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July 2023

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JULY 2023

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A comment on Assortative Matching at the Top of the Distribution: Evidence from the World's Most Exclusive Marriage Market (2022)

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May 29th, 2023

Abstract

[Goni \(2022\)](#) relies on a novel data on peerage marriages in Britain to examine the impact of matching technology on marital sorting. He relies on the London Season interruption (1861–1863) as a natural experiment that raised search costs and reduced market segregation. In his preferred specification, he exploits exogenous variation in women's probability to marry during the interruption for their age in 1861 and finds that the interruption increased the probability of marrying a commoner; reduced the probability of marrying an heir, increased the difference in spouses' family landholdings (in absolute value); decreased the difference in spouses' family landholdings (husband - wife); and increased the likelihood of never getting married (See Table 2, columns 1 to 6, respectively). First, we reproduce the paper's main findings and find no coding errors. Second, we test the robustness of the results to (1) the use of additional fixed effects and (2) sample restrictions. Finally, we examine the heterogeneous effects of this interruption by age and year. We find that original estimates are robust and are not significantly affected using these alternative specifications.

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1 Introduction

[Goni \(2022\)](#) explores the world’s most exclusive marriage market and its impact on assortative matching at the top of the distribution. Using novel data on peerage marriages in Britain, the author uncovers how low search costs and marriage-market segregation can generate sorting. The interruption of the London Season during Queen Victoria’s mourning period led to an increase in peer-commoner intermarriage and a reduction in sorting along landed wealth, ultimately affecting public policy in late nineteenth-century England.

The author uses a novel data on peerage marriages in Britain and focuses on three years during which the Season was interrupted by the deaths of Queen Victoria’s mother and husband (1861 – 1863). The author then estimates the effect of the interruption on peer-commoner intermarriage and sorting along landed wealth by exploiting the exogenous variation in women’s probability to marry during the interruption of the London Season from their age in 1861, i.e., the synthetic probability to marry in a certain age based on marriage probability in “normal” times. Main findings suggest that the interruption of the Season led to an increase in peer-commoner intermarriage and a reduction in sorting along landed wealth (Table 2). The paper also suggests that that peer-commoner intermarriage was more prevalent for cohorts with a high synthetic probability to marry during the interruption (Figure 7). The analysis includes a large number of robustness checks and falsification tests; the main one being controlling for the distance of women’s family seat to London as a potential cofounder (Table 2, panel B).

In the present paper, we investigate whether the analytical results are reproducible and replicable and further test their heterogeneous effects and robustness to alternative specifications checks. In terms of reproducibility, we were successfully able to reproduce all tables and figures using the publicly available codes and datasets. Of note, the author has published raw data and required codes to obtain the final data in the replication package.

Next, we proceed to assess the robustness of the findings through two approaches. Firstly, we introduce county fixed effects into the primary model, replacing the control for seat distance from London. Secondly, we narrow down the sample to encompass exclusively upper-class women, specifically those with accessible data on both their family's and spouse's family's landholdings. We then turn to sensitivity analysis. We start by examining the heterogeneous effects by age and interruption year. While the author argues that peer-commoner intermarriage was more prevalent for younger cohorts, we find that the effect of the interruptions holds for older women too (i.e., aged 26 to 35 in 1961). We also find that the effect holds for each of the interruption years separately.

2 Robustness

We examine in this section the robustness of the author's main findings to alternative specifications.

2.1 Location fixed effects

We start by replicating Table 2 (panel B) in which the author controls for the distance of women's family seat to London as a potential cofounder. We believe that other county's characteristics could also affect the likelihood of getting married such as, for instance, the number of peerage families in a specific county. We thus replace the distance to London control by adding county fixed effects to the main specification in Table 1.¹

We find that results are in line with author's findings, except that estimates on marrying a heir and the difference in spouses' landholdings lose their statistical significance (in columns 2 and 4, respectively).

¹Column 6 of Table 2, panel B, could not be replicated using this specification as information on county (or lat/long) is missing for "never married" women subsample.

