0.04	1.42	0.04	1.42	50.19	18.23	5688	
	B	0.00	15.60	2.84	1.42	7.80	2.13	0.00	0.00	0.00	0.71	0.00	0.71	41.13	28.37	141	

Table 16: Occupation of fathers of Type A and Type B children (row %).

Birth year	Child type	Father's occupation <sup>5</sup>										Total number		
		1	2	3	4	5	6	7	8	9	10		EI	X
2004	A	0.33	6.46	1.80	2.93	6.80	23.45	6.13	17.72	9.99	14.72	8.59	1.07	1501
	B	0.13	14.67	2.06	1.93	6.56	11.71	4.38	9.27	3.22	9.27	28.44	8.37	777
2005	A	0.57	5.65	2.42	2.88	6.54	22.83	5.69	15.43	9.82	19.77	8.11	0.28	2812
	B	0.26	14.76	2.23	1.71	7.21	13.64	4.05	6.99	3.57	16.17	24.31	5.09	2690
2006	A	0.40	7.71	3.44	3.02	6.15	25.30	4.76	13.63	8.96	19.20	7.18	0.25	9723
	B	0.16	18.72	2.97	1.99	6.76	14.99	4.01	5.58	2.75	14.32	23.75	3.98	16515
2007	A	0.19	11.91	3.75	4.60	7.17	26.95	1.55	14.30	5.07	16.55	5.99	1.97	8062
	B	0.09	29.31	3.07	3.50	7.80	16.12	1.12	6.26	1.20	9.91	15.10	6.53	19176
2008	A	1.00	17.01	7.76	4.85	7.94	21.15	0.80	15.76	5.94	10.82	4.67	2.30	7489
	B	0.54	42.99	7.64	4.23	6.78	10.21	1.31	6.46	1.53	6.19	9.23	2.89	24917
2009	A	1.22	19.51	10.16	3.71	7.26	17.50	0.33	17.75	4.76	10.46	5.53	1.80	6387
	B	0.51	55.51	10.33	4.25	4.96	5.39	1.21	8.68	1.42	3.09	3.70	0.94	28939
2010	A	1.36	24.03	12.29	3.48	6.26	14.26	0.27	14.06	4.74	10.27	4.45	4.53	6601
	B	0.45	64.00	12.06	1.17	2.82	3.52	0.85	6.48	1.37	2.18	2.00	3.11	31947
2011	A	0.95	23.45	12.28	2.39	6.92	14.14	0.44	12.31	4.18	10.90	2.85	9.20	6415
	B	0.31	58.31	12.90	0.88	3.36	4.05	0.62	5.29	0.95	3.07	1.36	8.88	34212
2012	A	1.03	23.91	12.62	2.77	6.92	12.95	0.40	11.03	3.62	8.17	2.08	14.51	5057
	B	0.24	54.68	12.87	0.76	3.70	5.60	0.24	7.29	0.61	2.15	0.67	11.20	25390
2013	A	1.06	18.55	10.16	2.82	7.07	15.82	0.50	14.96	4.30	9.66	2.38	12.71	4792
	B	0.00	31.64	8.47	0.00	5.08	16.95	0.56	6.78	0.56	2.82	4.52	22.60	177
2014	A	0.90	16.35	10.50	1.86	6.19	16.39	0.25	16.32	3.08	10.28	3.08	14.82	5688
	B	0.76	34.35	7.63	3.05	5.34	6.87	0.00	5.34	3.05	6.11	3.05	24.43	131

## 8 Cross-border Students

### 8.1 Estimated Number of Cross-border Students

Similar to the 2014 data set, there is no variable in the updated data set to show if a case is a cross-border student or not, and thus it is not possible to provide an exact number of these cases. We used the available information to estimate the number of such cases. Cross-border students comprise of Type A and Type B babies as well as ex-Hong Kong residents living in Shenzhen. Noted that the current study does not include the latter.

We define cross-border students as the children who arrived in Hong Kong and departed from Hong Kong on the same day during school seasons. On average, for each year, there are  $S_0 = \{8, 0, 19, 21, 19, 13, 19, 15, 20, 14, 20, 20\}$  school days from July to June, respectively. If the pattern of a case was similar to  $S_0$  we assumed that she/he was a cross-border student. For each child we calculate the number of her/his same-day travelling to/from Hong Kong in each month between 2004 – 2016. Then we filter those cases which have more than 10 same-day travels to/from Hong Kong. For each year we calculate the number of the same-day travel for each of these cases and if this number is greater than 50 we define the child as a cross-border student.

Table 17: Estimated number of cross-border students.

Birth year	Child type	School year									
		06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16
2004	A	0	39	44	45	41	35	28	24	23	21
	B	2	9	13	27	32	36	38	42	36	38
2005	A	1	3	87	110	111	110	100	91	77	74
	B	0	0	46	97	136	181	205	206	209	205
2006	A	3	11	23	395	453	449	407	357	318	293
	B	6	3	8	456	744	950	1,356	1,466	1,490	1,470
2007	A	0	6	11	17	309	348	315	322	282	275
	B	0	3	7	21	834	1,262	1,546	1,971	1,987	1,947
2008	A	0	0	6	16	36	350	359	331	277	263
	B	0	0	1	6	29	1,528	2,167	2,442	2,795	2,784
2009	A	0	0	0	5	17	40	335	332	284	251
	B	0	0	0	7	10	30	2,050	2,615	2,734	2,977
2010	A	0	0	0	0	7	13	46	317	312	264
	B	0	0	0	0	6	15	69	2,917	3,313	3,319
2011	A	0	0	0	0	0	10	34	95	327	320
	B	0	0	0	0	0	6	21	144	3,326	3,681
2012	A	0	0	0	0	0	0	11	54	92	195

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Table 17: Continued from previous page

Birth year	Child type	School year									
		06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16
2013	B	0	0	0	0	0	0	11	28	134	2,414
	A	0	0	0	0	0	0	0	20	41	63
	B	0	0	0	0	0	0	0	0	1	2
2014	A	0	0	0	0	0	0	0	0	37	57
	B	0	0	0	0	0	0	0	0	2	2
2015	A	0	0	0	0	0	0	0	0	0	26
	B	0	0	0	0	0	0	0	0	0	1
<b>All</b>		<b>12</b>	<b>74</b>	<b>246</b>	<b>1,202</b>	<b>2,765</b>	<b>5,363</b>	<b>9,098</b>	<b>13,774</b>	<b>18,097</b>	<b>20,942</b>

Table 18: Distribution (% of total) of entrance checking point for cross-border students.

Birth year	Child type	Checking point					
		LokMaChau	LoWu	ManKamTo	ShaTauKok	ShenzhenBay	LMCSpurLine
2004	A	0.040	0.159	0.007	0.007	0.022	0.137
	B	.	0.065	0.004	0.004	0.072	0.083
2005	A	0.033	0.285	0.018	0.047	0.061	0.408
	B	0.022	0.329	0.058	0.047	0.296	0.307
2006	A	0.123	0.994	0.108	0.123	0.246	1.514
	B	0.105	1.818	0.441	0.217	2.396	2.183
2007	A	0.108	0.708	0.105	0.116	0.267	1.008
	B	0.246	1.861	0.622	0.300	3.325	3.032
2008	A	0.152	0.835	0.058	0.061	0.239	1.015
	B	0.510	2.259	0.763	0.419	4.922	4.315
2009	A	0.083	0.654	0.065	0.076	0.188	0.947
	B	0.491	2.353	0.694	0.481	4.994	4.705
2010	A	0.076	0.542	0.072	0.040	0.177	0.864
	B	0.336	2.501	0.481	0.419	5.330	5.323
2011	A	0.148	0.575	0.072	0.029	0.130	0.885
	B	0.611	2.410	0.665	0.477	5.276	5.319
2012	A	0.094	0.347	0.036	0.033	0.112	0.524
	B	0.340	1.380	0.502	0.340	3.357	3.281

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Table 18: Continued from previous page

Birth year	Child type	Checking point					
		LokMaChau	LoWu	ManKamTo	ShaTauKok	ShenzhenBay	LMCSpurLine
2013	A	0.018	0.188	0.004	0.007	0.043	0.275
	B	.	0.004	.	.	.	0.011
2014	A	0.004	0.116	0.004	0.007	0.022	0.228
	B	.	0.004	.	.	0.007	0.004
2015	A	0.004	0.036	0.007	0.004	0.011	0.116
	B	.	.	.	.	.	0.004
<b>All</b>		<b>3.541</b>	<b>20.425</b>	<b>4.785</b>	<b>3.252</b>	<b>31.494</b>	<b>36.495</b>

Table 17 shows the estimated number of cross-border students for each birth cohort from school years 2006-07 to 2015-16 and Table 18 gives the distribution of entrance checking point for these cross-border students. As the large number of Type B children born in the past decade entered the school ages, the number of cross-border students increased continuously in recent years. Based on our definition of cross-border students, it is estimated that there were around 21,000 such students in the school year 2015-16. The busiest checking point for cross-border students was Lok Ma Chau Spur Line (36.5%), followed by Shenzhen Bay (31.5%).

## 8.2 Prediction of Number of Cross-border Students

The Markov Chain model is used to predict the number of cross-border students in the coming years. Table 19 shows the predicted number of cross-border students for birth cohorts between 2004 and 2012 in the next nine school years. Please note that the prediction stops at age 12-13 for each birth cohort (e.g. birth cohort 2005 to school year 2017-19) due to availability of data.

*Table 19: The predicted number of cross-border students by the Markov Chain model.*

Birth year	Child type	School year								
		16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25
2004	A	27								
	B	38								
2005	A	83	88							
	B	202	200							
2006	A	328	350	364						
	B	1446	1429	1417						
2007	A	288	295	299	302					
	B	1934	1924	1918	1914					
2008	A	294	311	319	324	326				
	B	2785	2785	2786	2786	2786				
2009	A	274	285	290	292	294	294			
	B	2985	2990	2992	2994	2995	2995			
2010	A	268	270	270	271	271	271	271		
	B	3274	3252	3240	3234	3231	3229	3228		
2011	A	302	296	294	293	293	293	293	293	
	B	3518	3444	3410	3395	3388	3385	3383	3383	
2012	A	190	188	188	188	188	188	188	188	188
	B	2250	2186	2161	2151	2148	2146	2145	2145	2145

## 8.3 Parents' Education Level and Occupation Distribution

Most of the Type A cross-border students come from a family that the education level of their parents is secondary or matriculation. Type B cross-border students are usually from a family in which the parents have higher education level compared to Type A cross-border students. Tables 20 and 21 summarize the parents' education level for cross-border students. The distribution among cross-border students generally duplicates the distribution among all children (Table 13 and Table 14). This indicates that parents' education levels do not affect whether a child becomes a cross-border student. The only exception is found in Type A children born since 2013 whose parents achieve secondary or matriculation education. These children are more likely to be cross-border students, but the number is small (N=146).

Tables 22 and 23 summarize the distribution of parents' occupation of cross-border students. Type

B cross-border students usually come from a family that the education level of mothers is higher compared to the Type A counterparts. The occupation of fathers is mostly in the category of managers or administrators. Again, the distribution generally duplicates that among all children (Table 15 and Table 16).

**Table 20:** *Mother's education level of cross-border students.*

Birth year	Child type	Mother's education level <sup>4</sup>					
		0	1	2	3	4	X
2004	A	.	30.10	67.96	.	0.97	0.97
	B	.	30.16	60.32	4.76	1.59	3.17
2005	A	0.42	27.97	67.37	2.12	2.12	.
	B	.	17.41	75.09	4.10	3.41	.
2006	A	.	19.30	76.63	2.09	1.86	0.12
	B	0.05	16.71	72.39	5.86	5.00	.
2007	A	.	13.28	77.34	4.06	3.91	1.41
	B	0.19	10.78	65.50	11.78	9.59	2.16
2008	A	0.15	12.86	71.36	9.49	4.90	1.23
	B	0.08	6.76	50.76	20.75	20.14	1.46
2009	A	0.18	8.62	70.38	11.85	7.18	1.80
	B	0.08	3.64	42.98	25.32	27.56	0.42
2010	A	0.61	6.33	67.14	13.27	10.00	2.45
	B	0.05	2.01	34.07	29.60	32.31	1.91
2011	A	0.20	7.27	61.49	16.11	9.23	5.70
	B	0.05	1.47	33.43	25.69	33.36	5.95
2012	A	.	3.47	60.25	14.20	11.99	10.09
	B	.	0.43	35.00	21.37	35.15	8.05
2013	A	0.69	2.76	79.31	5.52	6.90	4.83
	B	.	.	50.00	25.00	.	25.00
2014	A	0.95	6.67	78.10	4.76	3.81	5.71
	B	.	.	75.00	.	25.00	.
2015	A	.	8.16	65.31	14.29	6.12	6.12
	B	.	.	.	.	.	100.00

<sup>4</sup>Keys for education levels: 0=No schooling / Kindergarten; 1=Primary; 2=Secondary / Matriculation; 3=Tertiary(non-degree); 4=Tertiary(degree); X=Unknown

Table 21: Father's education level of cross-border students.

Birth year	Child type	Father's education level <sup>4</sup>					
		0	1	2	3	4	X
2004	A	.	10.68	82.52	2.91	2.91	0.97
	B	.	14.29	66.67	6.35	1.59	11.11
2005	A	.	14.41	75.00	4.66	5.93	.
	B	0.34	13.65	71.67	5.12	4.44	4.78
2006	A	.	10.00	80.00	4.53	5.12	0.35
	B	.	12.17	69.51	6.51	7.77	4.04
2007	A	.	9.53	75.16	5.31	8.28	1.72
	B	0.12	6.74	58.41	11.51	16.13	7.09
2008	A	.	7.81	65.85	9.34	15.62	1.38
	B	0.06	4.67	45.87	18.73	28.06	2.53
2009	A	.	6.67	65.77	10.45	15.50	1.62
	B	0.14	2.09	38.18	22.68	36.36	0.55
2010	A	0.41	5.31	58.37	13.27	18.98	3.67
	B	.	0.90	27.84	28.37	40.76	2.10
2011	A	.	3.15	60.63	13.39	16.93	5.91
	B	0.15	0.62	28.36	22.02	42.25	6.59
2012	A	.	2.84	52.05	16.09	20.19	8.83
	B	0.04	0.21	30.90	16.87	44.06	7.92
2013	A	.	1.38	68.28	15.86	9.66	4.83
	B	.	.	50.00	.	25.00	25.00
2014	A	.	3.81	70.48	8.57	11.43	5.71
	B	.	.	50.00	.	50.00	.
2015	A	.	2.04	67.35	10.20	14.29	6.12
	B	.	.	.	.	.	100.00

Table 22: Mother's occupation of cross-border students.

