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GENDER EARNINGS MOBILITY: A COMPARISON OF RELATIVE MOBILITY IN GERMANY AND THE UK

by

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Gender Earnings Mobility:

A Comparison of Relative Mobility in Germany and the UK.

By Michael Brookes^{*#}

Abstract

At the current moment there are lots of examples within the literature of cross-sectional estimates of gender wage differentials and discrimination, however attempts to explain the dynamic processes which lead to the wage differences are rare. Furthermore studies which seek to analyse these processes on a cross-country basis are even rarer. The purpose of this paper is to establish the role that is played by earnings mobility in the dynamic process of narrowing (or widening) wage differentials. By applying an innovative Ordered Probit technique I have been able to establish that over the period 1991-1996 West German women were at a disadvantage when compared to British and East German women in terms of earnings mobility. This poorer earnings mobility performance was a major contributory factor to the worsening of the West German gender wage gap relative to the UK and East Germany.

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1. Introduction

The subject of gender wage differentials and discrimination has for a long time been a keen area of interest for labour economists. There are numerous examples of researchers calculating the female mean wage as a proportion of the male mean, in most cases this gap is then decomposed into its explained and unexplained portions (Oaxaca 1973). The majority of the current literature uses cross-sectional data and is focused on a single country. There are a smaller number of papers which carry out cross-country analysis, but very few which make use of panel data.

This leaves two clear areas where significant improvements to our understanding of discrimination and gender wage differentials can be made. Firstly most of the cross-country studies have suffered because they have been unable to use the same datasets in each of their chosen countries, or if they have differing variable definitions have made meaningful conclusions difficult to reach. This paper's use of the PACO dataset avoids these problems as it provides harmonised and standardised data from existing longitudinal studies.

Secondly, the relative scarcity of dynamic studies means that clearer knowledge of the causes of inter-temporal changes to gender wage differentials is required. Cross-sectional studies provide only a snapshot of women's earnings in comparison to men's at a

particular point in time, with research relying on pooled cross-sectional analysis to examine discrete trends. Such techniques are flawed as they cannot explain the causes of any change in the differential.

Clearly the rate at which women, compared to men, move up (and down) the earnings scale will have a significant impact upon any changes to the gender wage gap over time. This paper uses PACO to estimate individual earnings mobility across countries, in this case Germany and the UK. Previous researchers illustrate that the gender wage gap is narrower in Germany than it is in the UK, (Brookes 1999, Brookes, Hinks and Watson 1999, Blau and Kahn 1992, Callan 1996, Black, Trainor and Spencer 1999), suggesting that female relative mobility will be more favourable in Germany. The paper identifies the impact earnings mobility has upon the relative gender gap and examines the major causes behind cross-country differences in mobility.

2. Methodology

Germany and the UK are the chosen countries since of the larger, non-transitional, economies in the PACO project, they have the most recent overlap of years where data is available in both countries. The years in question are 1991-1996 inclusive. Using the data in these years I shall estimate the extent of gender mobility in each country, as well as identifying the major causes of cross-country differences.

The analysis separates easily into two distinct sections, firstly the extent of earnings mobility relative to each individual's initial wage is established in both countries, then the major explanatory factors are identified. The impact of these explanatory factors is then compared across the two countries to establish any similarities.

The first stage applies a technique similar to the one used by Fabig (1998). It calculates a relative earnings position for each individual by dividing hourly earnings for that person by the population mean, the process is carried out in both years. The earnings distribution is then calibrated into decile groups and individuals are assigned to their relevant group in each year. This gives us information relating to an individual's decile ranking in different years, relative mobility is then measured by the extent of movement over the decile groups.

This measure of relative mobility can be formalised through the calculation of a Bartholomew Index (Bartholomew 1973). A matrix is produced showing each individual's decile ranking in years i and j , from this the conditional probabilities of being in each decile group in the subsequent year given that the individual was in a particular group in the previous year can be calculated. The values outside of the main diagonal of this transition matrix are then weighted by the probability of being in that decile group in the initial period, the sum of these estimates gives the Bartholomew Index.¹

¹ See Bartholomew 1973 and Boudon 1973 for fuller coverage of the index and transition matrices respectively.

Adopting the notation used by Fabig (1998) ;

$$BI = \sum_{i=1}^n \sum_{j=1}^n p_i \cdot p_{ij} |i - j|$$

where p_i is the probability of being in that particular decile group in the first year and p_{ij} is the probability of being in a specific decile group in the later year given their initial year decile group. Clearly the greater the level of mobility the lower will be the values along the main diagonal, consequently the greater the value of the index. In the extreme case where there is no mobility, $BI=0$. Fabig also indicates that you can examine the resultant index more closely simply by producing two truncated indices, this merely requires splitting the initial index into the section above the leading diagonal and the section below. This allows for analysis of upward mobility and downward mobility to be carried out separately.

The second measure of earnings mobility uses an ordered probit model. It takes the findings from the previous section and attempts to identify some of the causes. For example if German women display higher levels of relative mobility than British women, what impact does, amongst others, higher levels of education have on their probabilities of upward and downward mobility in each country. Does having more education make you more likely to move up and less likely to move down in Germany than it does in the UK ?

In order to achieve this ordered probit models are estimated for both countries. The dependent variable takes on a value of 0 if the individual is in a lower decile group in 1996 than in 1991, 1 for the same group and 2 for a higher group, since the values of the dependent variable have a clear ranking an ordered probit is the correct formulation of the model. (Greene 2000).

The model is estimated from the equation; $y^* = \mathbf{b}'\mathbf{x} + \mathbf{e}$, y^* is unobserved but we do observe;

$$y = 0 \text{ if } y^* \leq 0, \quad y = 1 \text{ if } 0 < y^* \leq \mathbf{m}_1 \quad \text{and } y = 2 \text{ if } \mathbf{m}_1 < y^* \leq \mathbf{m}_2$$

The \mathbf{m} 's are unknown parameters to be estimated with \mathbf{b} . The probabilities of the three

outcomes are; $\Pr ob(y = 0) = 1 - \mathbf{f}(\mathbf{b}'\mathbf{x})$

$$\Pr ob(y = 1) = \mathbf{f}(\mathbf{m}_1 - \mathbf{b}'\mathbf{x}) - \mathbf{f}(-\mathbf{b}'\mathbf{x})$$

$$\Pr ob(y = 2) = 1 - \mathbf{f}(\mathbf{m}_1 - \mathbf{b}'\mathbf{x}) \quad \mathbf{f} \text{ is the standardised}$$

normal distribution. From these probabilities the marginal effects of changes in the

regressors are; $\text{Marginal Effect (0)} = -\mathbf{f}(\mathbf{b}'\mathbf{x})\mathbf{b}$

$$\text{Marginal Effect (1)} = [\mathbf{f}(-\mathbf{b}'\mathbf{x}) - \mathbf{f}(\mathbf{m}_1 - \mathbf{b}'\mathbf{x})]\mathbf{b}$$

$$\text{Marginal Effect (2)} = \mathbf{f}(\mathbf{m}_1 - \mathbf{b}'\mathbf{x})\mathbf{b} . \quad (\text{Greene 2000}).$$

Finally, so that cross-country comparisons can be made, the restriction that the female coefficients are equal to the male coefficients is imposed upon the female equations. The

3 probabilities are then re-calculated to show the differences in the likelihood of upward and downward mobility for equally endowed men and women. This reveals a percentile mobility advantage/disadvantage for women in one country which can be directly compared with the same estimate from another country.

3. Results

Using every available observation where a valid wage is recorded, the descriptive statistics for hourly wages are reproduced in Table 1 below. Given the proximity of the time period to re-unification the German results are reported both collectively and separately.

Table 1.