2.2 Sample restrictions

In columns (3)–(5) of Table 2, the author restricts the sample by excluding women for which [Bateman \(1883\)](#) does not list both spouses' family landholdings. We replicate the author's main findings in Table 2 using the restricted sample.

Table 2 shows our findings. In columns (1) and (2) we replicate the author's estimates on the probability of marrying a commoner and the probability of marrying a heir, respectively. In columns (3) and (4), we apply the sample restrictions and reexamine the impact on both outcomes respectively. We find that results are similar and slightly larger in magnitude than estimates for the full sample.

2.3 Alternative Placebo

The author relies on 40 cohorts who were on the marriage market x in $\{10, 11, \dots, 50\}$ years before the interruption of the Season (1861–1863) to perform a placebo test on the probability of marrying a commoner in Figure 6. In this exercise, we rely on the post-interruption period as an alternative placebo check. Precisely, we extend the year from 10 to 20 years after the interruption of the Season (1861–1863). The treatment variable is thus the synthetic probability to marry from $1861 + x$ to $1863 + x$, based on the probability to marry at each age of women born from $1815 + x$ to $1830 + x$ with x in $\{10, 11, \dots, 20\}$.

Figure 1 shows that all placebo estimates are close to zero and significantly different from the baseline estimate. This is consistent to the placebo test in the pre-interruption samples.

3 Heterogeneity

In this section, we turn to running two heterogeneity analysis of the author's main findings by years of interruption and age of women in the baseline sample.

3.1 Heterogeneous effects of the interruption

The author examines the impact of the Season's interruption on women's marriage outcomes by pooling the years between 1861 and 1863. We examine the heterogeneous effects of the interruption years by computing separate synthetic probabilities to marry in the year of 1861, 1862 and 1863. The results are reported in Tables 3, 4, and 5, respectively.

We observe certain similarities to Table 2 in the paper. Firstly, the main variable of interest in each table exhibits the same sign as those in Table 2. In other words, women were more inclined to marry a commoner (column 1) and less likely to marry an heir (column 2). A non-zero value in the spouses' families' landholding in Column 3 indicates a reduction in sorting. Columns 4 and 5 further reveal that women were negatively affected during the interruption, experiencing marriages with lower socioeconomic status. Column 6 indicates an increase in the likelihood of non-marriage for women. Secondly, when controlling for distance to London (Panel B), the interruption's impact on the probability of marrying a commoner or an heir was even more pronounced.

There are slight differences as well: (1) The synthetic probabilities of marrying a commoner and an heir are statistically significant in 1861 and 1862 but generally insignificant in 1863; (2) Regarding magnitude, we observe that the synthetic probabilities of marrying during an annual interruption in columns 1 and 2 are approximately two times higher than those during the three-year pooled together.

3.2 Heterogeneous effects by age

The author reports results until age 26 in the first panel (titled Baseline) of Figure 7. We replicate this figure including the estimates until the age of 35 in Figure 2. For the placebo estimations from the second panel of Figure 7, we find zero estimates for ages above 27 as well, so we do not include the updated figure here. When looking at the baseline estimates for all cohorts we find that most of the cohorts older than 26 in 1861 have a significantly higher probability of marrying

a commoner than that of the cohort aged 16 in 1861, despite having a similar or even lower synthetic marriage probability. At first sight this figure is against the main results of the paper because looking at all ages 16-35 the correlation between the synthetic probability to marry and the probability to marry a commoner is not so obvious. Observing this figure we had a hypothesis that for ages up to 26, i.e. cohorts that are more affected by the interruption of the season based on their synthetic treatment measure, the probability of marrying a commoner seems to be more correlated with the synthetic marriage probability than for older cohorts.