Birth year	Child type	Mother's occupation <sup>5</sup>											
		1	2	3	4	5	6	7	8	9	10	EI	X
2004	A	.	0.97	.	.	2.91	.	0.97	.	.	0.97	93.20	0.97
	B	.	.	.	1.59	1.59	1.59	.	.	.	.	92.06	3.17
2005	A	.	0.85	0.42	1.69	1.27	3.39	.	.	.	.	91.53	0.85
	B	.	6.14	0.34	1.37	4.44	2.73	.	0.34	.	0.68	83.96	.
2006	A	.	0.47	0.23	0.81	2.33	3.37	.	.	.	0.35	91.74	0.70
	B	.	6.92	0.66	2.12	4.80	7.12	0.15	0.15	0.10	1.46	76.07	0.45
2007	A	.	2.19	0.63	1.25	5.00	2.81	.	.	.	0.78	84.22	3.13
	B	.	10.40	1.69	3.47	8.24	4.70	0.15	0.15	0.08	1.35	66.69	3.08
2008	A	.	3.98	3.52	2.14	9.19	5.51	0.15	1.53	0.15	1.23	69.37	3.22
	B	0.14	19.32	7.61	4.53	12.06	4.51	0.27	0.69	.	1.70	46.66	2.50
2009	A	0.36	7.90	3.41	1.97	12.39	8.26	.	1.26	.	1.97	61.22	1.26
	B	0.21	30.38	13.23	4.72	11.62	3.40	0.32	0.97	0.03	0.76	33.44	0.92
2010	A	0.41	12.24	5.71	1.43	11.22	7.35	.	1.84	0.20	3.27	51.02	5.31
	B	0.18	35.48	15.63	2.11	12.14	3.47	0.28	0.65	0.05	0.70	26.98	2.34
2011	A	0.20	11.79	4.32	1.38	12.97	9.23	.	1.38	.	2.16	47.94	8.64
	B	0.07	32.21	16.02	1.47	10.97	3.36	0.10	0.76	0.02	0.78	27.33	6.91
2012	A	0.63	7.57	5.05	0.95	12.30	10.09	0.32	0.95	0.32	1.89	48.26	11.67
	B	0.08	28.00	17.05	1.34	10.09	5.38	0.08	2.04	0.04	1.34	24.63	9.94
2013	A	0.69	4.14	3.45	.	5.52	11.03	.	.	0.69	1.38	64.14	8.97
	B	.	25.00	.	.	.	25.00	.	.	.	.	25.00	25.00
2014	A	0.95	2.86	0.95	.	8.57	7.62	.	.	.	0.95	68.57	9.52
	B	.	.	.	.	25.00	50.00	.	.	.	.	25.00	.
2015	A	.	.	10.20	.	10.20	6.12	.	.	.	4.08	51.02	18.37
	B	.	.	.	.	.	.	.	.	.	.	.	100.00
2016	A	.	.	.	.	.	50.00	.	.	.	.	50.00	.
	B	.	.	.	.	.	.	.	.	.	.	100.00	.

Table 23: Father's occupation of cross-border students.

Birth year	Child type	Father's occupation <sup>5</sup>											
		1	2	3	4	5	6	7	8	9	10	EI	X
2004	A	0.97	10.68	1.94	5.83	6.80	22.33	7.77	11.65	10.68	14.56	5.83	0.97
	B	.	15.87	.	3.17	7.94	14.29	3.17	7.94	3.17	7.94	25.40	11.11
2005	A	.	10.17	3.81	2.12	5.51	22.03	2.97	14.41	10.59	20.76	7.63	.
	B	.	17.06	1.37	2.73	8.87	12.63	2.73	6.14	2.73	18.43	22.53	4.78
2006	A	0.35	11.63	3.72	3.26	6.40	24.07	2.79	13.95	10.47	18.37	4.88	0.12
	B	0.10	20.95	2.37	2.68	7.67	15.14	3.08	5.65	2.47	15.30	20.55	4.04
2007	A	0.16	13.75	5.31	6.09	7.97	24.22	0.78	11.56	5.94	17.50	5.00	1.72
	B	0.15	27.92	4.08	4.58	9.09	15.25	0.42	6.31	1.19	9.78	13.82	7.39
2008	A	0.77	21.44	9.04	4.59	6.28	20.67	0.15	12.86	7.35	11.33	3.68	1.84
	B	0.54	39.14	9.62	5.27	8.08	10.56	0.48	5.69	1.02	6.52	10.28	2.79
2009	A	0.36	26.13	9.55	4.68	6.49	15.68	0.18	14.77	5.23	9.73	6.13	1.08
	B	0.63	51.52	14.20	5.98	6.23	5.40	0.52	7.41	0.74	3.25	3.42	0.69
2010	A	0.61	29.80	11.63	3.88	6.12	10.41	0.41	14.69	4.69	8.78	5.71	3.27
	B	0.24	60.56	16.93	1.33	3.00	3.98	0.42	5.89	0.88	2.39	2.23	2.15
2011	A	1.38	29.53	11.22	2.56	6.10	12.99	0.20	12.80	5.51	8.66	2.36	6.69
	B	0.26	53.92	18.62	1.06	3.37	4.84	0.23	5.13	0.75	3.12	1.57	7.14
2012	A	0.95	25.55	15.46	2.52	6.94	10.41	.	11.67	4.10	7.26	4.10	11.04
	B	0.17	46.86	21.29	0.91	5.20	6.35	0.21	7.30	0.70	2.10	0.74	8.17
2013	A	.	19.31	7.59	4.14	4.14	20.00	.	21.38	6.21	8.28	2.07	6.90
	B	.	50.00	.	.	.	25.00	.	.	.	.	.	25.00
2014	A	1.90	11.43	5.71	3.81	3.81	26.67	.	18.10	1.90	18.10	0.95	7.62
	B	.	25.00	25.00	50.00	.	.	.	25.00	.	.	.	.
2015	A	.	12.24	10.20	4.08	8.16	12.24	.	24.49	4.08	8.16	2.04	14.29
	B	.	.	.	.	.	.	.	.	.	.	.	100.00
2016	A	.	50.00	.	.	.	50.00	.	.	.	.	.	.
	B	.	.	.	.	.	100.00	.	.	.	.	.	.

<sup>5</sup>Keys for occupations: 1=Armed forces & Other occupation; 2=Managers & Administrators; 3=Professionals; 4=Associate professionals; 5=Clerks; 6=Service & Shop sales workers; 7=Skilled agricultural & Fishery workers; 8=Craft & Related workers; 9=Plant & Machine operators & Assemblers; 10=Elementary occupation; EI=Economically inactive and X=Unknown

# Appendices

## A Tables of Return Rate by Parents' Education Level

Table 24: Return rate by mother's education per birth cohort.

Birth year	Child type	Year of movement	Mother's education level <sup>4</sup>					
			0	1	2	3	4	X
2004	A	2005	75.0	69.6	65.9	53.1	47.1	72.2
		2006	75.0	68.0	63.0	43.8	47.1	61.1
		2007	75.0	75.3	69.2	56.3	50.0	72.2
		2008	100.0	78.1	74.4	43.8	58.8	77.8
		2009	100.0	78.1	73.5	50.0	58.8	61.1
		2010	100.0	80.2	76.0	53.1	58.8	61.1
		2011	100.0	80.4	75.8	59.4	58.8	61.1
		2012	100.0	78.3	77.1	56.3	58.8	61.1
		2013	100.0	82.9	80.5	65.6	58.8	66.7
		2014	100.0	83.6	80.6	56.3	61.8	83.3
		2015	100.0	83.6	83.0	71.9	70.6	72.2
		2016	100.0	77.6	77.7	68.8	73.5	72.2
		Number of children	4	434	979	32	34	18
	B	2005	.	17.2	17.1	21.2	27.8	25.0
		2006	50.0	12.3	11.4	9.1	11.1	8.3
		2007	50.0	19.3	18.0	12.1	16.7	16.7
		2008	50.0	17.6	19.1	15.2	22.2	16.7
		2009	50.0	23.0	21.3	18.2	22.2	25.0
		2010	50.0	23.0	26.3	33.3	22.2	37.5
		2011	50.0	23.8	26.1	36.4	27.8	25.0
		2012	50.0	25.0	28.3	39.4	22.2	29.2
		2013	50.0	29.5	31.8	42.4	33.3	25.0
		2014	50.0	33.2	33.6	45.5	33.3	20.8
		2015	50.0	39.8	40.8	45.5	33.3	25.0
		2016	50.0	41.0	39.5	45.5	38.9	33.3
		Number of children	2	244	456	33	18	24
2005	A	2006	100.0	63.1	62.7	54.9	47.7	50.0
		2007	100.0	62.9	61.7	56.9	50.0	25.0
		2008	100.0	71.6	67.8	62.7	56.8	25.0

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<sup>4</sup>Keys for education levels: 0=No schooling / Kindergarten; 1=Primary; 2=Secondary / Matriculation; 3=Tertiary(non-degree); 4=Tertiary(degree); X=Unknown

A TABLES OF RETURN RATE BY PARENTS' EDUCATION LEVEL

Table 24: Continued from previous page

Birth year	Child type	Year of movement	Mother's education level <sup>4</sup>					
			0	1	2	3	4	X
		2009	100.0	71.5	71.9	66.7	50.0	25.0
		2010	50.0	71.6	72.0	70.6	56.8	25.0
		2011	75.0	71.2	73.1	64.7	63.6	25.0
		2012	75.0	73.0	73.8	72.5	59.1	25.0
		2013	75.0	76.7	74.3	78.4	61.4	25.0
		2014	75.0	75.2	74.9	80.4	63.6	25.0
		2015	100.0	80.3	78.7	74.5	68.2	25.0
		2016	100.0	77.8	75.6	74.5	63.6	25.0
		Number of children	4	645	2064	51	44	4
	B	2006	25.0	12.3	12.6	8.0	7.1	33.3
		2007	25.0	8.7	8.2	9.1	4.8	16.7
		2008	33.3	14.4	13.5	12.5	7.1	50.0
		2009	41.7	15.4	14.6	15.9	10.7	33.3
		2010	66.7	19.8	17.4	19.3	9.5	33.3
		2011	58.3	22.0	21.0	20.5	13.1	33.3
		2012	58.3	24.3	23.4	20.5	9.5	50.0
		2013	58.3	26.7	25.6	13.6	17.9	50.0
		2014	75.0	27.7	27.2	14.8	19.0	50.0
		2015	75.0	30.5	30.0	18.2	21.4	50.0
		2016	66.7	31.1	30.4	25.0	22.6	50.0
		Number of children	12	610	1890	88	84	6
2006	A	2007	63.2	60.8	59.7	43.5	41.3	100.0
		2008	78.9	62.8	61.1	44.8	41.8	71.4
		2009	78.9	70.1	67.3	55.2	51.4	57.1
		2010	78.9	71.9	69.5	60.0	50.0	85.7
		2011	78.9	73.3	70.7	57.4	56.3	57.1
		2012	78.9	73.8	72.2	60.9	63.9	85.7
		2013	84.2	76.9	74.4	66.5	60.1	85.7
		2014	78.9	77.1	74.2	69.6	60.1	57.1
		2015	94.7	80.2	77.5	74.3	63.5	57.1
		2016	94.7	76.1	74.4	66.5	57.7	85.7
		Number of children	19	2028	7231	230	208	7
	B	2007	11.3	5.8	5.8	4.6	3.0	.
		2008	11.3	5.6	6.6	4.5	3.6	50.0
		2009	15.1	9.7	10.1	6.4	6.4	50.0

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A TABLES OF RETURN RATE BY PARENTS' EDUCATION LEVEL

Table 24: Continued from previous page

Birth year	Child type	Year of movement	Mother's education level <sup>4</sup>					
			0	1	2	3	4	X
		2010	18.9	11.6	11.5	7.8	7.3	50.0
		2011	26.4	14.4	14.3	10.6	10.3	50.0
		2012	24.5	17.6	18.4	14.6	15.5	50.0
		2013	24.5	20.1	19.7	15.9	15.8	50.0
		2014	26.4	20.4	20.6	18.3	16.1	50.0
		2015	28.3	22.8	22.7	19.5	16.9	50.0
		2016	26.4	21.9	22.1	18.5	18.1	50.0
		Number of children	53	3247	11770	785	658	2
2007	A	2008	75.8	64.7	61.6	53.4	42.0	55.3
		2009	78.8	65.2	62.6	55.5	42.3	54.6
		2010	75.8	71.1	67.2	61.3	47.3	63.8
		2011	69.7	70.4	69.3	63.7	52.8	60.5
		2012	84.8	73.0	70.1	64.7	55.3	69.7
		2013	87.9	74.7	73.1	71.3	55.5	69.7
		2014	78.8	75.3	73.3	68.2	55.3	73.0
		2015	75.8	77.6	76.1	71.3	60.0	75.7
		2016	72.7	74.8	72.3	67.6	55.0	70.4
			Number of children	33	1208	5889	380	400
	B	2008	3.8	5.8	4.7	3.8	2.1	4.5
		2009	1.9	6.3	5.3	4.5	2.8	5.8
		2010	11.3	10.8	9.1	7.3	5.9	7.8
		2011	13.2	11.9	10.9	8.9	7.3	9.5
		2012	18.9	15.6	13.9	12.6	9.8	15.3
		2013	20.8	19.3	17.8	16.8	13.2	17.3
		2014	18.9	20.2	19.0	18.3	14.9	18.3
		2015	17.0	21.5	20.5	20.2	17.9	19.6
		2016	18.9	21.4	20.1	19.9	17.4	19.8
		Number of children	53	2390	12493	1964	1878	398
2008	A	2009	77.3	64.5	59.8	50.7	39.2	62.7
		2010	72.7	63.3	59.2	50.8	41.2	65.3
		2011	77.3	68.7	65.9	57.3	50.6	75.3
		2012	77.3	70.4	68.5	60.1	51.3	68.7
		2013	81.8	73.5	71.5	62.7	56.1	72.7
		2014	72.7	73.5	71.6	65.6	57.4	75.3
		2015	72.7	76.9	74.8	67.3	61.2	78.7