	Observations	Combined Mean	St. Dev.	Male Mean	Female Mean	F/M Ratio
Germany 91	5548	DM 18.68	14.79	DM 20.78	DM 15.80	0.76
Germany 96	5122	DM 22.23	12.18	DM 24.37	DM 19.44	0.798
West Germany 91	3818	DM 21.65	16.29	DM 24.01	DM 18.18	0.757
West Germany 96	2838	DM 25.83	14.81	DM 28.78	DM 21.78	0.757
East Germany 91	1730	DM 12.12	7.3	DM 12.94	DM 11.17	0.863
East Germany 96	1296	DM 18.38	8.53	DM 18.87	DM 17.85	0.946
UK 91	4715	£5.61	4.41	£6.54	£4.67	0.714
UK 96	4305	£6.74	5.12	£7.68	£5.82	0.758

When comparing the UK with the overall German results the position is as predicted. The German gender differential is narrower than the UK's, with the gap closing by a similar proportion in both countries over the period. However when East and West Germany are

considered separately it reveals a very different picture, all of the narrowing of the German gender differential is due to gains made by East German women. The West German Female/Male mean wage ratio is static at 75.7%, whereas the East German ratio starts at the much higher level of 86.3% and significantly narrows to 94.6%. Surprisingly, by the end of the period, the UK gender differential at 75.8% is marginally smaller than the West German one.

Table 2.

Area	Group	Barth. Index	Trun. Index	Observations
Germany	Combined	0.82	0.53 up 0.29 down	2746
West Germany	Combined	0.81	0.51 up 0.30 down	1947
East Germany	Combined	0.83	0.53 up 0.30 down	799
West Germany	Men	0.81	0.56 up 0.25 down	1206
West Germany	Women	0.8	0.41 up 0.39 down	741
East Germany	Men	0.82	0.53 up 0.29 down	459
East Germany	Women	0.84	0.53 up 0.31 down	340
UK	Combined	0.77	0.46 up 0.31 down	2520
UK	Men	0.78	0.45 up 0.33 down	1237
UK	Women	0.76	0.46 up 0.30 down	1283

The observations not recording a valid wage in both of the years were then deleted and Bartholomew indices were calculated from the remainder. The results are shown above in Table 2, with the full transition matrices reproduced in Appendix A.

For Germany the combined results reveal no real difference in terms of overall relative mobility nor up or down mobility between Germany overall and West and East Germany separately. The results are remarkably similar; overall index just above 0.8, truncated index slightly over 0.5 up and around 0.3 down. However when men and women are considered separately significant differences appear. The level of overall mobility is more or less the same in all cases, but when split into upward and downward movement clear differences are seen.

The East German women almost exactly mirror the performance of East German men, 0.53 up and 0.29 down compared to 0.53 up and 0.31 down, whereas West German women display considerably more downward mobility and significantly less upward movement than their male counterparts. This supports the initial findings from above and suggests that there is no real gender disadvantage in terms of earnings mobility within the East German labour market, whilst West German men appear to have a clear advantage.

The UK results, with overall mobility in the region of 0.77, show slightly lower levels of mobility than Germany. However when separated by gender the results are similar to the East German ones with women performing marginally better than men. Consequently it

is only in West Germany that women appear to be at a disadvantage in terms of relative earnings mobility.

In each of the 3 cases ordered probit models are estimated for men and women separately. A wide range of variables were used in the models, but only those which reveal significance for either men or women are reported in each case. With the exception of ADDCH, (a dummy variable for the birth of a child after 1991), all of the explanatory variables are the individuals endowment of that particular variable at the start of the period, i.e. when observed in 1991. A full description of all the variables is in Appendix B.

Table 3.

Ordered Probit Results: West Germany

Variable	Male					Female				
	Coeff.	St. Err.	DV=0	DV=2	Mean	Coeff.	St. Err.	DV=0	DV=2	Mean
Constant	-0.042	0.19	0.013	-0.017		-0.403*	0.231	0.145	-0.149	
Education	0.077**	0.015	-0.023	0.031	12.11	0.095**	0.018	-0.034	0.035	11.68
Age 4	-0.511**	0.099	0.153	-0.204	.137	-0.42**	0.134	0.151	-0.155	.119
Addch	0.223**	0.114	-0.067	0.09	.109	-0.051	0.206	0.018	-0.019	.049
PT	-0.359	0.288	0.107	-0.143	.018	-0.256**	0.096	0.092	-0.094	.324
Ych	0.148*	0.084	-0.044	0.059	.233	-0.127	0.125	0.046	-0.047	.128
Agric.& Fish.	-1.602**	0.399	0.48	-0.639	.008	-0.156	0.433	0.056	-0.058	.008
Manufacturing	-0.14*	0.076	0.042	-0.056	.413	-0.189*	0.105	0.068	-0.07	.245
Construction	-0.333**	0.119	0.1	-0.133	.098	-0.583	0.425	0.209	-0.215	.008
Services	-0.134	0.149	0.04	-0.053	.058	-0.2*	0.114	0.072	-0.074	.183
III	.7943					.8597				
Obs.			1200					734		
Chi sq.(10)			105					61		
Iterations			16					15		
Log Like.			-1201					-775		
Rest. Log Like.			-1254					-806		

* and ** denotes significance at the 10% and 5% levels respectively.

Table 3 gives the results for the ordered probit estimates for West Germany, the coefficients and related standard errors are reported for each variable. In addition, since in an ordered probit the coefficients cannot be interpreted as the impact of a unit change in that variable², the marginal effects are also reported. These show the change in probability as a result of a unit change in that particular variable, however as the ordered probit function is not linear the marginal effects will change for different levels of endowment, so the reported marginal effects are for a unit change in that variable with all of the continuous variables at their means. In this case the only continuous variable is education, so we can interpret the marginal effects as the impact upon the probability of earnings mobility at the mean of education. For example, a man with 12.11 years of education and in the Age 4 category, i.e. over 50, is 15.3% more likely to move down the earnings distribution, (DV=0), and 20.4% less likely to move down, (DV=2).

Looking more closely at the West German results there are some interesting comparisons between the performances of men and women. For example women experience more favourable returns from education, on average an extra year of education makes a women 3.5% more likely to move up the earnings distribution and 3.4% less likely to move down, compared to 3.1% and 2.3% for men. Part-time work does not have a significant impact upon mobility for the small number of part-time men, whereas for the 32.4% of women affected it has a large impact, making them 9.4% less likely to move up and 9.2% less likely to move down. Finally, the presence of an additional child during the period

²See Greene 2000 pp876-879.

has no impact upon female mobility, whereas it makes men 9% more likely to move up the distribution and 6.7% less likely to move down, suggesting a strong motivational effect for these men.

Table 4

Ordered Probit Results: East Germany

Variable	Male					Female				
	Coeff.	St. Err.	DV=0	DV=2	Mean	Coeff.	St. Err.	DV=0	DV=2	Mean
Constant	-1.374**	0.461	0.44	-0.548		-1.13**	0.55	0.326	-0.45	
Education	0.129**	0.035	-0.041	0.051	13.42	0.121**	0.042	-0.035	0.048	13.29
Age 1	0.071	0.197	-0.023	0.028	.088	-0.705**	0.286	0.203	-0.281	.068
PT	-0.039	0.358	0.126	-0.157	.02	-0.493**	0.249	0.142	-0.196	.088
Public	0.668**	0.162	-0.214	0.267	.31	0.507**	0.179	-0.146	0.202	.531
Manufacturing	0.291**	0.138	-0.093	0.116	.299	-0.066	0.176	0.019	-0.026	.189
Construction	-0.028	0.203	0.009	-0.011	.092	0.767*	0.437	-0.221	0.301	.029
Social Services	0.082	0.196	-0.026	0.032	.196	0.323*	0.192	-0.093	0.129	.419
<i>III</i>	.6901					.7444				
Obs.			455					339		
Chi sq.(8)			48.6					56.1		
Iterations			13					13		
Log Like.			-452					-319		
Rest.Log Like.			-476					-347		

* and ** denotes significance at the 10% and 5% levels respectively.