Motivated by Figure 2 we estimate the original main models from Table 2 in Goni (2022) separately for age groups 15–26 (younger) and 27–35 (older) in Tables 6 and 7, respectively. We find that the point estimates in Panel A. in column (1) for ages 15-26 is almost five times bigger than the coefficient for ages 27–35. None of these estimates are statistically significant, but the p-value for the younger group is much smaller. When we include distance controls (Panel B.) the coefficient is statistically significant at the 10% level for the younger group and almost three times bigger than that of the older group again with much lower p-values. These results are in line with our expectation based on Figure 2 that the main findings are driven by the younger age group. It is also in line with the author’s claims given the pressure on women to marry younger during this period. For the other outcome variables there is no clear pattern about how the size of the coefficients estimates relate between the younger and older groups and the p-values are also much more similar. Almost all estimates are statistically insignificant probably due to lack of power and low sample sizes and also smaller variation in the treatment variable among the older ladies (except for column 6).

4 Conclusion

This report successfully replicates Goni (2022) primary findings and further investigates their robustness, along with exploring the heterogeneity in the effects of the London Season interruption during Queen Victoria’s mourning period on marriage

market outcomes. The findings indicate that the estimates for the likelihood of marrying a commoner and marrying an heir are comparable, albeit slightly higher in magnitude when examining the restricted sample compared to the full sample. Additionally, we find that the impact of the interruption persists across all interruption years and is more pronounced among younger women, aligning with the theoretical predictions. As a result, we conclude that the study's main findings demonstrate robustness and reliability.

References

Bateman, J.: 1883, *The Great Landowners of Great Britain and Ireland: A List of All Owners of Three Thousand Acres and Upwards, Worth £3, 000 a Year; Also, One Thousand Three Hundred Owners of Two Thousand Acres and Upwards, in England, Scotland, Ireland & Wales, Their Acreage, and Income from Land, Culled from the Modern Domesday Book; Also Their Colleges, Clubs, and Services. Corrected in the Vast Majority of Cases by the Owners Themselves. With a Series of Tables Originally Compiled for "English Land and English Landowners," by Hon. G. Brodrick, with a Dissertation Thereon*, Harrison and Sons.

Goni, M.: 2022, Assortative matching at the top of the distribution: Evidence from the world's most exclusive marriage market, *American Economic Journal: Applied Economics* **14**(3), 445–487.

5 Figures

Figure 1: Alternative Placebo: post-interruption period

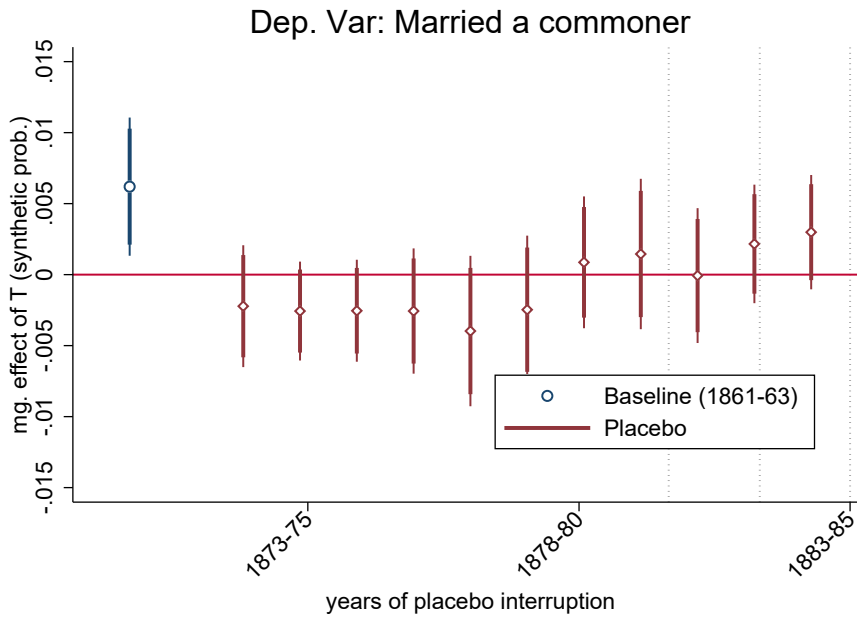
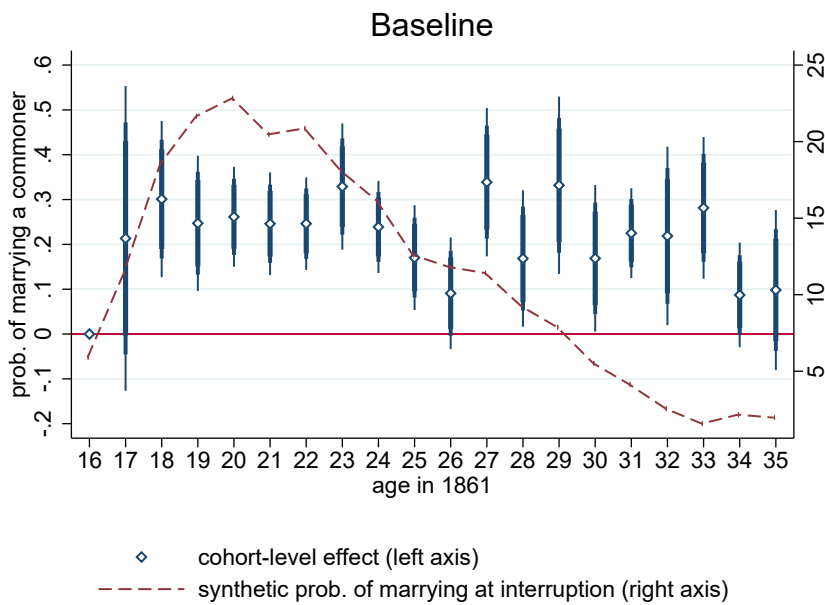