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A TABLES OF RETURN RATE BY PARENTS' EDUCATION LEVEL

Table 24: Continued from previous page

Birth year	Child type	Year of movement	Mother's education level <sup>4</sup>					
			0	1	2	3	4	X
		2016	68.2	74.0	71.3	63.4	56.8	72.0
		Number of children	22	1017	5046	710	544	150
	B	2009	9.1	4.9	4.8	2.4	1.8	5.9
		2010	11.4	5.7	5.6	3.3	2.6	6.4
		2011	18.2	9.3	9.3	6.1	5.3	8.0
		2012	15.9	11.3	11.4	7.3	6.4	8.8
		2013	20.5	15.5	14.7	10.4	9.2	12.8
		2014	20.5	18.4	18.2	14.1	13.2	16.0
		2015	15.9	20.8	19.8	15.6	15.4	16.0
		2016	13.6	19.3	19.5	15.2	15.1	16.2
		Number of children	44	1811	13436	5083	4992	376
2009	A	2010	61.5	62.1	58.3	47.6	38.1	55.2
		2011	76.9	62.3	58.5	48.9	42.9	56.9
		2012	76.9	69.5	65.9	57.7	49.7	63.8
		2013	84.6	73.2	69.8	61.3	51.3	67.2
		2014	92.3	72.9	69.8	61.8	54.9	69.8
		2015	76.9	74.5	73.3	64.1	58.6	69.8
		2016	84.6	74.3	70.0	61.0	55.1	66.4
		Number of children	13	623	4408	752	483	116
	B	2010	7.7	5.8	5.3	3.4	2.5	4.7
		2011	12.8	7.3	6.3	4.0	2.9	6.0
		2012	15.4	12.2	10.3	7.8	5.8	8.2
		2013	17.9	13.9	12.1	9.4	7.0	9.4
		2014	20.5	17.3	15.3	12.5	10.4	12.4
		2015	23.1	20.0	19.2	15.7	14.1	17.2
		2016	17.9	20.7	18.7	14.9	14.5	18.5
		Number of children	39	1342	13693	7633	7513	233
2010	A	2011	54.5	60.4	57.8	46.8	35.6	56.1
		2012	54.5	64.1	58.1	49.0	38.9	57.8
		2013	63.6	69.7	66.8	60.7	48.0	63.1
		2014	45.5	71.1	70.0	63.4	50.2	71.3
		2015	63.6	74.5	72.6	65.2	53.2	71.7
		2016	72.7	73.5	68.3	63.1	49.2	68.0
		Number of children	11	502	4200	911	733	244

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A TABLES OF RETURN RATE BY PARENTS' EDUCATION LEVEL

Table 24: Continued from previous page

Birth year	Child type	Year of movement	Mother's education level <sup>4</sup>					
			0	1	2	3	4	X
	B	2011	4.0	7.1	5.0	3.2	2.4	6.0
		2012	8.0	8.6	6.5	4.5	3.3	7.2
		2013	8.0	13.3	11.5	8.7	6.8	12.1
		2014	12.0	15.8	13.3	10.6	8.3	13.3
		2015	20.0	18.2	16.3	13.8	11.4	18.6
		2016	16.0	18.7	16.4	13.9	11.6	18.9
		Number of children	25	966	12026	9527	10443	862
2011	A	2012	60.0	58.6	56.4	46.4	39.2	53.7
		2013	40.0	64.5	59.8	50.4	42.9	56.6
		2014	60.0	68.1	66.0	58.8	51.8	68.3
		2015	80.0	76.5	71.4	64.2	56.3	70.3
		2016	60.0	71.7	68.3	61.0	52.5	65.0
		Number of children	5	442	3832	968	716	454
	B	2012	.	5.3	4.5	2.8	2.9	3.8
		2013	2.8	7.3	6.1	4.2	4.4	5.2
		2014	13.9	11.1	11.0	8.7	8.5	9.6
		2015	13.9	13.7	12.7	10.0	10.2	10.6
		2016	13.9	13.7	12.9	10.6	11.3	11.3
		Number of children	36	786	11629	8922	12223	2729
2012	A	2013	66.7	61.9	57.9	50.5	40.7	55.7
		2014	100.0	66.0	57.8	52.6	44.5	59.2
		2015	66.7	74.2	68.2	63.7	54.1	68.2
		2016	100.0	68.0	64.9	60.5	54.8	64.3
		Number of children	3	194	2729	719	724	691
	B	2013	6.7	11.3	4.2	3.5	2.8	4.3
		2014	6.7	11.3	5.9	5.2	4.5	6.0
		2015	20.0	15.2	11.7	10.8	10.1	11.5
		2016	20.0	14.6	11.9	11.2	10.7	11.7
		Number of children	15	151	9036	5279	9674	2882
2013	A	2014	50.0	55.6	58.3	54.7	45.4	53.1
		2015	40.0	63.3	61.4	57.6	49.3	56.0
		2016	40.0	58.5	57.0	55.0	44.2	52.4
		Number of children	10	207	2913	576	527	559
	B	2014	.	20.0	38.7	26.9	10.0	17.1

Continued on next page

A TABLES OF RETURN RATE BY PARENTS' EDUCATION LEVEL

Table 24: Continued from previous page

Birth year	Child type	Year of movement	Mother's education level <sup>4</sup>					
			0	1	2	3	4	X
		2015	.	60.0	33.3	15.4	12.5	17.1
		2016	.	60.0	29.3	19.2	12.5	19.5
		Number of children	.	5	75	26	40	41
2014	A	2015	85.7	66.7	60.0	58.8	46.9	55.5
		2016	85.7	58.2	52.2	52.5	41.2	48.7
		Number of children	7	294	3495	575	665	651
	B	2015	.	.	37.9	40.0	50.0	34.4
		2016	.	.	22.4	12.0	37.5	15.6
		Number of children	.	2	58	25	24	32

Table 25: Return rate by father's education per birth cohort.

Birth year	Child type	Year of movement	Father's education level <sup>4</sup>					
			0	1	2	3	4	X
2004	A	2005	88.9	70.6	66.9	41.3	53.8	68.4
		2006	88.9	68.6	64.1	45.7	47.7	57.9
		2007	100.0	77.3	70.6	47.8	50.8	68.4
		2008	88.9	77.3	76.0	50.0	55.4	73.7
		2009	77.8	75.7	75.5	56.5	56.9	57.9
		2010	88.9	80.0	77.1	58.7	63.1	57.9
		2011	88.9	80.4	77.4	56.5	58.5	57.9
		2012	100.0	77.3	78.1	60.9	58.5	57.9
		2013	100.0	81.2	81.8	69.6	61.5	63.2
		2014	100.0	82.0	81.2	71.7	67.7	84.2
		2015	88.9	82.0	83.9	73.9	70.8	73.7
		2016	88.9	77.3	78.0	71.7	72.3	73.7
			Number of children	9	255	1107	46	65
		B	2005	.	18.8	15.1	28.1	8.3
	2006		.	12.4	10.2	9.4	.	24.6
	2007		.	19.9	16.6	12.5	8.3	30.8
	2008		.	18.8	17.1	21.9	8.3	30.8
	2009		.	24.2	20.0	15.6	16.7	33.8
	2010		.	25.3	24.1	37.5	12.5	40.0
	2011		.	27.4	23.5	37.5	12.5	38.5

Continued on next page

A TABLES OF RETURN RATE BY PARENTS' EDUCATION LEVEL

Table 25: Continued from previous page

Birth year	Child type	Year of movement	Father's education level <sup>4</sup>					
			0	1	2	3	4	X
		2012	.	28.5	26.0	34.4	12.5	40.0
		2013	.	33.3	30.1	43.8	12.5	36.9
		2014	.	35.5	32.2	43.8	16.7	40.0
		2015	.	41.9	39.7	34.4	29.2	44.6
		2016	.	41.4	39.4	34.4	29.2	47.7
		Number of children	1	186	469	32	24	65
2005	A	2006	72.7	63.0	63.9	44.0	48.7	25.0
		2007	72.7	62.0	62.9	47.6	51.3	.
		2008	90.9	69.0	69.8	51.2	53.8	.
		2009	90.9	69.0	72.7	63.1	62.4	.
		2010	100.0	69.8	72.9	60.7	62.4	.
		2011	100.0	71.1	73.4	59.5	65.8	12.5
		2012	90.9	72.7	74.3	66.7	65.0	.
		2013	81.8	72.9	76.1	65.5	61.5	25.0
		2014	90.9	74.0	76.4	61.9	59.0	25.0
		2015	100.0	79.7	80.0	63.1	64.1	37.5
		2016	100.0	76.0	77.2	64.3	59.0	37.5
		Number of children	11	384	2208	84	117	8
	B	2006	40.0	11.1	12.3	7.1	8.3	23.4
		2007	20.0	7.5	8.1	5.1	5.8	19.0
		2008	.	13.3	13.5	11.2	7.5	24.8
		2009	.	14.1	15.0	12.2	6.7	24.8
		2010	40.0	18.2	18.0	13.3	7.5	29.9
		2011	20.0	22.3	20.2	18.4	15.8	36.5
		2012	40.0	24.8	22.3	19.4	15.8	39.4
		2013	40.0	26.8	24.6	16.3	23.3	39.4
		2014	60.0	28.5	26.4	20.4	21.7	36.5
		2015	60.0	31.9	28.8	21.4	25.8	42.3
		2016	60.0	32.3	29.3	24.5	28.3	43.1
		Number of children	5	467	1863	98	120	137
2006	A	2007	69.2	59.1	60.5	48.1	46.7	40.9
		2008	80.8	62.4	61.6	50.8	48.8	40.9
		2009	84.6	68.2	68.3	56.2	56.7	45.5
		2010	80.8	70.0	70.5	59.6	57.1	50.0
		2011	80.8	73.4	71.4	63.0	58.2	54.5

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A TABLES OF RETURN RATE BY PARENTS' EDUCATION LEVEL

Table 25: Continued from previous page

Birth year	Child type	Year of movement	Father's education level <sup>4</sup>					
			0	1	2	3	4	X
		2012	84.6	73.7	72.9	63.6	62.5	59.1
		2013	88.5	75.9	75.4	65.0	62.9	63.6
		2014	65.4	77.0	75.3	64.6	62.7	59.1
		2015	88.5	80.2	78.4	68.7	67.2	59.1
		2016	84.6	76.6	75.1	65.0	62.1	63.6
		Number of children	26	1121	7726	297	531	22
	B	2007	9.4	5.7	5.6	4.3	4.5	10.0
		2008	9.4	5.8	6.2	3.8	4.9	12.2
		2009	9.4	9.8	9.6	7.3	6.7	20.2
		2010	9.4	11.3	10.9	8.6	8.5	23.3
		2011	18.8	13.7	13.7	11.7	11.2	28.9
		2012	21.9	16.6	17.7	15.5	16.4	34.3
		2013	15.6	19.0	19.1	17.8	15.9	36.0
		2014	21.9	19.4	19.9	19.1	16.8	36.1
		2015	21.9	21.9	22.0	21.7	17.8	38.4
		2016	18.8	20.9	21.3	20.9	18.0	39.0
		Number of children	32	2512	11473	852	998	648
2007	A	2008	69.2	61.1	62.8	51.6	48.7	51.0
		2009	69.2	61.5	64.0	50.7	49.3	50.3
		2010	76.9	68.7	68.5	57.8	53.0	60.5
		2011	69.2	67.7	70.5	59.3	56.1	59.2
		2012	84.6	71.0	71.3	62.4	58.2	66.0
		2013	84.6	72.8	74.3	64.7	60.9	65.3
		2014	76.9	72.4	74.4	65.0	61.8	69.4
		2015	76.9	76.0	77.0	67.2	64.9	72.8
		2016	73.1	76.0	72.8	63.2	62.2	68.7
		Number of children	26	742	6036	351	760	147
	B	2008	3.1	4.9	4.6	3.7	2.3	7.9
		2009	.	5.6	5.2	4.7	2.9	8.7
		2010	12.5	9.5	9.0	7.9	5.2	14.4
		2011	9.4	10.8	10.5	9.2	6.9	18.6
		2012	9.4	14.8	13.5	12.5	9.6	23.5
		2013	15.6	19.0	17.5	15.8	12.9	27.5
		2014	15.6	19.7	18.5	16.7	14.9	29.5
		2015	12.5	21.3	20.0	18.8	17.6	30.4