Table 4 reproduces the results for East Germany, these reveal that part-time work has the same strong negative impact upon womens' mobility as experienced in West Germany, making them 19.6% less like to move up and 24.9% more likely to move down. In addition, education again has a significant impact upon the mobility likelihood, although

in this case the men do marginally better than the women, 5.1% up and -4.1% down as opposed to 4.8% up and -3.5% down. For women under 24 there is a very strong negative impact upon mobility, 28.1% less likely to move up and 28.6% more likely to move down, this is surprising since the same variable is significantly positive for women in the UK, although it is insignificant for men and women in West Germany. However the most probable cause for this is that the collapse of the communist regime has shifted the burden of childcare from the state to young mothers, consequently restricting their prospects for earnings mobility. Finally, for the large proportion of East Germans employed in the public sector, around 40% of those in the sample, there is a clear positive effect upon mobility, (26.7% and -21.4% for men and 20.2% and -14.6% for women). In neither of the other two cases is the public sector dummy significant, it is likely that in this case the adjustment of East German civil servants' pay in line with West German levels is the major contributing factor.

The results for the UK are reproduced in Table 5 below. These contrast with the German results in that there are much lower mobility returns for education, an extra years education makes a man on average 1% more likely to move up and 0.9% less likely to move down, with similar figures for the women. There is also a clear difference in the age profile of earnings mobility with workers between 24 and 34 years, and especially workers under 24, showing very strong positive mobility.

Table 5.

Ordered Probit Results: UK

Variable	Male					Female				
	Coeff.	St. Err.	DV=0	DV=2	Mean	Coeff.	St. Err.	DV=0	DV=2	Mean
Constant	-0.129	0.152	0.042	-0.05		0.151	0.148	-0.048	0.058	
Education	0.026**	0.01	-0.009	0.01	13.95	0.02**	0.01	-0.007	0.008	13.15
Age 1	0.869**	0.107	-0.285	0.334	.149	0.363**	0.1	-0.115	0.138	.138
Age 2	0.164**	0.074	-0.054	0.063	.339	0.148**	0.074	-0.047	0.056	.297
No. of Child	0.024	0.032	-0.008	0.009	.859	0.066**	0.034	-0.021	0.025	.832
Addch	0.239**	0.109	-0.078	0.092	.102	0.002	0.137	-0.001	0.001	.056
PT	-0.297	0.207	0.097	-0.114	.019	-0.273**	0.075	0.087	-0.104	.364
Ten 1	0.31**	0.07	-0.102	0.119	.378	0.347**	0.066	-0.11	0.132	.445
Health	-0.31*	0.173	0.102	-0.119	.028	-0.123	0.162	0.039	-0.047	.044
Utilities	0.381*	0.219	-0.125	0.147	.029	-0.041	0.555	0.013	-0.016	.005
Social Services	0.176**	0.084	-0.058	0.068	.218	0.122*	0.067	-0.039	0.047	.482
<i>III</i>	.9008					.9718				
Obs.	1231					1277				
Chi sq.(11)	129.5					93.6				
Iterations	16					16				
Log Like.	-1275					-1339				
Rest.Log Like.	-1340					-1386				

* and ** denotes significance at the 10% and 5% levels respectively.

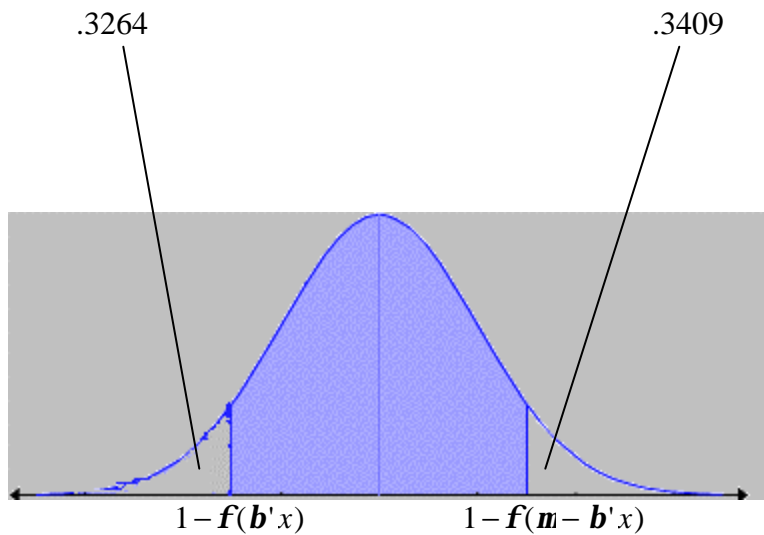
The impact of children upon mobility also contrasts with the German results, the number of children has a significant and positive effect for women, suggesting that as the number of children rises the less mobile tend to leave the labour market. For men the positive motivational effect of additional children concurs with the West German results.

Finally, if the restriction that the female coefficients are equal to the male ones is imposed, the parameters can be re-estimated and values can be assigned to the extent of female mobility advantage/disadvantage in each of the three cases. In essence it simply

estimates the difference between women's mobility performance over the period and how they would have performed if they received the same treatment as the men.

The ordered probit estimates for West German women give the parameters outlined below in Fig. 1, the model predicts that 32.64% of the women will move down the earnings distribution and 34.09% will move up.

Fig. 1



If we impose the restriction both of the parameters shift leftwards predicting that 26.11% would move downwards and 43.64% would move up. The implication of this is that where a women differs from a man only in terms of gender she is on average 6.5% more likely to move down the earnings distribution and 9.5% less likely to move upwards, a total mobility disadvantage of 16%. Repeating the process for East Germany and the UK

shows a more favourable position for women, with East Germany having a slight female advantage of 1.5% and the UK having a larger female advantage of 7.3%. Obviously care must be taken in interpreting these as the true mobility disadvantage or advantage, but similar to a Oaxaca decomposition, (Oaxaca 1973), we can at least interpret them as the upper bound upon any differential treatment.

Conclusion

At the outset it was established that gender wage differentials have historically been narrower in Germany than they have in the UK. As a consequence it was expected that this paper would reveal a more favourable position for German women, compared to British women, in terms of earnings mobility. The transitory state of the German labour market necessitated separating the results for West and East Germany, but the initial expectations proved largely to be false. The benefits and opportunities accruing to British and East German women for earnings growth outweighed those available in West Germany, in fact the latter was the only one to show evidence of a female mobility disadvantage.

It is fair to conclude that the difference between West German and UK mobility must be historically high, otherwise previous estimates of gender differentials would not have consistently shown a narrower wage gap in West Germany. In simple terms the UK female/male ratio would have overtaken the West German one years ago, therefore

atypical events need to be used to explain these results. Obviously the most atypical of recent events has been re-unification, hence the possibility that the strong upward mobility of East German women, especially older women, has been to a certain extent at the expense of West German women cannot be ignored.

Clearly earnings mobility plays an important role in generating movements in the gender wage gap. However the results also suggest that the treatment received by new workers and frictional workers, these are the people who were employed in 1996 but not 1991 and vice versa and are consequently excluded from earnings mobility, also has a significant role to play. Gender earnings mobility was stronger in the UK than East Germany, yet the earnings gap narrowed at a much faster rate in East Germany. Similarly a 23 percentage point advantage in terms of female earnings mobility only translates to a 4% improvement in the UK gender gap relative to the West German one. Possibly implying that the imposition of a minimum wage will improve the position of UK women still further.

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Appendix A:

A wide range of possible explanatory variables were used, these are as follows;

GENDER.	Female=1, Male=0.
EDUCATION.	Imputed numbers of years of education.
AGE 1, 2, 3, 4.	Dummy variables for less than 24, between 24 and 34, between 34 and 50 and above 50 respectively.
CHILD.	The number of children under 16 in the household.
AGECH.	The age of the youngest child.
ADDCH.	The presence of an additional child, i.e. one born during the 2 years under consideration.
MARR.	Dummy variable, married=1.
FIRM SIZE.	The number of employees employed by the firm.
PUBLIC.	Dummy variable, public sector employee=1.
PT.	Dummy variable taking on the value of 1 if employed for less than 30 hours per week.
TEN 1, 2, 3.	Three dummy variables to represent tenure of less than 2 years, between 2 and 10 years and more than 10 years respectively.
OWNOCC.	Owner Occupier=1, otherwise=0.

HEALTH.	Dummy variable taking on the value of 1 if the respondent reports being in poor health.
EMPSEC 1	Agriculture, hunting, forestry and fishing.
EMPSEC 2	Mining and quarrying.
EMPSEC 3	Manufacturing.
EMPSEC 4	Electricity, gas and water.
EMPSEC 5	Construction.
EMPSEC 6	Wholesale and retail trade and restaurants and hotels.
EMPSEC 7	Transport, storage and communication.
EMPSEC 8	Financing, insurance, real estate and business service.
EMPSEC 9	Community, social and personal services.