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A TABLES OF RETURN RATE BY PARENTS' EDUCATION LEVEL

Table 25: Continued from previous page

Birth year	Child type	Year of movement	Father's education level <sup>4</sup>						
			0	1	2	3	4	X	
		2016	12.5	21.1	19.6	18.4	17.3	30.4	
		Number of children	32	1774	11766	1882	2532	1191	
2008	A	2009	63.6	60.5	61.7	51.7	42.4	61.7	
		2010	81.8	59.2	60.8	52.0	44.0	66.0	
		2011	90.9	65.5	67.2	55.8	54.0	75.9	
		2012	100.0	71.2	69.4	58.7	54.8	68.1	
		2013	100.0	73.1	72.6	62.5	57.7	73.0	
		2014	100.0	73.8	72.4	65.9	59.9	74.5	
		2015	90.9	77.7	75.7	68.0	62.1	78.0	
		2016	90.9	73.8	72.4	64.2	57.8	70.9	
			Number of children	11	539	5161	659	973	141
		B	2009	8.8	4.3	4.5	2.9	2.2	5.8
			2010	8.8	5.4	5.3	3.7	3.1	7.0
			2011	14.7	9.0	8.6	6.6	5.5	11.7
			2012	11.8	10.6	10.5	8.2	6.8	13.4
			2013	20.6	15.0	13.8	11.3	9.5	17.8
			2014	20.6	17.9	17.1	15.0	13.2	23.8
	2015		20.6	19.3	18.8	16.3	15.3	25.6	
		2016	20.6	18.2	18.5	15.9	14.9	25.0	
		Number of children	34	1194	12532	4447	6078	625	
2009	A	2010	69.2	56.2	60.1	49.5	39.7	54.3	
		2011	76.9	56.8	60.3	50.9	43.2	52.4	
		2012	69.2	65.9	67.2	61.2	50.1	61.0	
		2013	76.9	69.0	70.9	62.9	55.4	65.7	
		2014	76.9	70.6	70.8	64.0	56.5	70.5	
		2015	84.6	75.3	73.4	66.6	60.9	75.2	
		2016	61.5	74.2	70.6	64.2	56.8	69.5	
				Number of children	13	361	4378	634	896
		B	2010	10.8	6.0	5.2	3.7	2.6	3.4
			2011	16.2	7.7	6.1	4.2	3.1	4.9
			2012	18.9	12.8	10.2	7.5	6.0	6.9
			2013	16.2	13.6	11.8	9.2	7.4	6.9
			2014	21.6	17.0	14.9	12.0	10.7	9.9
			2015	24.3	20.0	18.4	15.5	14.3	14.8
			2016	21.6	19.5	18.1	14.8	14.5	13.3

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A TABLES OF RETURN RATE BY PARENTS' EDUCATION LEVEL

Table 25: Continued from previous page

Birth year	Child type	Year of movement	Father's education level <sup>4</sup>					
			0	1	2	3	4	X
		Number of children	37	796	12621	6601	8671	203
2010	A	2011	50.0	59.5	59.8	46.2	38.5	54.1
		2012	75.0	58.3	60.3	48.7	41.6	54.5
		2013	66.7	66.0	69.1	58.6	50.0	62.6
		2014	66.7	65.2	71.4	63.7	53.8	69.1
		2015	75.0	72.5	73.5	66.7	56.5	71.1
		2016	75.0	70.0	70.1	63.4	51.7	67.1
		Number of children	12	247	4036	940	1119	246
	B	2011	.	7.6	5.2	3.1	2.6	5.5
		2012	5.6	9.7	6.7	4.2	3.4	6.7
		2013	22.2	13.2	11.3	8.6	6.7	11.7
2014		27.8	15.5	13.2	9.9	8.4	13.6	
2015		22.2	19.7	16.0	13.1	11.4	18.3	
2016		27.8	20.0	16.0	13.4	11.5	18.3	
Number of children		18	380	10344	8696	11622	880	
2011	A	2012	61.5	57.0	57.3	48.6	40.7	53.2
		2013	61.5	60.2	60.8	52.5	44.8	56.3
		2014	61.5	66.1	67.0	59.9	53.0	68.2
		2015	69.2	72.6	72.4	67.2	57.5	69.7
		2016	69.2	71.0	68.9	64.1	53.8	65.2
		Number of children	13	186	3807	827	1119	462
	B	2012	.	7.3	4.2	3.2	2.6	3.8
		2013	2.6	10.3	5.6	4.5	4.0	4.9
		2014	7.7	15.2	10.4	8.8	7.8	9.9
		2015	10.3	17.0	12.2	9.9	9.5	10.8
2016		10.3	17.3	12.3	10.4	10.4	11.5	
Number of children		39	329	10237	7439	13355	2813	
2012	A	2013	66.7	50.6	59.2	50.1	44.8	55.7
		2014	66.7	61.2	58.9	53.2	46.9	60.1
		2015	66.7	71.8	68.7	66.2	56.2	69.0
		2016	33.3	71.8	66.0	63.0	54.2	64.6
		Number of children	3	85	2520	716	1081	652
	B	2013	8.3	7.4	3.9	3.1	3.0	4.4
		2014	8.3	7.4	5.5	4.8	4.5	5.8

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A TABLES OF RETURN RATE BY PARENTS' EDUCATION LEVEL

Table 25: Continued from previous page

Birth year	Child type	Year of movement	Father's education level <sup>4</sup>					
			0	1	2	3	4	X
		2015	8.3	13.0	11.0	10.3	10.0	11.0
		2016	8.3	13.0	11.3	10.5	10.5	11.1
		Number of children	12	108	7811	4496	10226	2734
2013	A	2014	100.0	55.1	59.9	51.6	45.5	52.9
		2015	66.7	64.3	62.2	56.2	50.5	56.5
		2016	66.7	57.1	58.1	52.9	45.5	52.5
		Number of children	3	98	2809	578	761	543
	B	2014	.	.	35.5	36.8	17.1	16.2
		2015	.	50.0	28.9	26.3	19.5	18.9
		2016	.	50.0	26.3	26.3	19.5	21.6
		Number of children	.	4	76	19	41	37
2014	A	2015	100.0	61.1	61.1	58.1	48.6	54.7
		2016	100.0	47.8	53.5	49.4	43.3	49.0
		Number of children	3	113	3479	630	864	598
	B	2015	.	.	37.3	45.5	46.4	31.0
		2016	.	.	21.6	13.6	35.7	13.8
		Number of children	.	1	51	22	28	29

B Tables of Return Rate by Parents' Occupation

Table 26: Return rate by mother's occupation per birth cohort.

Birth year	Child type	Year of movement	Mother's occupation <sup>5</sup>												EI	X
			1	2	3	4	5	6	7	8	9	10				
2004	A	2005	.	36.8	54.5	44.4	48.3	40.0	33.3	50.0	100.0	100.0	67.7	71.4		
		2006	.	31.6	45.5	33.3	48.3	53.3	50.0	.	100.0	.	65.1	57.1		
		2007	.	31.6	45.5	33.3	58.6	53.3	33.3	.	100.0	.	71.9	78.6		
		2008	.	31.6	36.4	33.3	62.1	66.7	50.0	.	100.0	.	76.3	78.6		
		2009	.	26.3	54.5	55.6	65.5	66.7	50.0	100.0	100.0	.	75.3	64.3		
		2010	.	47.4	63.6	77.8	62.1	66.7	50.0	100.0	100.0	.	77.3	64.3		
		2011	.	42.1	63.6	77.8	55.2	60.0	50.0	100.0	100.0	.	77.7	64.3		
		2012	.	47.4	63.6	77.8	58.6	53.3	50.0	100.0	100.0	.	77.8	64.3		
		2013	.	57.9	63.6	88.9	62.1	60.0	66.7	100.0	100.0	.	81.4	71.4		
		2014	.	57.9	54.5	66.7	65.5	60.0	50.0	100.0	100.0	.	81.9	85.7		
		2015	.	57.9	63.6	88.9	62.1	80.0	66.7	100.0	100.0	.	83.6	78.6		
		2016	.	57.9	54.5	77.8	58.6	80.0	66.7	100.0	100.0	.	78.3	78.6		
		Number of children		.	19	11	9	29	15	6	2	1	1	1394	14	
		2004	B	2005	.	.	20.0	27.3	17.9	15.8	.	33.3	.	.	18.0	27.3
				2006	.	8.3	.	18.2	21.4	5.3	.	33.3	.	.	11.5	9.1
				2007	.	4.2	.	36.4	21.4	15.8	.	33.3	.	.	18.6	13.6
	2008			.	8.3	.	27.3	21.4	15.8	.	33.3	33.3	.	18.8	18.2	
2009	.			12.5	20.0	18.2	21.4	15.8	.	33.3	66.7	.	22.2	22.7		
2010	.			8.3	40.0	27.3	21.4	15.8	.	.	66.7	.	26.6	31.8		
2011	.			4.2	40.0	36.4	25.0	21.1	.	33.3	66.7	.	26.5	22.7		
2012	.			4.2	40.0	36.4	17.9	21.1	.	.	66.7	.	28.9	27.3		
2013	.			8.3	40.0	45.5	25.0	26.3	.	33.3	33.3	.	32.7	22.7		
2014	.			12.5	40.0	45.5	21.4	31.6	.	33.3	33.3	.	35.2	18.2		
2015	.			29.2	40.0	54.5	25.0	31.6	.	33.3	33.3	.	41.8	22.7		
2016	.			29.2	60.0	45.5	28.6	31.6	.	33.3	33.3	.	41.3	31.8		
Number of children				1	24	5	11	28	19	.	3	3	.	661	22	
2005	A			2006	100.0	47.1	33.3	56.3	37.8	54.5	50.0	100.0	.	60.0	63.3	44.4
				2007	.	41.2	33.3	62.5	44.4	52.7	50.0	100.0	100.0	60.0	62.4	66.7
				2008	.	35.3	33.3	62.5	64.4	60.0	50.0	100.0	100.0	80.0	69.0	44.4
			2009	.	41.2	33.3	68.8	60.0	65.5	50.0	100.0	100.0	80.0	72.0	66.7	
		2010	.	47.1	50.0	62.5	55.6	69.1	50.0	100.0	100.0	100.0	72.2	44.4		
		2011	.	47.1	33.3	68.8	66.7	67.3	50.0	100.0	100.0	80.0	72.8	66.7		
		2012	.	52.9	33.3	75.0	64.4	72.7	50.0	100.0	100.0	80.0	73.9	22.2		
		2013	.	52.9	50.0	75.0	73.3	74.5	50.0	100.0	100.0	100.0	74.9	44.4		
		2014	.	41.2	66.7	75.0	73.3	67.3	50.0	100.0	100.0	100.0	75.3	44.4		
		2015	.	58.8	66.7	68.8	71.1	70.9	50.0	100.0	100.0	100.0	79.3	66.7		
		2016	.	52.9	66.7	75.0	66.7	67.3	50.0	100.0	100.0	100.0	76.5	44.4		
		Number of children		1	17	6	16	45	55	2	1	1	5	2654	9	
		2005	B	2006	.	5.6	.	8.8	4.7	13.4	55.6	16.7	.	.	13.0	25.0
				2007	.	2.8	.	2.9	4.7	8.2	33.3	33.3	.	.	8.8	25.0
				2008	.	7.5	16.7	17.6	9.3	11.9	44.4	33.3	.	.	14.1	37.5
				2009	.	3.7	8.3	23.5	9.3	13.4	33.3	16.7	.	9.1	15.5	37.5
	2010			.	7.5	16.7	17.6	10.3	17.9	44.4	33.3	.	9.1	18.8	37.5	
2011	.			9.3	25.0	26.5	16.8	19.4	44.4	16.7	.	4.5	21.9	37.5		
2012	.			11.2	25.0	29.4	15.0	20.9	33.3	33.3	.	13.6	24.3	37.5		
2013	.			11.2	25.0	29.4	15.0	20.1	33.3	33.3	.	18.2	26.9	25.0		
2014	.			13.1	25.0	29.4	15.9	24.6	44.4	33.3	.	22.7	28.2	25.0		
2015	.			15.9	25.0	29.4	17.8	28.4	44.4	33.3	.	22.7	31.1	25.0		
2016	.			16.8	25.0	29.4	17.8	30.6	44.4	33.3	.	27.3	31.6	37.5		
Number of children				1	107	12	34	107	134	9	6	3	22	2247	8	
2006	A			2007	.	39.7	39.0	42.2	46.1	50.0	63.6	60.0	37.5	44.4	60.3	58.0
				2008	.	38.4	44.1	55.4	45.0	49.6	72.7	80.0	50.0	40.7	61.7	61.7
				2009	.	49.3	52.5	49.4	57.6	59.5	63.6	60.0	50.0	51.9	68.2	65.4
				2010	.	53.4	61.0	63.9	64.9	62.7	81.8	80.0	62.5	55.6	69.9	72.8
			2011	.	53.4	67.8	63.9	63.4	66.5	90.9	80.0	62.5	59.3	71.2	66.7	
		2012	100.0	47.9	69.5	67.5	68.6	69.0	100.0	60.0	75.0	59.3	72.5	76.5		
		2013	100.0	53.4	67.8	71.1	70.7	71.5	72.7	80.0	87.5	70.4	74.9	76.5		
		2014	100.0	54.8	74.6	69.9	75.4	74.6	81.8	80.0	87.5	51.9	74.6	77.8		
		2015	100.0	60.3	74.6	78.3	74.9	77.5	90.9	100.0	75.0	74.1	77.8	86.4		
		2016	100.0	54.8	76.3	74.7	72.8	72.9	81.8	100.0	75.0	66.7	74.5	77.8		
		Number of children		1	73	59	83	191	284	11	5	8	27	8900	81	

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<sup>5</sup>Keys for occupations: 1=Armed forces & Other occupation; 2=Managers & Administrators; 3=Professionals; 4=Associate professionals; 5=Clerks; 6=Service & Shop sales workers; 7=Skilled agricultural & Fishery workers; 8=Craft & Related workers; 9=Plant & Machine operators & Assemblers; 10=Elementary occupation; EI=Economically inactive and X=Unknown

B TABLES OF RETURN RATE BY PARENTS' OCCUPATION

Table 26: Continued from previous page

Birth year	Child type	Year of movement	Mother's occupation <sup>5</sup>													
			1	2	3	4	5	6	7	8	9	10	EI	X		
2007	B	2007	.	4.0	2.4	3.7	4.6	5.7	9.1	11.1	9.1	3.2	5.9	4.5		
		2008	33.3	3.5	5.4	4.1	5.8	4.9	4.5	5.6	9.1	2.3	6.6	5.7		
		2009	33.3	5.5	6.0	6.1	8.8	9.7	9.1	5.6	12.1	5.0	10.3	10.2		
		2010	33.3	6.4	8.4	6.5	9.2	11.8	9.1	11.1	21.2	5.0	11.8	8.0		
		2011	33.3	8.5	12.0	7.7	12.0	15.1	18.2	16.7	24.2	10.4	14.6	13.6		
		2012	33.3	12.3	15.7	11.8	15.3	19.0	13.6	16.7	24.2	12.7	18.7	19.3		
		2013	66.7	13.6	16.3	15.0	16.1	20.0	18.2	27.8	27.3	14.9	20.2	20.5		
		2014	33.3	14.6	16.9	17.9	20.4	15.2	27.8	27.3	27.3	14.5	21.0	21.6		
		2015	33.3	16.4	16.9	21.5	19.4	23.0	15.2	22.2	30.3	17.2	23.1	20.5		
		2016	33.3	16.5	16.3	22.8	18.6	23.0	13.6	22.2	30.3	16.7	22.3	19.3		
Number of children			3	933	166	246	747	1076	66	18	33	221	12918	88		
2007	A	2008	100.0	29.6	40.3	45.5	43.4	54.3	66.7	41.7	80.0	59.7	62.5	61.2		
		2009	100.0	34.2	38.8	45.5	45.3	58.4	100.0	50.0	100.0	59.7	63.3	61.9		
		2010	100.0	40.1	41.8	49.5	55.4	67.6	66.7	58.3	100.0	64.5	67.8	68.3		
		2011	.	44.1	49.3	52.5	60.1	67.6	33.3	75.0	80.0	62.9	69.6	65.1		
		2012	100.0	51.3	55.2	54.5	61.2	68.0	66.7	75.0	60.0	67.7	70.6	71.6		
		2013	100.0	49.3	52.2	64.6	65.1	72.1	66.7	75.0	100.0	74.2	73.5	71.2		
		2014	100.0	53.3	50.7	64.6	65.1	67.1	66.7	66.7	80.0	64.5	73.6	76.3		
		2015	100.0	55.3	58.2	69.7	68.6	69.9	66.7	75.0	80.0	67.7	76.4	76.3		
		2016	100.0	50.7	52.2	66.7	65.1	68.0	66.7	66.7	80.0	59.7	72.6	75.5		
		Number of children			1	152	67	99	258	219	3	12	5	62	6906	278
2008	B	2008	.	2.4	3.4	4.5	2.5	3.2	7.4	4.7	.	5.4	5.1	4.9		
		2009	.	2.4	2.0	5.9	2.9	3.3	5.9	7.0	15.4	5.8	5.9	6.1		
		2010	.	5.3	7.0	8.9	5.8	7.0	7.4	11.6	23.1	9.6	9.8	10.1		
		2011	.	6.8	9.4	10.6	6.7	8.3	13.2	16.3	15.4	9.9	11.6	12.1		
		2012	.	8.9	13.4	11.6	9.8	12.0	13.2	18.6	15.4	14.1	14.9	17.5		
		2013	33.3	12.7	17.8	14.2	14.5	14.9	13.2	23.3	30.8	19.9	18.7	20.6		
		2014	33.3	13.9	17.1	14.8	15.2	17.0	16.2	23.3	23.1	20.8	20.0	21.6		
		2015	33.3	15.5	18.5	16.7	17.4	18.7	17.6	27.9	7.7	23.7	21.6	22.1		
		2016	33.3	15.8	18.1	16.3	17.7	17.8	16.2	27.9	7.7	23.1	21.1	21.6		
		Number of children			3	2079	298	528	1594	905	68	43	13	312	12680	652
2008	A	2009	62.5	25.2	40.2	42.0	46.5	59.0	60.0	65.9	.	58.9	61.9	64.1		
		2010	37.5	29.4	41.2	36.1	48.9	58.1	52.0	62.6	100.0	60.0	61.1	65.2		
		2011	50.0	38.5	48.2	52.1	59.3	65.8	64.0	64.8	.	68.4	66.9	74.8		
		2012	50.0	38.8	48.2	61.3	61.2	68.6	60.0	72.5	.	64.2	69.5	68.6		
		2013	37.5	46.9	46.7	63.9	64.7	71.7	60.0	73.6	.	68.4	72.5	72.4		
		2014	50.0	49.2	53.8	63.0	67.5	68.6	68.0	72.5	.	73.7	72.4	76.9		
		2015	62.5	49.8	57.8	66.4	71.9	72.8	68.0	83.5	.	70.5	75.4	79.3		
		2016	50.0	47.6	55.3	65.5	66.3	70.6	60.0	74.7	.	63.2	72.1	72.8		
		Number of children			8	309	199	119	587	456	25	91	1	95	5310	290
		2009	B	2009	2.6	1.6	1.9	4.3	2.7	5.2	7.6	5.5	4.2	5.3	4.9	6.3
2010	2.6			2.0	3.1	4.3	3.5	6.1	7.1	8.1	8.3	5.0	6.0	7.7		
2011	7.7			4.6	4.5	7.2	6.6	11.1	11.2	9.4	.	9.7	9.8	10.2		
2012	7.7			5.6	6.4	8.3	8.0	12.6	12.5	10.7	4.2	11.1	12.1	11.6		
2013	7.7			8.7	9.7	11.4	11.0	15.9	20.1	15.7	4.2	14.5	15.4	14.6		
2014	15.4			12.1	13.5	15.2	15.0	19.1	23.7	17.0	12.5	18.0	19.0	18.5		
2015	17.9			13.4	16.3	18.2	16.0	21.0	26.8	20.4	20.8	18.4	20.9	19.6		
2016	15.4			13.5	16.0	17.7	15.5	19.7	25.0	19.6	20.8	18.6	20.3	19.3		
Number of children				39	5885	1766	876	3055	1204	224	382	24	505	11129	664	
2009	A			2010	77.8	26.0	42.4	46.4	43.7	57.4	55.0	67.0	.	57.5	60.4	60.8
		2011	66.7	30.6	46.3	53.6	45.7	55.1	55.0	60.4	.	64.2	60.6	64.3		
		2012	83.3	41.2	53.7	56.0	56.6	63.2	75.0	73.6	.	67.9	67.3	69.0		
		2013	83.3	47.2	55.3	61.9	62.1	70.7	75.0	72.5	.	73.6	70.4	69.6		
		2014	77.8	46.3	60.8	65.5	63.0	71.6	80.0	70.3	.	67.9	70.5	72.5		
		2015	66.7	52.0	62.7	70.2	67.0	71.9	90.0	71.4	.	72.6	73.6	75.4		
		2016	61.1	47.4	55.7	67.9	64.5	67.5	90.0	73.6	.	67.0	71.2	67.8		
		Number of children			18	369	255	84	597	437	20	91	1	106	4247	171
		2010	B	2010	4.4	2.1	2.8	3.3	3.4	7.1	6.0	6.4	.	7.7	6.3	9.4
				2011	4.4	2.4	2.9	4.6	4.2	9.3	7.5	9.6	.	8.3	7.3	10.9
2012	11.8			5.3	6.2	8.8	7.8	16.8	10.9	13.7	.	12.5	11.7	13.2		
2013	11.8			6.3	7.3	11.2	9.9	18.5	16.2	15.3	6.7	14.5	13.7	15.8		
2014	13.2			9.3	10.7	15.3	12.9	21.2	22.2	17.7	6.7	18.1	17.0	19.3		
2015	14.7			12.9	14.0	20.0	16.9	24.2	25.2	20.5	.	22.3	20.6	22.6		
2016	14.7			12.7	13.9	18.3	16.5	24.5	24.8	20.1	.	21.7	20.4	22.1		
Number of children				68	10231	3091	1019	3670	1092	266	502	15	337	9773	393	
2010	A	2011	72.2	25.1	34.1	48.0	46.5	57.1	70.0	62.6	60.0	59.3	60.3	58.5		
		2012	72.2	27.4	38.2	50.0	49.3	56.7	80.0	61.7	60.0	59.3	61.3	57.9		
		2013	83.3	40.8	51.2	61.0	59.8	69.8	80.0	71.3	60.0	65.7	68.4	64.1		
		2014	94.4	46.2	52.1	66.0	63.6	70.6	60.0	74.8	60.0	72.9	70.7	71.4		
		2015	94.4	48.7	56.8	65.0	64.5	72.9	70.0	80.9	80.0	70.0	73.8	71.4		

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B TABLES OF RETURN RATE BY PARENTS' OCCUPATION

Table 26: Continued from previous page

Birth year	Child type	Year of movement	Mother's occupation <sup>5</sup>													
			1	2	3	4	5	6	7	8	9	10	EI	X		
		2016	88.9	46.0	52.1	63.0	61.0	69.8	80.0	76.5	60.0	68.6	69.8	69.2		
		Number of children	18	569	361	100	671	483	10	115	5	140	3681	451		
B		2011	6.6	2.2	2.4	3.4	3.4	7.4	8.5	7.2	13.6	8.3	6.0	7.0		
		2012	6.6	3.1	3.4	4.9	4.6	9.7	13.1	9.0	9.1	11.6	7.6	8.2		
		2013	11.5	6.5	7.0	9.4	9.2	16.6	16.0	13.9	18.2	18.5	13.1	12.0		
		2014	13.1	7.9	9.0	10.5	10.9	20.2	18.3	18.3	9.1	16.9	15.3	13.1		
		2015	16.4	10.9	12.4	12.7	13.9	24.0	23.9	21.3	13.6	21.2	18.4	17.5		
		2016	14.8	11.1	12.3	12.1	14.4	23.8	22.1	21.3	18.2	21.5	18.4	17.7		
		Number of children	61	13716	4311	553	3971	1051	213	431	22	302	8050	1180		
2011	A	2012	60.9	25.2	41.0	39.0	45.4	52.4	60.0	54.3	60.0	62.3	58.9	55.5		
		2013	60.9	29.7	44.2	45.8	51.8	53.5	80.0	61.9	60.0	61.5	61.9	60.2		
		2014	73.9	40.8	52.9	57.6	58.9	65.5	60.0	69.5	60.0	68.5	67.2	68.8		
		2015	73.9	46.9	59.0	59.3	64.9	70.1	60.0	68.6	60.0	76.2	72.8	72.5		
		2016	69.6	42.8	54.8	62.7	61.6	66.9	40.0	67.6	40.0	71.5	69.4	68.4		
		Number of children	23	488	312	59	701	441	10	105	5	130	3402	741		
		B		2012	.	2.5	2.6	1.9	3.7	6.4	8.3	4.6	5.6	6.6	5.0	3.9
2013	5.7			3.7	4.1	4.5	5.5	9.2	9.0	6.7	5.6	7.7	6.7	5.1		
2014	11.3			7.5	7.8	7.4	10.2	14.3	17.9	12.7	5.6	14.3	12.3	10.0		
2015	20.8			9.0	9.0	9.5	11.8	15.7	17.9	15.4	16.7	16.5	14.3	11.3		
2016	18.9			9.8	9.9	11.9	12.7	14.7	19.3	15.4	16.7	18.7	14.3	11.9		
Number of children	53			13789	4803	420	3961	1079	145	371	18	273	8274	3146		
2012	A			2013	50.0	27.1	39.6	48.0	47.0	56.3	71.4	50.6	50.0	54.7	61.3	57.4
		2014	75.0	35.0	43.6	50.0	52.4	52.3	85.7	52.8	50.0	54.7	60.3	60.8		
		2015	75.0	46.1	52.7	56.0	66.1	65.8	71.4	67.4	50.0	56.6	69.9	69.5		
		2016	75.0	44.2	53.5	56.0	64.1	64.7	57.1	59.6	50.0	57.5	66.8	64.7		
		Number of children	16	432	273	50	504	371	7	89	2	106	2295	915		
		B		2013	4.3	2.9	3.0	3.2	3.3	4.2	2.0	4.0	11.1	5.1	4.8	4.2
				2014	8.7	4.6	4.7	4.4	4.2	5.9	6.1	4.8	11.1	6.1	6.8	5.9
2015	13.0			10.1	10.1	11.5	9.5	11.5	10.2	13.0	22.2	13.0	12.9	11.3		
2016	13.0			10.4	10.7	12.7	10.4	11.8	12.2	13.4	22.2	12.6	13.2	11.4		
Number of children	46			9638	3444	252	2478	1311	49	454	9	293	5710	3352		
2013	A	2014	66.7	32.6	43.8	53.1	52.9	51.7	50.0	69.4	50.0	62.5	59.2	57.8		
		2015	44.4	37.8	51.8	53.1	59.6	56.8	62.5	61.2	50.0	66.7	61.8	59.7		
		2016	33.3	37.4	42.0	51.0	55.1	51.1	62.5	57.1	50.0	60.4	57.8	56.1		
		Number of children	9	270	226	49	463	331	8	49	4	96	2558	729		
		B		2014	.	13.9	9.1	.	14.3	47.6	.	.	.	39.3	15.6	
				2015	.	11.1	9.1	.	14.3	47.6	.	50.0	.	31.1	17.8	
				2016	.	16.7	9.1	.	14.3	52.4	.	50.0	.	23.0	20.0	
Number of children	.	36	11	1	7	21	.	2	.	3	61	45				
2014	A	2015	30.4	36.9	42.0	55.8	52.7	58.0	50.0	63.5	50.0	55.6	63.4	58.4		
		2016	39.1	37.2	38.0	44.2	47.9	50.0	50.0	60.3	.	45.7	54.3	51.6		
		Number of children	23	328	250	52	547	448	2	63	2	81	2855	1037		
		B		2015	.	31.8	50.0	100.0	9.1	33.3	.	.	.	43.1	40.0	
				2016	.	22.7	25.0	.	9.1	.	.	.	100.0	22.4	22.5	
				Number of children	.	22	4	2	11	3	.	.	1	58	40	

Table 27: Return rate by father's occupation per birth cohort.