Appendix B:

Germany: Combined 91- 96

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10	
Dec. 1	0	1	0	2	0	1	0	0	0	0	4
Dec. 2	8	23	12	13	9	2	2	1	0	0	70
Dec. 3	12	91	117	130	57	21	15	4	1	4	452
Dec. 4	9	47	80	153	96	63	27	12	8	5	500
Dec. 5	10	22	32	99	139	120	64	26	9	6	527
Dec. 6	6	15	12	36	72	137	128	48	21	13	488
Dec. 7	2	2	6	6	26	41	74	79	53	18	307
Dec. 8	0	1	4	5	7	7	32	36	69	47	208
Dec. 9	0	2	1	2	1	5	5	5	24	66	111
Dec. 10	0	3	2	1	4	1	3	3	5	57	79
	47	207	266	447	411	398	350	214	190	216	2746

Probabilities

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10		
Dec. 1	0.00	25.00	0.00	50.00	0.00	25.00	0.00	0.00	0.00	0.00	100.00	0.15
Dec. 2	11.43	32.86	17.14	18.57	12.86	2.86	2.86	1.43	0.00	0.00	100.00	2.55
Dec. 3	2.65	20.13	25.88	28.76	12.61	4.65	3.32	0.88	0.22	0.88	100.00	16.46
Dec. 4	1.80	9.40	16.00	30.60	19.20	12.60	5.40	2.40	1.60	1.00	100.00	18.21
Dec. 5	1.90	4.17	6.07	18.79	26.38	22.77	12.14	4.93	1.71	1.14	100.00	19.19
Dec. 6	1.23	3.07	2.46	7.38	14.75	28.07	26.23	9.84	4.30	2.66	100.00	17.77
Dec. 7	0.65	0.65	1.95	1.95	8.47	13.36	24.10	25.73	17.26	5.86	100.00	11.18
Dec. 8	0.00	0.48	1.92	2.40	3.37	3.37	15.38	17.31	33.17	22.60	100.00	7.57
Dec. 9	0.00	1.80	0.90	1.80	0.90	4.50	4.50	4.50	21.62	59.46	100.00	4.04
Dec. 10	0.00	3.80	2.53	1.27	5.06	1.27	3.80	3.80	6.33	72.15	100.00	2.88
	1.71	7.54	9.69	16.28	14.97	14.49	12.75	7.79	6.92	7.87	100.00	100.00

Conditional Probabilities

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10	
Dec. 1	4.06	13.68	12.90	21.79	16.50	14.03	9.97	4.02	1.88	1.17	100.00
Dec. 2	4.84	19.50	13.98	25.15	14.05	11.09	5.73	2.96	1.64	1.05	100.00
Dec. 3	3.82	15.93	15.74	24.13	15.74	10.74	6.72	3.34	1.90	1.95	100.00
Dec. 4	2.60	10.94	12.32	21.35	16.63	14.11	9.87	5.11	3.53	3.53	100.00
Dec. 5	1.84	6.81	7.83	16.25	16.49	17.52	14.32	8.20	5.92	4.81	100.00
Dec. 6	1.35	4.38	4.74	9.85	12.88	16.74	17.85	12.48	10.47	9.25	100.00
Dec. 7	0.64	2.53	3.04	5.66	8.27	11.13	15.49	13.46	17.56	22.21	100.00
Dec. 8	0.35	2.65	2.76	3.86	5.48	6.53	10.22	9.89	17.25	41.01	100.00
Dec. 9	0.36	3.82	2.87	2.99	5.33	4.27	6.48	5.74	10.95	57.20	100.00
Dec. 10	0.66	5.02	3.88	4.06	6.73	3.73	5.73	5.14	8.02	57.03	100.00

Indices

	Comb.	Up	Down
Dec. 1	0.00	0.00	
Dec. 2	0.02	0.02	
Dec. 3	0.14	0.11	
Dec. 4	0.14	0.10	
Dec. 5	0.16	0.10	
Dec. 6	0.15	0.09	
Dec. 7	0.09	0.06	
Dec. 8	0.07	0.04	
Dec. 9	0.04	0.02	
Dec. 10	0.01	0.00	
	0.82	0.54	0.29

W.Germ: Combined 91- 96

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10	
Dec. 1	0	0	0	2	0	1	0	0	0	0	3
Dec. 2	4	7	7	7	4	2	2	0	0	0	33
Dec. 3	3	22	21	17	14	3	3	2	1	2	88
Dec. 4	3	23	45	91	48	23	3	3	5	2	246
Dec. 5	9	18	23	84	125	105	52	17	5	4	442
Dec. 6	6	13	11	33	69	135	124	44	16	10	461
Dec. 7	2	2	4	5	24	40	73	77	51	18	296
Dec. 8	0	0	3	3	6	6	30	36	67	43	194
Dec. 9	0	1	1	1	1	5	5	5	23	66	108
Dec. 10	0	2	1	1	4	1	3	2	5	57	76
	27	88	116	244	295	321	295	186	173	202	1947

Probabilities

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10		
Dec. 1	0.00	0.00	0.00	66.67	0.00	33.33	0.00	0.00	0.00	0.00	100.00	0.15
Dec. 2	12.12	21.21	21.21	21.21	12.12	6.06	6.06	0.00	0.00	0.00	100.00	1.69
Dec. 3	3.41	25.00	23.86	19.32	15.91	3.41	3.41	2.27	1.14	2.27	100.00	4.52
Dec. 4	1.22	9.35	18.29	36.99	19.51	9.35	1.22	1.22	2.03	0.81	100.00	12.63
Dec. 5	2.04	4.07	5.20	19.00	28.28	23.76	11.76	3.85	1.13	0.90	100.00	22.70
Dec. 6	1.30	2.82	2.39	7.16	14.97	29.28	26.90	9.54	3.47	2.17	100.00	23.68
Dec. 7	0.68	0.68	1.35	1.69	8.11	13.51	24.66	26.01	17.23	6.08	100.00	15.20
Dec. 8	0.00	0.00	1.55	1.55	3.09	3.09	15.46	18.56	34.54	22.16	100.00	9.96
Dec. 9	0.00	0.93	0.93	0.93	0.93	4.63	4.63	4.63	21.30	61.11	100.00	5.55
Dec. 10	0.00	2.63	1.32	1.32	5.26	1.32	3.95	2.63	6.58	75.00	100.00	3.90
	1.39	4.52	5.96	12.53	15.15	16.49	15.15	9.55	8.89	10.37	100.00	100.00

Conditional Probabilities

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10	
Dec. 1	1.25	7.17	12.99	27.05	18.00	15.99	9.78	3.99	2.51	1.27	100.00
Dec. 2	3.92	12.49	14.30	27.36	14.91	13.51	6.82	3.36	2.06	1.26	100.00
Dec. 3	4.47	13.91	15.56	22.73	16.08	10.66	6.69	3.14	2.73	4.03	100.00
Dec. 4	2.74	11.12	14.42	24.46	18.38	12.74	7.07	3.17	2.62	3.29	100.00
Dec. 5	1.87	5.88	7.86	17.61	17.71	18.33	13.96	7.56	5.25	3.98	100.00
Dec. 6	1.38	3.57	4.53	10.18	13.36	17.61	18.33	12.50	10.17	8.38	100.00
Dec. 7	0.66	1.84	2.49	5.05	8.23	11.37	15.84	13.85	17.91	22.77	100.00
Dec. 8	0.28	1.75	1.99	2.84	5.20	6.39	10.42	10.12	18.08	42.93	100.00
Dec. 9	0.27	2.52	1.88	2.38	5.33	4.31	6.71	5.17	11.15	60.29	100.00
Dec. 10	0.53	3.32	2.56	3.55	6.88	3.87	5.84	4.17	8.07	61.21	100.00