Birth year	Child type	Year of movement	Father's occupation <sup>5</sup>											
			1	2	3	4	5	6	7	8	9	10	EI	X
2004	A	2005	80.0	38.1	74.1	59.1	64.7	68.2	77.2	68.4	62.0	69.2	72.9	62.5
		2006	80.0	44.3	59.3	45.5	59.8	67.3	71.7	62.4	65.3	66.1	70.5	50.0
		2007	80.0	44.3	55.6	45.5	68.6	73.3	70.7	72.6	76.7	72.9	77.5	68.8
		2008	80.0	52.6	63.0	65.9	68.6	78.1	80.4	77.3	77.3	71.5	78.3	68.8
		2009	80.0	54.6	59.3	63.6	67.6	77.8	71.7	82.3	78.0	72.4	73.6	56.3
		2010	80.0	58.8	81.5	72.7	73.5	79.5	73.9	83.5	76.7	71.9	78.3	56.3
		2011	80.0	60.8	74.1	72.7	74.5	81.0	77.2	81.2	75.3	72.9	76.7	56.3
		2012	80.0	57.7	70.4	72.7	69.6	81.0	80.4	84.2	74.0	76.0	73.6	56.3
		2013	60.0	58.8	77.8	75.0	75.5	85.8	85.9	85.3	80.0	77.4	81.4	62.5
		2014	100.0	63.9	77.8	81.8	79.4	82.4	79.3	83.1	78.7	81.0	86.0	81.3
		2015	80.0	66.0	85.2	84.1	79.4	83.2	85.9	88.7	82.0	80.1	86.0	75.0
		2016	80.0	66.0	77.8	84.1	72.5	80.1	80.4	82.0	75.3	73.8	77.5	75.0
		Number of children	5	97	27	44	102	352	92	266	150	221	129	16

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B TABLES OF RETURN RATE BY PARENTS' OCCUPATION

Table 27: Continued from previous page

Birth year	Child type	Year of movement	Father's occupation <sup>5</sup>													
			1	2	3	4	5	6	7	8	9	10	EI	X		
2005	B	2005	.	12.3	6.3	.	9.8	17.6	14.7	13.9	24.0	19.4	20.8	32.3		
		2006	.	5.3	6.3	6.7	2.0	7.7	14.7	15.3	4.0	18.1	12.7	24.6		
		2007	.	11.4	18.8	20.0	3.9	16.5	29.4	16.7	16.0	25.0	18.6	30.8		
		2008	.	10.5	25.0	13.3	3.9	15.4	26.5	19.4	32.0	26.4	18.1	30.8		
		2009	.	12.3	18.8	20.0	9.8	13.2	29.4	23.6	36.0	36.1	22.2	33.8		
		2010	.	14.0	12.5	26.7	13.7	14.3	32.4	31.9	40.0	34.7	29.4	38.5		
		2011	.	14.0	12.5	33.3	17.6	14.3	26.5	30.6	40.0	34.7	29.4	38.5		
		2012	.	11.4	12.5	33.3	15.7	16.5	29.4	34.7	36.0	44.4	31.7	40.0		
		2013	.	14.0	37.5	26.7	21.6	20.9	41.2	41.7	44.0	50.0	33.0	36.9		
		2014	.	17.5	31.3	26.7	25.5	23.1	38.2	43.1	48.0	47.2	37.1	40.0		
		2015	.	28.1	37.5	33.3	29.4	30.8	41.2	48.6	64.0	55.6	40.7	46.2		
		2016	.	28.9	37.5	33.3	27.5	31.9	44.1	48.6	68.0	58.3	38.0	47.7		
		Number of children			1	114	16	15	51	91	34	72	25	72	221	65
		2005	A	2006	75.0	43.4	51.5	64.2	60.9	63.6	73.8	64.7	64.9	62.6	61.4	25.0
				2007	75.0	42.1	58.8	72.8	60.9	61.7	67.5	66.1	67.0	58.6	62.7	.
				2008	68.8	48.4	63.2	69.1	67.9	69.3	75.0	72.4	73.9	65.5	71.9	.
2009	62.5			52.2	69.1	75.3	69.0	72.9	81.3	75.6	75.4	69.4	69.3	.		
2010	68.8			53.5	72.1	72.8	68.5	74.0	80.0	72.1	75.7	70.3	73.2	.		
2011	62.5			56.6	70.6	77.8	71.2	73.2	83.8	72.8	77.2	70.9	71.5	12.5		
2012	68.8			56.0	69.1	72.8	68.5	75.4	81.9	76.3	78.6	72.5	71.9	.		
2013	68.8			56.0	63.2	79.0	68.5	76.6	80.6	78.3	79.7	73.6	76.3	25.0		
2014	81.3			54.7	63.2	76.5	72.3	75.4	82.5	79.0	79.3	74.8	74.1	25.0		
2015	75.0			57.2	72.1	77.8	72.8	81.0	84.4	82.0	80.4	80.6	79.8	37.5		
2016	81.3			58.5	63.2	75.3	69.6	78.7	85.6	77.0	76.8	76.1	79.8	37.5		
Number of children				16	159	68	81	184	642	160	434	276	556	228	8	
2006	B			2006	.	6.8	8.3	8.7	8.8	12.0	18.3	9.6	9.4	11.3	16.4	23.4
				2007	.	4.5	3.3	6.5	8.2	7.9	11.0	7.4	9.4	8.0	9.2	19.0
				2008	.	8.3	10.0	17.4	12.9	12.0	14.7	13.3	12.5	15.2	15.0	24.8
				2009	.	8.3	8.3	15.2	9.8	13.9	14.7	16.5	20.8	18.9	15.4	24.8
		2010	.	11.1	13.3	13.0	13.9	17.7	22.0	22.3	18.8	23.7	16.4	29.9		
		2011	.	15.6	18.3	23.9	19.6	17.2	26.6	27.1	22.9	25.5	18.3	36.5		
		2012	14.3	16.9	16.7	28.3	21.6	19.6	27.5	30.9	25.0	27.8	20.5	39.4		
		2013	14.3	17.6	18.3	32.6	22.7	22.1	28.4	31.9	28.1	31.0	23.5	39.4		
		2014	14.3	19.1	18.3	30.4	22.2	23.2	33.0	36.7	28.1	32.9	25.8	36.5		
		2015	14.3	21.7	21.7	34.8	24.2	25.6	36.7	37.8	30.2	35.2	29.2	42.3		
		2016	14.3	22.4	21.7	30.4	23.7	27.0	38.5	36.7	32.3	35.9	30.3	43.1		
		Number of children			7	397	60	46	194	367	109	188	96	435	654	137
		2006	A	2007	69.2	37.5	50.9	60.2	58.0	62.2	65.2	62.5	60.6	60.7	60.2	45.8
				2008	71.8	39.5	56.0	63.3	60.9	61.9	65.2	64.2	64.8	61.8	62.3	45.8
				2009	79.5	48.1	61.1	68.4	66.7	68.6	77.1	68.1	71.2	69.0	68.5	54.2
				2010	82.1	52.7	65.6	69.7	66.4	70.5	77.1	70.2	72.7	71.8	69.6	58.3
2011	92.3			56.3	66.5	70.4	67.7	71.0	77.8	71.6	74.1	72.6	72.2	58.3		
2012	87.2			58.9	70.1	70.7	69.2	72.6	80.8	72.7	75.1	74.1	72.5	62.5		
2013	87.2			61.9	71.3	72.1	71.7	74.5	80.1	76.7	79.1	76.2	74.2	62.5		
2014	87.2			60.3	71.6	72.1	73.4	76.1	79.7	77.4	77.5	74.5	73.4	62.5		
2015	87.2			63.6	73.4	79.3	75.8	78.6	83.2	80.2	81.1	78.5	78.2	58.3		
2016	84.6			59.2	68.3	74.1	73.1	75.1	83.6	76.8	76.8	75.4	74.2	62.5		
Number of children				39	750	334	294	598	2460	463	1325	871	1867	698	24	
2007	B			2007	3.7	4.2	4.3	5.8	4.1	7.1	5.0	7.2	7.0	5.6	5.4	9.9
				2008	3.7	4.2	6.5	5.8	4.7	6.5	7.2	8.4	6.2	6.4	6.4	12.0
				2009	7.4	6.4	7.8	7.6	7.3	10.5	10.0	10.6	12.8	9.9	10.6	19.9
				2010	11.1	7.2	8.4	8.5	8.8	12.3	10.3	11.9	15.0	11.6	12.1	22.9
				2011	11.1	9.6	11.8	11.9	11.3	15.4	13.6	15.4	18.3	14.8	14.3	28.6
		2012	11.1	12.9	15.9	16.4	14.5	19.6	16.4	19.6	23.1	19.1	18.4	33.9		
		2013	14.8	14.2	18.2	18.5	15.3	20.3	18.1	21.7	25.8	20.8	20.0	35.6		
		2014	11.1	15.2	19.2	21.0	15.9	20.8	17.9	23.4	25.8	22.0	20.6	35.9		
		2015	7.4	17.0	20.0	21.9	18.3	23.1	19.8	25.1	27.1	24.7	22.9	38.1		
		2016	7.4	16.6	21.4	21.6	17.7	22.3	19.8	24.3	26.2	23.6	22.0	38.6		
		Number of children			27	3092	490	329	1116	2476	663	922	454	2365	3923	658
		2007	A	2008	73.3	41.4	51.7	61.2	59.3	63.9	70.4	67.4	67.7	63.0	61.3	54.1
				2009	80.0	43.2	53.6	62.5	60.6	64.6	72.0	68.3	68.5	63.9	61.3	52.8
				2010	86.7	48.8	59.9	66.3	65.6	70.4	77.6	71.4	71.1	68.8	64.4	64.2
				2011	93.3	53.8	59.6	68.7	67.0	71.7	79.2	72.9	73.6	70.0	65.8	59.7
				2012	86.7	56.9	60.3	67.4	68.9	73.3	81.6	74.6	73.3	69.3	69.4	67.3
2013	93.3			60.5	67.2	70.4	72.5	74.6	78.4	75.7	74.8	74.7	73.7	67.3		
2014	86.7			61.3	66.9	69.8	72.7	75.1	78.4	75.8	75.3	74.2	72.0	70.4		
2015	93.3			62.3	70.9	72.0	76.0	77.5	82.4	80.1	79.7	77.1	73.5	73.6		
2016	73.3			60.2	67.9	67.4	70.9	73.7	74.4	77.1	75.1	73.7	69.4	68.6		
Number of children				15	960	302	371	578	2173	125	1153	409	1334	483	159	
2007	B			2008	.	2.7	2.2	3.9	3.5	4.3	7.9	6.0	5.6	5.7	5.8	8.0
				2009	.	3.2	2.9	5.7	3.6	4.7	9.3	6.2	8.2	6.9	6.6	8.5

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B TABLES OF RETURN RATE BY PARENTS' OCCUPATION

Table 27: Continued from previous page

Birth year	Child type	Year of movement	Father's occupation <sup>5</sup>												
			1	2	3	4	5	6	7	8	9	10	EI	X	
		2010	.	5.7	6.1	10.4	7.0	9.3	11.7	9.4	14.7	11.6	9.8	14.3	
		2011	.	7.0	8.0	12.5	7.8	10.8	14.0	11.7	16.9	13.3	11.6	18.0	
		2012	.	9.5	11.4	14.5	11.2	14.1	18.2	14.6	21.2	17.2	15.1	23.0	
		2013	.	13.2	15.3	18.0	14.3	17.9	19.2	19.7	25.5	21.1	19.0	27.1	
		2014	.	14.4	16.0	19.1	15.3	19.8	20.1	20.6	26.0	21.8	20.0	28.8	
		2015	5.9	16.4	18.3	20.6	17.9	21.1	22.0	21.8	26.0	23.3	21.7	29.8	
		2016	5.9	16.0	19.5	20.7	17.8	20.7	22.0	20.8	25.5	22.0	21.5	29.6	
		Number of children	17	5621	589	671	1495	3091	214	1200	231	1900	2895	1252	
2008	A	2009	54.7	35.7	51.5	64.2	60.8	64.4	61.7	67.3	64.0	64.8	57.7	62.8	
		2010	56.0	37.6	50.8	62.3	61.2	62.7	60.0	65.8	63.1	65.7	56.9	63.4	
		2011	72.0	46.2	61.6	69.4	66.7	68.7	73.3	71.7	69.4	68.6	61.4	74.4	
		2012	70.7	49.5	63.7	71.9	68.6	71.2	80.0	72.6	71.9	71.1	64.3	70.3	
		2013	73.3	53.6	64.9	77.7	71.3	74.5	73.3	75.8	75.3	73.5	67.4	73.8	
		2014	70.7	56.9	66.8	74.9	72.3	74.7	70.0	74.8	72.6	73.0	70.9	76.2	
		2015	78.7	58.9	69.9	77.1	74.1	76.8	73.3	80.3	75.7	76.8	74.6	79.1	
			2016	74.7	56.1	64.4	74.1	69.9	74.2	66.7	76.6	71.5	73.5	70.9	71.5
			Number of children	75	1274	581	363	595	1584	60	1180	445	810	350	172
	2009	B	2009	5.2	2.0	3.7	5.7	3.0	5.2	7.1	6.1	8.1	7.1	3.7	6.4
			2010	7.4	2.5	4.8	5.9	4.1	6.4	5.2	7.3	11.0	7.1	5.3	7.6
			2011	13.3	5.0	7.1	9.6	7.2	9.3	11.0	11.0	16.2	11.5	8.9	12.7
			2012	20.0	6.3	8.7	12.2	9.4	10.9	14.1	12.7	18.8	13.9	10.3	14.3
			2013	20.7	9.1	12.4	14.4	12.1	14.9	18.4	16.9	21.7	17.5	13.6	18.5
2014			22.2	12.3	16.6	18.5	15.4	18.1	22.7	20.0	25.4	21.5	17.6	23.6	
2015			24.4	13.9	18.1	20.1	16.7	20.4	24.8	21.6	27.5	23.5	19.5	25.5	
			2016	23.0	13.8	17.5	19.4	16.7	20.1	23.6	20.8	27.0	22.3	18.7	25.0
			Number of children	135	10711	1904	1054	1690	2544	326	1609	382	1542	2301	719
2010		A	2010	60.3	35.0	56.5	59.5	55.4	63.6	71.4	64.6	59.2	64.7	51.8	60.0
			2011	66.7	37.5	58.4	60.8	56.5	64.0	66.7	62.7	58.6	65.3	55.0	56.5
			2012	74.4	47.6	65.2	61.6	65.1	70.2	71.4	70.5	66.4	70.1	62.9	67.0
			2013	80.8	51.9	67.6	68.8	68.3	72.5	76.2	73.8	72.4	75.1	66.3	67.8
			2014	80.8	53.5	67.0	67.9	69.2	73.1	81.0	73.3	73.0	74.3	67.7	71.3
	2015		79.5	58.3	70.7	67.5	72.0	74.9	85.7	76.3	75.0	76.9	71.7	76.5	
	2016		73.1	54.8	67.6	67.5	68.1	72.0	81.0	73.8	70.4	74.9	70.0	69.6	
			Number of children	78	1246	649	237	464	1118	21	1134	304	668	353	115
	B	2010	7.4	2.2	4.1	6.3	4.7	7.9	5.4	6.4	12.4	11.8	7.1	8.1	
		2011	12.1	2.7	4.6	7.6	5.2	10.4	6.6	7.4	12.0	12.2	7.6	9.2	
		2012	14.8	5.3	8.5	12.4	10.0	15.8	11.5	12.1	16.3	18.3	13.7	11.7	
		2013	14.8	6.6	10.2	14.4	12.4	16.7	15.8	13.6	21.2	20.1	15.1	11.7	
		2014	16.8	9.6	13.0	17.7	15.5	19.3	20.1	17.7	24.1	23.2	18.0	14.7	
		2015	16.1	12.9	16.6	23.3	19.0	22.7	23.2	22.1	28.3	27.3	22.3	18.7	
2016		16.8	12.9	16.0	21.5	18.5	22.5	22.1	21.6	27.3	26.1	21.7	17.6		
		Number of children	149	16064	2989	1230	1435	1561	349	2513	410	895	1071	273	
2011	A	2011	62.2	33.5	50.6	60.9	57.4	65.4	72.2	62.7	62.9	65.3	56.1	58.2	
		2012	68.9	35.4	54.1	57.8	61.3	64.7	66.7	64.7	64.2	64.0	56.1	58.2	
		2013	75.6	46.7	64.0	63.0	70.5	73.4	72.2	72.6	71.9	68.9	66.3	65.2	
		2014	72.2	50.6	67.9	69.1	72.4	75.3	66.7	74.4	74.4	72.6	67.0	71.9	
		2015	81.1	54.5	68.4	71.7	74.3	78.4	72.2	76.7	71.9	74.5	72.8	72.9	
		2016	76.7	49.9	64.0	68.3	73.4	74.8	77.8	72.4	70.6	70.6	70.4	71.6	
				Number of children	90	1586	811	230	413	941	18	928	313	678	294
	B	2011	11.1	2.2	3.7	6.4	7.4	7.4	6.3	7.2	8.4	11.4	8.5	6.4	
		2012	12.5	3.1	5.1	8.5	8.9	10.0	10.7	8.5	11.4	13.1	10.0	7.3	
		2013	16.0	6.4	9.3	14.7	13.5	16.7	15.5	14.2	16.9	22.2	16.4	11.7	
		2014	20.1	8.0	11.1	17.3	15.1	19.6	19.6	15.6	18.0	23.2	20.3	13.5	
		2015	25.0	10.9	14.2	20.3	17.6	23.7	23.2	18.6	19.8	25.6	23.9	17.6	
		2016	23.6	11.2	13.9	18.7	17.6	24.0	21.4	18.8	19.4	25.6	23.2	17.7	
			Number of children	144	20445	3852	375	901	1123	271	2070	439	695	639	993
2012	A	2012	62.3	32.5	54.4	59.5	57.4	61.6	50.0	62.2	59.0	62.8	61.2	54.9	
		2013	62.3	38.8	57.6	58.2	62.6	64.1	60.7	65.2	59.3	64.7	63.9	58.8	
		2014	62.3	48.1	65.2	69.3	67.6	69.2	71.4	69.0	67.9	70.7	65.6	70.2	
		2015	77.0	53.2	69.4	75.8	73.0	75.3	75.0	75.2	76.1	77.1	69.4	71.2	
		2016	70.5	50.9	64.8	68.6	69.8	71.7	67.9	72.7	69.8	74.8	62.3	67.5	
			Number of children	61	1504	788	153	444	907	28	790	268	699	183	590
	B	2012	9.3	2.4	3.2	6.3	5.6	5.9	8.0	4.5	10.5	6.3	7.5	3.8	
		2013	10.3	3.7	4.7	7.6	6.7	7.8	9.9	6.1	12.3	8.6	8.8	4.9	
		2014	16.8	7.5	9.0	11.9	11.3	13.7	17.8	11.7	20.3	12.2	17.2	10.0	
		2015	17.8	9.0	10.4	12.6	12.7	16.6	19.7	13.5	20.3	14.5	19.6	10.8	
2016		18.7	9.8	11.0	13.2	12.9	15.9	20.2	13.0	20.0	14.5	20.0	11.4		
		Number of children	107	19950	4413	302	1148	1387	213	1811	325	1052	465	3039	
2012	A	2013	69.2	37.7	51.3	58.6	58.0	61.4	45.0	63.1	69.4	66.3	55.2	56.8	

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B TABLES OF RETURN RATE BY PARENTS' OCCUPATION

Table 27: Continued from previous page

Birth year	Child type	Year of movement	Father's occupation <sup>5</sup>											
			1	2	3	4	5	6	7	8	9	10	EI	X
		2014	75.0	40.4	54.4	59.3	58.3	60.8	70.0	64.2	65.0	64.2	50.5	61.2
		2015	84.6	51.4	64.4	72.1	71.4	72.1	70.0	71.0	77.6	73.1	61.9	69.3
		2016	80.8	49.0	61.4	66.4	72.6	68.5	75.0	67.4	72.7	70.0	65.7	65.1
		Number of children	52	1209	638	140	350	655	20	558	183	413	105	734
B		2013	.	2.8	3.3	4.1	4.9	4.8	3.3	3.9	3.9	5.9	10.7	4.3
		2014	1.7	4.4	5.0	4.6	5.4	6.8	6.7	5.2	5.8	7.3	11.8	5.8
		2015	6.7	9.9	9.8	10.3	12.2	12.1	23.3	11.0	16.2	13.7	16.0	11.0
		2016	8.3	10.2	10.3	11.3	12.2	12.7	23.3	11.3	17.5	13.7	16.0	11.0
		Number of children	60	13884	3268	194	939	1422	60	1851	154	546	169	2843
2013	A	2014	72.5	39.1	52.6	48.9	60.8	59.6	58.3	65.1	64.6	64.6	54.4	54.2
		2015	70.6	46.7	57.7	53.3	60.5	64.5	54.2	66.0	61.7	64.8	57.0	58.0
		2016	64.7	43.5	51.5	54.8	56.6	56.5	45.8	60.8	63.6	63.5	55.3	53.9
		Number of children	51	889	487	135	339	758	24	717	206	463	114	609
B		2014	.	17.9	26.7	.	66.7	36.7	.	50.0	100.0	.	37.5	15.0
		2015	.	16.1	26.7	.	55.6	33.3	.	41.7	100.0	.	37.5	17.5
		2016	.	16.1	26.7	.	55.6	33.3	.	25.0	100.0	.	37.5	20.0
		Number of children	.	56	15	.	9	30	1	12	1	5	8	40
2014	A	2015	78.4	41.9	54.4	67.9	59.9	60.8	64.3	64.1	75.4	68.2	55.4	56.3
		2016	60.8	40.1	47.6	53.8	49.1	52.3	57.1	55.2	65.1	58.8	51.4	50.3
		Number of children	51	930	597	106	352	932	14	928	175	585	175	843
		2015	100.0	40.0	60.0	25.0	14.3	44.4	.	57.1	50.0	37.5	25.0	31.3
2016	100.0	20.0	20.0	.	14.3	22.2	.	28.6	50.0	37.5	25.0	15.6		
Number of children	1	45	10	4	7	9	.	7	4	8	4	32		

## C Prediction of Return Rate for Next 49 Years

We use the same Markov Chain model to predict the return rate for the next 49 years. The estimation is shown in the following table.

Table 28: The predicted return rate for 2016-2064.

	Birth year										
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
	<b>Type A</b>										
2016	80.9	77.8	76.5	74.3	72.4	70.3	68.5	67.3	64.5	59.6	58.2
2017	79.8	77.2	75.8	73.7	71.8	69.7	67.8	66.3	63.7	59.9	58.2
2018	79.1	76.9	75.3	73.3	71.4	69.3	67.4	65.7	63.3	60.0	58.1
2019	78.7	76.6	75.0	73.0	71.1	69.1	67.1	65.3	63.0	60.1	58.1
2020	78.4	76.4	74.8	72.9	71.0	68.9	66.9	65.0	62.8	60.2	58.1
2021	78.2	76.3	74.6	72.7	70.8	68.8	66.8	64.8	62.6	60.2	58.1
2022	78.1	76.3	74.5	72.7	70.8	68.8	66.8	64.7	62.6	60.3	58.1
2023	78.0	76.2	74.5	72.6	70.7	68.8	66.7	64.7	62.5	60.3	58.1
2024	77.9	76.2	74.5	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2025	77.9	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2026	77.9	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2027	77.9	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2028	77.9	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2029	77.9	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2030	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2031	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2032	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2033	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2034	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2035	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2036	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2037	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2038	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2039	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2040	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2041	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2042	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2043	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2044	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2045	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2046	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1

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*C PREDICTION OF RETURN RATE FOR NEXT 49 YEARS*

*Table 28: Continued from previous page*

	Birth year										
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
2047	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2048	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2049	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2050	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2051	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2052	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2053	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2054	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2055	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2056	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2057	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2058	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2059	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2060	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2061	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2062	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2063	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
2064	77.8	76.2	74.4	72.6	70.7	68.7	66.7	64.6	62.5	60.3	58.1
	Type B										
2016	38.3	29.4	23.0	21.1	19.1	18.1	15.5	12.7	12.5	22.9	36.1
2017	36.8	29.1	23.5	21.8	20.0	18.9	16.6	14.1	13.8	22.5	33.6
2018	35.5	28.8	24.0	22.4	20.7	19.6	17.5	15.3	14.8	22.2	31.5
2019	34.4	28.6	24.3	22.8	21.2	20.2	18.3	16.3	15.8	21.9	29.7
2020	33.5	28.4	24.7	23.2	21.7	20.8	19.0	17.1	16.6	21.7	28.2
2021	32.7	28.3	24.9	23.6	22.2	21.2	19.5	17.8	17.2	21.4	26.9
2022	32.1	28.2	25.2	23.9	22.5	21.6	20.0	18.4	17.8	21.3	25.8
2023	31.5	28.1	25.4	24.1	22.8	21.9	20.4	19.0	18.3	21.1	24.9
2024	31.1	28.0	25.5	24.3	23.1	22.2	20.8	19.4	18.7	21.0	24.1
2025	30.7	27.9	25.7	24.5	23.3	22.4	21.1	19.8	19.1	20.9	23.4
2026	30.3	27.8	25.8	24.7	23.5	22.6	21.4	20.1	19.4	20.8	22.8
2027	30.0	27.8	25.9	24.8	23.7	22.7	21.6	20.4	19.6	20.7	22.3
2028	29.8	27.7	26.0	24.9	23.8	22.9	21.8	20.6	19.9	20.7	21.9
2029	29.6	27.7	26.1	25.0	23.9	23.0	21.9	20.8	20.0	20.6	21.5
2030	29.4	27.6	26.1	25.1	24.0	23.1	22.0	21.0	20.2	20.6	21.2
2031	29.3	27.6	26.2	25.1	24.1	23.2	22.2	21.1	20.3	20.5	21.0

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Table 28: Continued from previous page

	Birth year										
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
2032	29.1	27.6	26.2	25.2	24.2	23.3	22.3	21.2	20.4	20.5	20.7
2033	29.0	27.6	26.3	25.3	24.3	23.3	22.3	21.3	20.5	20.4	20.6
2034	29.0	27.6	26.3	25.3	24.3	23.4	22.4	21.4	20.6	20.4	20.4
2035	28.9	27.5	26.3	25.3	24.3	23.4	22.5	21.5	20.7	20.4	20.3
2036	28.8	27.5	26.3	25.4	24.4	23.5	22.5	21.6	20.8	20.4	20.1
2037	28.8	27.5	26.4	25.4	24.4	23.5	22.6	21.6	20.8	20.4	20.0
2038	28.7	27.5	26.4	25.4	24.4	23.5	22.6	21.7	20.9	20.4	20.0
2039	28.7	27.5	26.4	25.4	24.5	23.6	22.6	21.7	20.9	20.3	19.9
2040	28.6	27.5	26.4	25.4	24.5	23.6	22.7	21.7	20.9	20.3	19.8
2041	28.6	27.5	26.4	25.5	24.5	23.6	22.7	21.8	20.9	20.3	19.8
2042	28.6	27.5	26.4	25.5	24.5	23.6	22.7	21.8	21.0	20.3	19.7
2043	28.6	27.5	26.4	25.5	24.5	23.6	22.7	21.8	21.0	20.3	19.7
2044	28.5	27.5	26.4	25.5	24.5	23.6	22.7	21.8	21.0	20.3	19.7
2045	28.5	27.5	26.5	25.5	24.5	23.6	22.7	21.9	21.0	20.3	19.6
2046	28.5	27.5	26.5	25.5	24.6	23.6	22.7	21.9	21.0	20.3	19.6
2047	28.5	27.5	26.5	25.5	24.6	23.7	22.8	21.9	21.0	20.3	19.6
2048	28.5	27.5	26.5	25.5	24.6	23.7	22.8	21.9	21.0	20.3	19.6
2049	28.5	27.5	26.5	25.5	24.6	23.7	22.8	21.9	21.1	20.3	19.6
2050	28.5	27.5	26.5	25.5	24.6	23.7	22.8	21.9	21.1	20.3	19.6
2051	28.5	27.5	26.5	25.5	24.6	23.7	22.8	21.9	21.1	20.3	19.5
2052	28.5	27.5	26.5	25.5	24.6	23.7	22.8	21.9	21.1	20.3	19.5
2053	28.5	27.5	26.5	25.5	24.6	23.7	22.8	21.9	21.1	20.3	19.5
2054	28.5	27.5	26.5	25.5	24.6	23.7	22.8	21.9	21.1	20.3	19.5
2055	28.5	27.5	26.5	25.5	24.6	23.7	22.8	21.9	21.1	20.3	19.5
2056	28.5	27.5	26.5	25.5	24.6	23.7	22.8	21.9	21.1	20.3	19.5
2057	28.5	27.5	26.5	25.5	24.6	23.7	22.8	21.9	21.1	20.3	19.5
2058	28.5	27.5	26.5	25.5	24.6	23.7	22.8	21.9	21.1	20.3	19.5
2059	28.5	27.5	26.5	25.5	24.6	23.7	22.8	21.9	21.1	20.3	19.5
2060	28.5	27.5	26.5	25.5	24.6	23.7	22.8	21.9	21.1	20.3	19.5
2061	28.5	27.5	26.5	25.5	24.6	23.7	22.8	21.9	21.1	20.3	19.5
2062	28.5	27.5	26.5	25.5	24.6	23.7	22.8	21.9	21.1	20.3	19.5
2063	28.5	27.5	26.5	25.5	24.6	23.7	22.8	21.9	21.1	20.3	19.5
2064	28.5	27.5	26.5	25.5	24.6	23.7	22.8	21.9	21.1	20.3	19.5

## D Return Rate Prediction with Inhomogeneous Markov Chain

If we assume that the return rate of children depends on the age of children, we are able to modify the Markov Chain process to incorporate this assumption. We use an inhomogeneous Markov Chain to predict the return rate of children. The inhomogeneity of the process is due to age-specific transition matrices for each birth cohort. Table 29 shows the prediction values for different birth cohorts.