Indices

	Comb.	Up	Down
Dec. 1	0.00	0.00	
Dec. 2	0.01	0.01	
Dec. 3	0.04	0.03	
Dec. 4	0.10	0.06	
Dec. 5	0.19	0.11	
Dec. 6	0.20	0.12	
Dec. 7	0.13	0.08	
Dec. 8	0.09	0.06	
Dec. 9	0.05	0.03	
Dec. 10	0.02	0.00	
	0.81	0.51	0.30

W.Germ: Male 91- 96

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10	
Dec. 1	0	0	0	1	0	1	0	0	0	0	2
Dec. 2	1	2	1	5	1	1	2	0	0	0	13
Dec. 3	0	0	3	6	5	1	2	1	1	0	19
Dec. 4	1	3	5	24	13	9	2	2	3	0	62
Dec. 5	4	7	12	44	59	68	40	11	5	3	253
Dec. 6	3	7	6	25	43	95	94	33	12	7	325
Dec. 7	1	2	2	4	19	32	58	57	35	12	222
Dec. 8	0	0	2	3	3	5	23	26	59	41	162
Dec. 9	0	0	1	1	1	3	4	5	16	56	87
Dec. 10	0	1	1	0	1	0	3	1	5	49	61
	10	22	33	113	145	215	228	136	136	168	1206

Probabilities

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10		
Dec. 1	0.00	0.00	0.00	50.00	0.00	50.00	0.00	0.00	0.00	0.00	100.00	0.17
Dec. 2	7.69	15.38	7.69	38.46	7.69	7.69	15.38	0.00	0.00	0.00	100.00	1.08
Dec. 3	0.00	0.00	15.79	31.58	26.32	5.26	10.53	5.26	5.26	0.00	100.00	1.58
Dec. 4	1.61	4.84	8.06	38.71	20.97	14.52	3.23	3.23	4.84	0.00	100.00	5.14
Dec. 5	1.58	2.77	4.74	17.39	23.32	26.88	15.81	4.35	1.98	1.19	100.00	20.98
Dec. 6	0.92	2.15	1.85	7.69	13.23	29.23	28.92	10.15	3.69	2.15	100.00	26.95
Dec. 7	0.45	0.90	0.90	1.80	8.56	14.41	26.13	25.68	15.77	5.41	100.00	18.41
Dec. 8	0.00	0.00	1.23	1.85	1.85	3.09	14.20	16.05	36.42	25.31	100.00	13.43
Dec. 9	0.00	0.00	1.15	1.15	1.15	3.45	4.60	5.75	18.39	64.37	100.00	7.21
Dec. 10	0.00	1.64	1.64	0.00	1.64	0.00	4.92	1.64	8.20	80.33	100.00	5.06
	0.83	1.82	2.74	9.37	12.02	17.83	18.91	11.28	11.28	13.93	100.00	100.00

Conditional Probabilities

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10	
Dec. 1	1.27	3.50	4.96	23.20	17.10	21.87	16.07	6.69	4.27	1.08	100.00
Dec. 2	2.07	4.75	6.15	29.29	15.40	17.55	11.88	6.71	5.13	1.09	100.00
Dec. 3	1.02	2.46	6.61	22.54	18.67	15.89	12.10	7.38	7.62	5.71	100.00
Dec. 4	1.48	3.54	6.15	25.14	17.81	17.83	11.88	5.68	5.82	4.67	100.00
Dec. 5	1.18	2.65	4.20	16.60	15.58	20.38	17.84	9.44	7.08	5.04	100.00
Dec. 6	0.90	2.00	2.71	10.15	11.96	18.55	20.59	13.19	10.92	9.03	100.00
Dec. 7	0.48	1.10	1.85	5.28	7.57	12.22	17.28	13.76	17.65	22.81	100.00
Dec. 8	0.15	0.75	1.65	2.64	3.90	5.53	10.28	9.25	17.16	48.69	100.00
Dec. 9	0.09	1.26	1.77	1.67	3.03	3.02	7.37	4.71	11.74	65.33	100.00
Dec. 10	0.17	1.66	1.94	1.65	2.80	1.70	6.53	3.47	9.58	70.50	100.00

Indices

	Comb.	Up	Down
Dec. 1	0.00	0.00	
Dec. 2	0.01	0.01	
Dec. 3	0.01	0.01	
Dec. 4	0.04	0.03	
Dec. 5	0.18	0.13	
Dec. 6	0.22	0.14	
Dec. 7	0.15	0.10	
Dec. 8	0.12	0.09	
Dec. 9	0.06	0.05	
Dec. 10	0.01	0.00	
	0.81	0.56	0.25

W.Germ: Female 91- 96

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10	
Dec. 1	0	0	0	1	0	0	0	0	0	0	1
Dec. 2	3	5	6	2	3	1	0	0	0	0	20
Dec. 3	3	22	18	11	9	2	1	1	0	2	69
Dec. 4	2	20	40	67	35	14	1	1	2	2	184
Dec. 5	5	11	11	40	66	37	12	6	0	1	189
Dec. 6	3	6	5	8	26	40	30	11	4	3	136
Dec. 7	1	0	2	1	5	8	15	20	16	6	74
Dec. 8	0	0	1	0	3	1	7	10	8	2	32
Dec. 9	0	1	0	0	0	2	1	0	7	10	21
Dec. 10	0	1	0	1	3	1	0	1	0	8	15
	17	66	83	131	150	106	67	50	37	34	741

Probabilities

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10		
Dec. 1	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.13
Dec. 2	15.00	25.00	30.00	10.00	15.00	5.00	0.00	0.00	0.00	0.00	100.00	2.70
Dec. 3	4.35	31.88	26.09	15.94	13.04	2.90	1.45	1.45	0.00	2.90	100.00	9.31
Dec. 4	1.09	10.87	21.74	36.41	19.02	7.61	0.54	0.54	1.09	1.09	100.00	24.83
Dec. 5	2.65	5.82	5.82	21.16	34.92	19.58	6.35	3.17	0.00	0.53	100.00	25.51
Dec. 6	2.21	4.41	3.68	5.88	19.12	29.41	22.06	8.09	2.94	2.21	100.00	18.35
Dec. 7	1.35	0.00	2.70	1.35	6.76	10.81	20.27	27.03	21.62	8.11	100.00	9.99
Dec. 8	0.00	0.00	3.13	0.00	9.38	3.13	21.88	31.25	25.00	6.25	100.00	4.32
Dec. 9	0.00	4.76	0.00	0.00	0.00	9.52	4.76	0.00	33.33	47.62	100.00	2.83
Dec. 10	0.00	6.67	0.00	6.67	20.00	6.67	0.00	6.67	0.00	53.33	100.00	2.02
	2.29	8.91	11.20	17.68	20.24	14.30	9.04	6.75	4.99	4.59	100.00	100.00

Conditional Probabilities

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10	
Dec. 1	1.09	10.87	21.74	36.41	19.02	7.61	0.54	0.54	1.09	1.09	100.00
Dec. 2	5.67	18.00	18.56	29.39	15.76	7.29	2.54	1.37	0.26	1.17	100.00
Dec. 3	6.52	19.10	20.79	20.64	17.14	7.36	2.54	2.15	0.93	2.82	100.00
Dec. 4	3.65	15.17	18.27	23.45	19.79	10.16	3.68	2.12	1.24	2.47	100.00
Dec. 5	2.80	8.54	10.89	20.53	22.43	15.49	8.72	5.63	2.97	2.01	100.00
Dec. 6	2.34	5.61	6.60	11.60	17.25	16.23	14.17	11.71	8.70	5.79	100.00
Dec. 7	0.82	3.45	3.18	5.15	10.56	10.32	13.91	15.60	18.68	18.32	100.00
Dec. 8	0.75	3.29	3.04	3.38	9.94	8.98	13.79	16.69	20.97	19.17	100.00
Dec. 9	0.99	6.37	1.91	4.28	12.38	9.90	4.65	5.23	12.42	41.87	100.00
Dec. 10	1.75	7.40	5.07	11.27	21.82	10.48	4.23	6.85	1.94	29.19	100.00