Table 29: The predicted return rate with inhomogeneous Markov Chain.

Birth year	Child type	Year of movement										
		2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
2004	A	71.1										
	B	31.5										
2005	A	74.3	71.0									
	B	28.0	29.8									
2006	A	73.6	74.3	71.0								
	B	23.6	26.6	28.6								
2007	A	74.0	73.5	74.2	71.0							
	B	23.2	23.2	26.2	28.3							
2008	A	72.8	73.9	73.5	74.2	71.0						
	B	21.9	22.7	22.7	25.8	27.9						
2009	A	72.3	72.7	73.9	73.5	74.2	71.0					
	B	21.2	21.6	22.4	22.5	25.6	27.8					
2010	A	71.1	72.2	72.7	73.8	73.4	74.1	70.9				
	B	19.7	20.4	20.8	21.7	21.8	25.1	27.3				
2011	A	70.2	71.1	72.2	72.6	73.8	73.4	74.1	70.9			
	B	16.2	18.6	19.4	20.0	20.9	21.1	24.5	26.8			
2012	A	69.0	69.7	70.8	72.0	72.5	73.7	73.4	74.1	70.9		
	B	14.0	16.2	18.6	19.4	20.0	20.9	21.1	24.4	26.8		
2013	A	64.9	67.5	68.7	70.1	71.6	72.2	73.5	73.2	74.0	70.8	
	B	20.1	19.9	21.2	22.9	23.2	23.3	24.0	23.8	26.8	28.8	
2014	A	58.4	64.6	67.3	68.6	70.0	71.5	72.2	73.5	73.2	74.0	70.8
	B	29.9	28.8	27.3	27.5	28.4	27.9	27.6	27.8	27.3	29.8	31.3

## E Previous Study

In this section we provide the estimation of return rates based on the 2014 data set. This analysis provide a benchmark to compare the findings from the previous study with the current study.

The following analyses have been adjusted to the new definition of birth cohort and non-cumulative return rate.

### E.1 Return Rate

*Table 30: Return rate of Type A and Type B children in different years by birth cohort, 2014 exercise.*

Birth year	Child type	Year of movement								
		2005	2006	2007	2008	2009	2010	2011	2012	2013
2004	A	66.3	63.7	70.3	74.5	73.9	76.2	76.3	76.7	81.1
	B	17.9	11.7	18.3	18.7	22.0	26.0	26.0	27.9	32.2
2005	A		62.5	61.7	68.4	71.4	71.7	72.5	73.7	75.7
	B		12.4	8.4	13.8	15.0	18.2	21.4	23.6	26.3
2006	A			59.2	60.7	67.3	69.5	70.8	72.4	75.2
	B			5.7	6.2	9.8	11.3	14.3	18.5	20.3
2007	A				60.6	61.6	66.5	68.2	69.8	73.3
	B				4.5	5.1	8.9	10.6	14.1	18.4
2008	A					58.2	57.9	64.6	66.9	70.4
	B					3.8	4.7	8.1	9.9	13.7
2009	A						55.9	56.6	64.2	68.3
	B						4.3	5.1	9.6	11.5
2010	A							54.0	55.3	64.4
	B							4.0	5.5	11.1
2011	A								53.4	57.3
	B								6.2	8.2
2012	A									55.6
	B									15.4

## E.2 Return Rate Prediction

Table 31: The predicted return rate for 2014–2028, 2014 exercise.

Year	Type	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
2004	A	79.8	79.1	78.6	78.3	78.1	77.9	77.8	77.8	77.8	77.7	77.7	77.7	77.7	77.7	77.7
	B	30.5	29.2	28.1	27.3	26.6	26.0	25.6	25.3	25.0	24.7	24.6	24.4	24.3	24.2	24.1
2005	A	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7
	B	25.8	25.4	25.0	24.8	24.5	24.4	24.2	24.1	24.0	23.9	23.9	23.8	23.8	23.7	23.7
2006	A	74.6	74.2	74.0	73.8	73.7	73.6	73.6	73.6	73.6	73.6	73.5	73.5	73.5	73.5	73.5
	B	20.9	21.3	21.7	22.0	22.3	22.5	22.6	22.8	22.9	23.0	23.0	23.1	23.2	23.2	23.2
2007	A	72.5	72.1	71.8	71.6	71.5	71.4	71.4	71.3	71.3	71.3	71.3	71.3	71.3	71.3	71.3
	B	19.3	19.9	20.5	21.0	21.4	21.7	21.9	22.1	22.3	22.5	22.6	22.7	22.8	22.9	22.9
2008	A	69.8	69.5	69.3	69.2	69.1	69.0	69.0	69.0	69.0	69.0	69.0	69.0	69.0	69.0	69.0
	B	15.2	16.5	17.6	18.5	19.2	19.9	20.4	20.8	21.2	21.5	21.7	21.9	22.1	22.3	22.4
2009	A	67.6	67.2	67.0	66.8	66.7	66.6	66.6	66.6	66.6	66.6	66.5	66.5	66.5	66.5	66.5
	B	13.3	14.8	16.1	17.1	18.0	18.8	19.4	19.9	20.4	20.8	21.1	21.4	21.6	21.8	21.9
2010	A	64.3	64.2	64.1	64.1	64.1	64.1	64.1	64.0	64.0	64.0	64.0	64.0	64.0	64.0	64.0
	B	12.8	14.3	15.5	16.6	17.5	18.3	18.9	19.5	20.0	20.4	20.7	21.0	21.2	21.4	21.6
2011	A	58.9	59.9	60.5	60.9	61.1	61.3	61.4	61.4	61.4	61.5	61.5	61.5	61.5	61.5	61.5
	B	10.3	12.0	13.5	14.8	15.9	16.9	17.7	18.4	18.9	19.4	19.9	20.2	20.6	20.8	21.1
2012	A	56.9	57.7	58.2	58.5	58.7	58.8	58.8	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9
	B	16.4	17.2	17.9	18.5	19.0	19.4	19.8	20.2	20.4	20.7	20.9	21.1	21.2	21.4	21.5

Table 32: The predicted number of children that will return for 2014-2028, 2014 exercise.

Year	Type	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
2004	A	1,198	1,186	1,179	1,174	1,171	1,169	1,168	1,167	1,166	1,166	1,166	1,166	1,166	1,166	1,166
	B	237	227	219	212	207	202	199	196	194	192	191	190	189	188	187
2005	A	2,125	2,125	2,125	2,125	2,124	2,124	2,124	2,124	2,124	2,124	2,124	2,124	2,124	2,124	2,124
	B	692	681	673	665	660	655	651	648	645	643	642	640	639	638	637
2006	A	7,249	7,211	7,188	7,173	7,163	7,157	7,153	7,151	7,150	7,149	7,148	7,148	7,147	7,147	7,147
	B	3,444	3,519	3,581	3,632	3,673	3,707	3,735	3,758	3,777	3,792	3,804	3,815	3,823	3,830	3,836
2007	A	5,844	5,807	5,784	5,770	5,760	5,755	5,751	5,749	5,747	5,746	5,746	5,745	5,745	5,745	5,745
	B	3,692	3,823	3,930	4,019	4,093	4,154	4,204	4,246	4,281	4,309	4,333	4,352	4,368	4,382	4,393
2008	A	5,238	5,213	5,198	5,188	5,182	5,178	5,175	5,174	5,173	5,172	5,172	5,172	5,172	5,172	5,172
	B	3,934	4,265	4,542	4,772	4,965	5,125	5,260	5,372	5,465	5,543	5,608	5,662	5,708	5,745	5,777
2009	A	4,324	4,297	4,281	4,270	4,264	4,260	4,257	4,256	4,255	4,254	4,254	4,254	4,254	4,254	4,253
	B	4,026	4,482	4,865	5,188	5,460	5,689	5,881	6,043	6,180	6,295	6,391	6,473	6,541	6,599	6,647
2010	A	4,236	4,231	4,228	4,225	4,224	4,223	4,223	4,223	4,223	4,222	4,222	4,222	4,222	4,222	4,222
	B	4,288	4,784	5,205	5,563	5,866	6,123	6,342	6,527	6,685	6,819	6,932	7,028	7,110	7,179	7,238
2011	A	3,748	3,811	3,850	3,874	3,888	3,897	3,902	3,905	3,907	3,909	3,909	3,910	3,910	3,910	3,910
	B	3,385	3,962	4,456	4,878	5,239	5,547	5,812	6,037	6,231	6,396	6,538	6,658	6,762	6,850	6,926
2012	A	2,814	2,853	2,876	2,890	2,899	2,904	2,907	2,909	2,910	2,910	2,911	2,911	2,911	2,911	2,911
	B	3,263	3,425	3,564	3,684	3,787	3,876	3,953	4,019	4,076	4,125	4,167	4,204	4,235	4,262	4,286
All		63,739	65,904	67,741	69,301	70,624	71,746	72,697	73,504	74,187	74,767	75,257	75,673	76,026	76,325	76,578

## E.3 Estimated Number of Cross-border Students

Table 33: Estimated number of cross-border students, 2014 exercise.

Birth year	Child type	School year							
		06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14
2004	A	0	39	44	45	41	35	28	24
	B	2	9	13	27	32	36	38	42
2005	A	1	3	87	110	111	110	100	90
	B	0	0	46	97	136	181	205	206
2006	A	3	10	23	395	453	449	407	356
	B	6	3	8	456	744	950	1,356	1,466
2007	A	0	6	11	17	309	348	315	322
	B	0	3	7	21	834	1,262	1,546	1,971
2008	A	0	0	6	16	36	350	359	328
	B	0	0	1	6	29	1,528	2,167	2,442
2009	A	0	0	0	5	17	40	335	332
	B	0	0	0	7	10	30	2,050	2,615
2010	A	0	0	0	0	7	13	45	316
	B	0	0	0	0	6	15	69	2,917
2011	A	0	0	0	0	0	10	33	88
	B	0	0	0	0	0	6	21	142
2012	A	0	0	0	0	0	0	11	50
	B	0	0	0	0	0	0	10	24
2013	A	0	0	0	0	0	0	0	19
	B	0	0	0	0	0	0	0	0
<b>All</b>		<b>12</b>	<b>73</b>	<b>246</b>	<b>1,202</b>	<b>2,765</b>	<b>5,363</b>	<b>9,095</b>	<b>13,750</b>

Table 34: Distribution (% of total) of entrance checking point for cross-border students, 2014 exercise.

Birth year	Child type	Checking point					
		LokMaChau	LoWu	ManKamTo	ShaTauKok	ShenzhenBay	LMCSpurLine
2004	A	0.059	0.261	0.012	0.012	0.036	0.208
	B	.	0.101	.	0.006	0.107	0.119
2005	A	0.053	0.463	0.030	0.077	0.101	0.642

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Table 34: Continued from previous page

Birth year	Child type	Checking point					
		LokMaChau	LoWu	ManKamTo	ShaTauKok	ShenzhenBay	LMCSpurLine
2006	B	0.036	0.481	0.107	0.077	0.446	0.452
	A	0.214	1.628	0.172	0.202	0.362	2.335
	B	0.160	2.745	0.695	0.357	3.654	3.274
2007	A	0.143	1.117	0.137	0.202	0.386	1.557
	B	0.297	3.007	0.689	0.493	5.009	4.563
2008	A	0.190	1.277	0.006	0.113	0.261	1.408
	B	0.475	3.256	0.095	0.624	6.049	5.746
2009	A	0.149	0.992	0.024	0.107	0.208	1.319
	B	0.428	3.375	0.143	0.535	6.387	5.989
2010	A	0.137	0.731	0.053	0.053	0.220	1.093
	B	0.458	3.072	0.463	0.428	6.982	6.738
2011	A	0.042	0.410	.	0.006	0.053	0.410
	B	0.036	0.362	0.006	0.036	0.315	0.529
2012	A	0.012	0.196	.	0.006	0.024	0.214
	B	.	0.119	0.012	0.006	0.024	0.107
2013	A	0.006	0.095	.	0.006	.	0.083
	B	.	.	.	.	.	0.006
<b>All</b>		<b>2.894</b>	<b>23.690</b>	<b>2.644</b>	<b>3.345</b>	<b>30.624</b>	<b>36.791</b>



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