Indices

	Comb.	Up	Down
Dec. 1	0.00	0.00	
Dec. 2	0.02	0.02	
Dec. 3	0.07	0.05	
Dec. 4	0.19	0.10	
Dec. 5	0.20	0.09	
Dec. 6	0.15	0.07	
Dec. 7	0.09	0.05	
Dec. 8	0.04	0.02	
Dec. 9	0.02	0.01	
Dec. 10	0.01	0.00	
	0.80	0.41	0.39

E.Germ: Comb. 91- 96

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10	
Dec. 1	0	1	0	0	0	0	0	0	0	0	1
Dec. 2	4	16	5	6	5	0	0	1	0	0	37
Dec. 3	9	69	96	113	43	18	12	2	0	2	364
Dec. 4	6	24	35	62	48	40	24	9	3	3	254
Dec. 5	1	4	9	15	14	15	12	9	4	2	85
Dec. 6	0	2	1	3	3	2	4	4	5	3	27
Dec. 7	0	0	2	1	2	1	1	2	2	0	11
Dec. 8	0	1	1	2	1	1	2	0	2	4	14
Dec. 9	0	1	0	1	0	0	0	0	1	0	3
Dec. 10	0	1	1	0	0	0	0	1	0	0	3
	20	119	150	203	116	77	55	28	17	14	799

Probabilities

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10		
Dec. 1	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.13
Dec. 2	10.81	43.24	13.51	16.22	13.51	0.00	0.00	2.70	0.00	0.00	100.00	4.63
Dec. 3	2.47	18.96	26.37	31.04	11.81	4.95	3.30	0.55	0.00	0.55	100.00	45.56
Dec. 4	2.36	9.45	13.78	24.41	18.90	15.75	9.45	3.54	1.18	1.18	100.00	31.79
Dec. 5	1.18	4.71	10.59	17.65	16.47	17.65	14.12	10.59	4.71	2.35	100.00	10.64
Dec. 6	0.00	7.41	3.70	11.11	11.11	7.41	14.81	14.81	18.52	11.11	100.00	3.38
Dec. 7	0.00	0.00	18.18	9.09	18.18	9.09	9.09	18.18	18.18	0.00	100.00	1.38
Dec. 8	0.00	7.14	7.14	14.29	7.14	7.14	14.29	0.00	14.29	28.57	100.00	1.75
Dec. 9	0.00	33.33	0.00	33.33	0.00	0.00	0.00	0.00	33.33	0.00	100.00	0.38
Dec. 10	0.00	33.33	33.33	0.00	0.00	0.00	0.00	33.33	0.00	0.00	100.00	0.38
	2.50	14.89	18.77	25.41	14.52	9.64	6.88	3.50	2.13	1.75	100.00	100.00

Conditional Probabilities

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10	
Dec. 1	10.81	43.24	13.51	16.22	13.51	0.00	0.00	2.70	0.00	0.00	100.00
Dec. 2	5.55	34.43	13.27	17.94	12.92	5.80	4.27	3.25	1.21	1.36	100.00
Dec. 3	3.57	19.75	16.05	21.85	14.68	8.98	6.58	4.52	2.52	1.50	100.00
Dec. 4	2.16	14.46	13.22	18.61	14.35	10.14	9.13	7.64	6.71	3.57	100.00
Dec. 5	1.38	12.08	12.37	17.59	13.22	9.56	9.75	8.52	9.90	5.64	100.00
Dec. 6	1.29	16.96	12.42	17.48	9.94	6.85	7.30	9.29	13.01	5.47	100.00
Dec. 7	0.88	13.19	11.26	21.57	10.82	8.34	8.80	5.35	12.96	6.84	100.00
Dec. 8	1.37	20.94	17.96	14.98	9.08	5.69	4.95	14.67	9.19	1.17	100.00
Dec. 9	4.39	28.68	9.10	24.65	10.80	5.25	3.15	2.08	11.50	0.39	100.00
Dec. 10	4.43	23.11	15.68	20.52	10.82	4.03	5.86	1.08	4.76	9.71	100.00

Indices

	Comb.	Up	Down
Dec. 1	0.00	0.00	
Dec. 2	0.03	0.03	
Dec. 3	0.38	0.28	
Dec. 4	0.26	0.16	
Dec. 5	0.09	0.05	
Dec. 6	0.03	0.01	
Dec. 7	0.01	0.00	
Dec. 8	0.01	0.00	
Dec. 9	0.00	0.00	
Dec. 10	0.00	0.00	
	0.83	0.53	0.30

E.Germ: Male 91- 96

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10	
Dec. 1	0	1	0	0	0	0	0	0	0	0	1
Dec. 2	1	3	1	2	3	0	0	1	0	0	11
Dec. 3	3	33	55	65	27	8	5	1	0	1	198
Dec. 4	3	17	25	40	33	18	11	3	3	3	156
Dec. 5	0	3	5	14	9	9	6	6	2	0	54
Dec. 6	0	1	0	2	3	2	3	3	3	0	17
Dec. 7	0	0	2	0	2	1	1	0	2	0	8
Dec. 8	0	1	0	2	1	1	1	0	2	3	11
Dec. 9	0	1	0	0	0	0	0	0	0	0	1
Dec. 10	0	0	1	0	0	0	0	1	0	0	2
	7	60	89	125	78	39	27	15	12	7	459

Probabilities

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10		
Dec. 1	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.22
Dec. 2	9.09	27.27	9.09	18.18	27.27	0.00	0.00	9.09	0.00	0.00	100.00	2.40
Dec. 3	1.52	16.67	27.78	32.83	13.64	4.04	2.53	0.51	0.00	0.51	100.00	43.14
Dec. 4	1.92	10.90	16.03	25.64	21.15	11.54	7.05	1.92	1.92	1.92	100.00	33.99
Dec. 5	0.00	5.56	9.26	25.93	16.67	16.67	11.11	11.11	3.70	0.00	100.00	11.76
Dec. 6	0.00	5.88	0.00	11.76	17.65	11.76	17.65	17.65	17.65	0.00	100.00	3.70
Dec. 7	0.00	0.00	25.00	0.00	25.00	12.50	12.50	0.00	25.00	0.00	100.00	1.74
Dec. 8	0.00	9.09	0.00	18.18	9.09	9.09	9.09	0.00	18.18	27.27	100.00	2.40
Dec. 9	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.22
Dec. 10	0.00	0.00	50.00	0.00	0.00	0.00	0.00	50.00	0.00	0.00	100.00	0.44
	1.53	13.07	19.39	27.23	16.99	8.50	5.88	3.27	2.61	1.53	100.00	100.00

Conditional Probabilities

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10	
Dec. 1	9.09	27.27	9.09	18.18	27.27	0.00	0.00	9.09	0.00	0.00	100.00
Dec. 2	2.97	22.37	10.44	21.33	17.90	7.84	5.37	5.91	3.01	2.87	100.00
Dec. 3	2.57	15.31	16.64	24.67	18.94	8.02	5.61	4.77	2.57	0.91	100.00
Dec. 4	1.73	14.31	14.23	21.01	18.08	9.55	7.66	6.91	5.43	1.10	100.00
Dec. 5	1.14	12.50	11.55	19.00	17.77	10.50	9.25	5.84	8.86	3.58	100.00
Dec. 6	0.76	23.81	8.47	13.25	15.13	9.49	8.68	4.80	10.58	5.04	100.00
Dec. 7	0.38	31.29	12.38	16.16	12.91	8.21	7.18	5.11	6.26	0.13	100.00
Dec. 8	1.18	23.68	20.49	9.74	11.72	5.82	5.03	17.43	4.56	0.35	100.00
Dec. 9	9.09	27.27	9.09	18.18	27.27	0.00	0.00	9.09	0.00	0.00	100.00
Dec. 10	0.76	12.88	13.89	25.51	11.36	6.57	5.81	0.25	9.09	13.89	100.00

Indices

	Comb.	Up	Down
Dec. 1	0.00	0.00	
Dec. 2	0.02	0.02	
Dec. 3	0.36	0.28	
Dec. 4	0.27	0.17	
Dec. 5	0.10	0.04	
Dec. 6	0.03	0.01	
Dec. 7	0.02	0.00	
Dec. 8	0.02	0.00	
Dec. 9	0.00	0.00	
Dec. 10	0.00	0.00	
	0.82	0.53	0.29

E.Germ: Female 91- 96

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10	
Dec. 1	1	0	0	0	0	0	0	0	0	0	1
Dec. 2	3	13	4	4	2	0	0	0	0	0	26
Dec. 3	6	36	41	48	16	10	7	1	0	1	166
Dec. 4	3	7	10	22	15	22	13	6	0	0	98
Dec. 5	1	1	4	1	5	6	6	3	2	2	31
Dec. 6	0	1	1	1	0	0	1	1	2	3	10
Dec. 7	0	0	0	1	0	0	0	2	0	0	3
Dec. 8	0	0	1	0	0	0	1	0	0	1	3
Dec. 9	0	0	0	1	0	0	0	0	1	0	2
Dec. 10	0	1	0	0	0	0	0	0	0	0	1
	14	59	61	78	38	38	28	13	5	7	341

Probabilities

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10		
Dec. 1	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.29
Dec. 2	11.54	50.00	15.38	15.38	7.69	0.00	0.00	0.00	0.00	0.00	100.00	7.62
Dec. 3	3.61	21.69	24.70	28.92	9.64	6.02	4.22	0.60	0.00	0.60	100.00	48.68
Dec. 4	3.06	7.14	10.20	22.45	15.31	22.45	13.27	6.12	0.00	0.00	100.00	28.74
Dec. 5	3.23	3.23	12.90	3.23	16.13	19.35	19.35	9.68	6.45	6.45	100.00	9.09
Dec. 6	0.00	10.00	10.00	10.00	0.00	0.00	10.00	10.00	20.00	30.00	100.00	2.93
Dec. 7	0.00	0.00	0.00	33.33	0.00	0.00	0.00	66.67	0.00	0.00	100.00	0.88
Dec. 8	0.00	0.00	33.33	0.00	0.00	0.00	33.33	0.00	0.00	33.33	100.00	0.88
Dec. 9	0.00	0.00	0.00	50.00	0.00	0.00	0.00	0.00	50.00	0.00	100.00	0.59
Dec. 10	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.29
	4.11	17.30	17.89	22.87	11.14	11.14	8.21	3.81	1.47	2.05	100.00	100.00

Conditional Probabilities

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10	
Dec. 1	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Dec. 2	18.58	29.68	14.05	15.84	8.92	5.87	4.18	1.78	0.50	0.59	100.00
Dec. 3	8.21	19.78	14.43	19.29	10.03	9.84	7.55	6.27	1.83	2.78	100.00
Dec. 4	5.44	10.13	12.17	16.25	7.44	8.62	10.66	14.01	5.48	9.82	100.00
Dec. 5	4.68	13.55	11.25	17.08	4.59	4.62	9.26	16.67	8.14	10.15	100.00
Dec. 6	1.82	37.88	8.36	20.01	3.26	2.85	5.08	7.34	10.00	3.39	100.00
Dec. 7	1.02	2.38	25.62	7.48	5.10	7.48	26.64	2.04	0.00	22.22	100.00
Dec. 8	1.20	40.56	8.23	20.75	3.21	2.01	1.41	22.42	0.00	0.20	100.00
Dec. 9	1.53	3.57	5.10	36.22	7.65	11.22	6.63	3.06	25.00	0.00	100.00
Dec. 10	11.54	50.00	15.38	15.38	7.69	0.00	0.00	0.00	0.00	0.00	100.00

Indices

	Comb.	Up	Down
Dec. 1	0.00	0.00	
Dec. 2	0.05	0.04	
Dec. 3	0.42	0.28	
Dec. 4	0.24	0.16	
Dec. 5	0.09	0.04	
Dec. 6	0.03	0.01	
Dec. 7	0.01	0.00	
Dec. 8	0.01	0.00	
Dec. 9	0.00	0.00	
Dec. 10	0.00	0.00	
	0.85	0.53	0.31

UK: Comb. 91- 96

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10	
Dec. 1	0	7	26	21	8	4	0	0	2	1	69
Dec. 2	0	7	16	10	9	6	3	0	1	0	52
Dec. 3	1	27	127	117	45	16	9	4	4	4	354
Dec. 4	1	18	114	218	105	51	13	7	3	4	534
Dec. 5	0	8	26	115	152	97	35	14	11	9	467
Dec. 6	0	3	6	31	54	95	87	28	3	11	318
Dec. 7	0	6	8	14	17	49	88	47	38	13	280
Dec. 8	0	0	5	11	10	16	41	57	41	29	210
Dec. 9	0	0	3	5	7	3	13	22	44	28	125
Dec. 10	0	0	3	4	5	4	10	5	16	64	111
	2	76	334	546	412	341	299	184	163	163	2520

Probabilities

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10		
Dec. 1	0.00	10.14	37.68	30.43	11.59	5.80	0.00	0.00	2.90	1.45	100.00	2.74
Dec. 2	0.00	13.46	30.77	19.23	17.31	11.54	5.77	0.00	1.92	0.00	100.00	2.06
Dec. 3	0.28	7.63	35.88	33.05	12.71	4.52	2.54	1.13	1.13	1.13	100.00	14.05
Dec. 4	0.19	3.37	21.35	40.82	19.66	9.55	2.43	1.31	0.56	0.75	100.00	21.19
Dec. 5	0.00	1.71	5.57	24.63	32.55	20.77	7.49	3.00	2.36	1.93	100.00	18.53
Dec. 6	0.00	0.94	1.89	9.75	16.98	29.87	27.36	8.81	0.94	3.46	100.00	12.62
Dec. 7	0.00	2.14	2.86	5.00	6.07	17.50	31.43	16.79	13.57	4.64	100.00	11.11
Dec. 8	0.00	0.00	2.38	5.24	4.76	7.62	19.52	27.14	19.52	13.81	100.00	8.33
Dec. 9	0.00	0.00	2.40	4.00	5.60	2.40	10.40	17.60	35.20	22.40	100.00	4.96
Dec. 10	0.00	0.00	2.70	3.60	4.50	3.60	9.01	4.50	14.41	57.66	100.00	4.40
	0.08	3.02	13.25	21.67	16.35	13.53	11.87	7.30	6.47	6.47	100.00	100.00

Conditional Probabilities

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10	
Dec. 1	0.16	5.52	24.00	30.42	17.52	10.04	5.17	2.26	2.35	2.56	100.00
Dec. 2	0.12	5.34	20.68	26.36	18.07	12.88	8.49	3.44	2.69	1.92	100.00
Dec. 3	0.16	5.22	23.33	30.75	17.64	10.26	5.58	2.60	2.21	2.24	100.00
Dec. 4	0.14	3.96	18.89	30.44	19.64	12.77	6.96	3.10	1.99	2.11	100.00
Dec. 5	0.06	2.40	10.38	22.96	20.78	17.43	12.32	5.76	3.91	3.99	100.00
Dec. 6	0.02	1.76	5.66	13.87	15.21	19.18	20.51	10.59	7.04	6.15	100.00
Dec. 7	0.02	1.62	5.17	9.76	10.34	14.61	20.55	14.25	13.40	10.29	100.00
Dec. 8	0.02	0.93	4.43	8.52	8.37	10.32	17.34	15.61	17.05	17.41	100.00
Dec. 9	0.01	0.66	4.24	7.70	7.77	7.18	13.62	14.19	20.67	23.96	100.00
Dec. 10	0.01	0.63	4.33	7.17	7.30	6.82	11.88	8.40	15.68	37.78	100.00

Indices

	Comb.	Up	Down
Dec. 1	0.03	0.03	
Dec. 2	0.02	0.02	
Dec. 3	0.11	0.10	
Dec. 4	0.15	0.10	
Dec. 5	0.15	0.08	
Dec. 6	0.10	0.06	
Dec. 7	0.09	0.04	
Dec. 8	0.07	0.03	
Dec. 9	0.04	0.01	
Dec. 10	0.03	0.00	
	0.78	0.46	0.31

UK: Male 91- 96

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10	
Dec. 1	0	2	7	6	4	1	0	0	1	0	21
Dec. 2	0	1	5	4	3	3	3	0	1	0	20
Dec. 3	0	1	17	43	20	8	1	2	3	2	97
Dec. 4	0	5	23	82	39	24	9	1	2	0	185
Dec. 5	0	3	14	53	63	51	19	7	6	4	220
Dec. 6	0	0	1	24	35	58	50	18	2	8	196
Dec. 7	0	4	4	7	8	33	57	33	21	9	176
Dec. 8	0	0	2	8	5	15	30	35	30	17	142
Dec. 9	0	0	2	3	7	2	10	13	33	21	91
Dec. 10	0	0	0	1	4	3	8	3	15	55	89
	0	16	75	231	188	198	187	112	114	116	1237

Probabilities

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10		
Dec. 1	0.00	9.52	33.33	28.57	19.05	4.76	0.00	0.00	4.76	0.00	100.00	1.70
Dec. 2	0.00	5.00	25.00	20.00	15.00	15.00	15.00	0.00	5.00	0.00	100.00	1.62
Dec. 3	0.00	1.03	17.53	44.33	20.62	8.25	1.03	2.06	3.09	2.06	100.00	7.84
Dec. 4	0.00	2.70	12.43	44.32	21.08	12.97	4.86	0.54	1.08	0.00	100.00	14.96
Dec. 5	0.00	1.36	6.36	24.09	28.64	23.18	8.64	3.18	2.73	1.82	100.00	17.78
Dec. 6	0.00	0.00	0.51	12.24	17.86	29.59	25.51	9.18	1.02	4.08	100.00	15.84
Dec. 7	0.00	2.27	2.27	3.98	4.55	18.75	32.39	18.75	11.93	5.11	100.00	14.23
Dec. 8	0.00	0.00	1.41	5.63	3.52	10.56	21.13	24.65	21.13	11.97	100.00	11.48
Dec. 9	0.00	0.00	2.20	3.30	7.69	2.20	10.99	14.29	36.26	23.08	100.00	7.36
Dec. 10	0.00	0.00	0.00	1.12	4.49	3.37	8.99	3.37	16.85	61.80	100.00	7.19
	0.00	1.29	6.06	18.67	15.20	16.01	15.12	9.05	9.22	9.38	100.00	100.00

Conditional Probabilities

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10	
Dec. 1	0.00	1.85	13.12	34.67	21.00	13.81	6.55	2.57	4.11	2.33	100.00
Dec. 2	0.00	1.59	9.60	27.16	18.16	16.24	12.51	6.01	5.40	3.32	100.00
Dec. 3	0.00	1.73	10.32	33.88	20.94	15.12	7.67	3.23	3.75	3.36	100.00
Dec. 4	0.00	1.86	9.91	32.63	20.99	16.90	9.63	3.56	2.79	1.73	100.00
Dec. 5	0.00	1.37	6.69	24.14	19.73	19.43	13.76	6.16	4.54	4.17	100.00
Dec. 6	0.00	1.16	3.63	15.19	14.83	20.44	20.37	10.69	6.98	6.70	100.00
Dec. 7	0.00	1.04	3.11	9.41	9.58	16.13	21.95	14.51	13.56	10.71	100.00
Dec. 8	0.00	0.69	2.52	8.32	8.36	12.22	18.73	14.60	17.72	16.83	100.00
Dec. 9	0.00	0.47	2.54	7.25	8.57	8.19	14.04	12.05	21.71	25.18	100.00
Dec. 10	0.00	0.30	1.07	3.79	6.73	6.68	12.33	7.47	18.48	43.16	100.00

Indices

	Comb.	Up	Down
Dec. 1	0.02	0.02	
Dec. 2	0.02	0.02	
Dec. 3	0.07	0.07	
Dec. 4	0.10	0.08	
Dec. 5	0.14	0.09	
Dec. 6	0.13	0.07	
Dec. 7	0.11	0.06	
Dec. 8	0.10	0.04	
Dec. 9	0.06	0.02	
Dec. 10	0.04	0.00	
	0.78	0.45	0.33

UK: Female 91- 96

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10	
Dec. 1	0	5	19	15	4	3	0	0	1	1	48
Dec. 2	0	6	11	6	6	3	0	0	0	0	32
Dec. 3	1	26	110	74	25	8	8	2	1	2	257
Dec. 4	1	13	91	136	66	27	4	6	1	4	349
Dec. 5	0	5	12	62	89	46	16	7	5	5	247
Dec. 6	0	3	5	7	19	37	37	10	1	3	122
Dec. 7	0	2	4	7	9	16	31	14	17	4	104
Dec. 8	0	0	3	3	5	1	11	22	11	12	68
Dec. 9	0	0	1	2	0	1	3	9	11	7	34
Dec. 10	0	0	3	3	1	1	2	2	1	9	22
	2	60	259	315	224	143	112	72	49	47	1283

Probabilities

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10		
Dec. 1	0.00	10.42	39.58	31.25	8.33	6.25	0.00	0.00	2.08	2.08	100.00	3.74
Dec. 2	0.00	18.75	34.38	18.75	18.75	9.38	0.00	0.00	0.00	0.00	100.00	2.49
Dec. 3	0.39	10.12	42.80	28.79	9.73	3.11	3.11	0.78	0.39	0.78	100.00	20.03
Dec. 4	0.29	3.72	26.07	38.97	18.91	7.74	1.15	1.72	0.29	1.15	100.00	27.20
Dec. 5	0.00	2.02	4.86	25.10	36.03	18.62	6.48	2.83	2.02	2.02	100.00	19.25
Dec. 6	0.00	2.46	4.10	5.74	15.57	30.33	30.33	8.20	0.82	2.46	100.00	9.51
Dec. 7	0.00	1.92	3.85	6.73	8.65	15.38	29.81	13.46	16.35	3.85	100.00	8.11
Dec. 8	0.00	0.00	4.41	4.41	7.35	1.47	16.18	32.35	16.18	17.65	100.00	5.30
Dec. 9	0.00	0.00	2.94	5.88	0.00	2.94	8.82	26.47	32.35	20.59	100.00	2.65
Dec. 10	0.00	0.00	13.64	13.64	4.55	4.55	9.09	9.09	4.55	40.91	100.00	1.71
	0.16	4.68	20.19	24.55	17.46	11.15	8.73	5.61	3.82	3.66	100.00	100.00

Conditional Probabilities

91\96	Dec.1	Dec.2	Dec.3	Dec.4	Dec.5	Dec.6	Dec.7	Dec.8	Dec.9	Dec.10	
Dec. 1	0.24	7.44	29.68	28.39	15.78	8.23	4.40	2.33	1.23	2.27	100.00
Dec. 2	0.19	8.30	27.34	25.96	18.62	10.61	5.34	1.89	0.64	1.09	100.00
Dec. 3	0.25	7.67	30.33	28.56	15.89	7.83	4.40	2.20	1.28	1.60	100.00
Dec. 4	0.21	5.41	24.24	29.00	18.92	10.32	5.58	2.93	1.28	2.10	100.00
Dec. 5	0.09	3.12	12.54	22.63	22.34	15.83	11.17	5.53	3.24	3.51	100.00
Dec. 6	0.03	2.73	7.98	12.31	15.62	17.82	21.06	10.23	7.26	4.95	100.00
Dec. 7	0.03	2.13	7.86	11.23	11.27	12.54	18.28	14.70	12.85	9.12	100.00
Dec. 8	0.03	1.11	8.39	10.79	8.72	6.54	14.20	18.97	14.10	17.15	100.00
Dec. 9	0.03	0.76	8.18	9.78	5.50	5.07	12.69	20.55	17.18	20.26	100.00
Dec. 10	0.09	2.27	16.26	17.50	9.57	7.23	10.55	9.93	6.51	20.09	100.00

Indices

	Comb.	Up	Down
Dec. 1	0.04	0.04	
Dec. 2	0.02	0.02	
Dec. 3	0.14	0.12	
Dec. 4	0.19	0.11	
Dec. 5	0.15	0.08	
Dec. 6	0.08	0.04	
Dec. 7	0.07	0.03	
Dec. 8	0.04	0.02	
Dec. 9	0.02	0.01	
Dec. 10	0.01	0.00	
	0.77	0.46	0.30