Figure 2: Peer-commoner intermarriage, probit estimation with age dummies (16-35)



6 Tables

Table 1: Robustness: County fixed effects

	(1)	(2)	(3)	(4)	(5)
	Married a commoner	Married an heir	Difference (absolute value)	Difference (husband - wife)	Married down
Treatment	0.006*	-0.003	0.522**	-0.502	0.009*
	(0.003)	(0.002)	(0.216)	(0.326)	(0.005)
p-value	0.084	0.127	0.025	0.139	0.060
Controls	Yes	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes	Yes
Observations	484	484	260	260	260

Notes: The baseline sample is all peers' daughters aged 15–35 in 1861 who ever married, excluding second marriages, women married to foreigners, and royals. See Table 2 in [Goni \(2022\)](#) for more details. Column 6 could not be replicated using this specification as information on county (or lat/long) is missing for “never married” women subsample. Significant at the ***[1%] **[5%] *[10%] level.

Table 2: Robustness: restricted sample

	(1)	(2)	(3)	(4)
	Married a commoner	Married an heir	Married a commoner	Married an heir
Panel A				
Treatment	0.005**	-0.004**	0.006**	-0.008***
	(0.002)	(0.002)	(0.003)	(0.003)
p-value	0.029	0.031	0.018	-0.003
Observations	644	644	324	324
% correct	66	74	57	62
Mean of Dep Var	.65	.26	.47	.41
Controls	Yes	Yes	Yes	Yes
Restricted sample			Yes	Yes
Panel B. Controlling for distance from London				
Treatment	0.006**	-0.005**	0.009***	-0.010***
	(0.003)	(0.002)	(0.002)	(0.003)
p-value	0.013	0.010	0.000	0.000
Distance	0.0002	-0.0001	0.0001	0.0000
	(0.0002)	(0.0002)	(0.0003)	(0.0003)
p-value	0.384	0.752	0.669	0.903
Observations	484	484	260	260
% correct	62	73	57	62
Mean of Dep Var	.62	.27	.46	.4
Controls	Yes	Yes	Yes	Yes
Restricted sample			Yes	Yes

Notes: The baseline sample is all peers' daughters aged 15–35 in 1861 who ever married, excluding second marriages, women married to foreigners, and royals. See Table 2 in [Goni \(2022\)](#) for more details. Columns 1 and 2 replicate columns 1 and 2 of author's Table 2. In columns 3 and 4, we restrict the sample to women with data available on both spouses' landholdings. Significant at the ***[1%] **[5%] *[10%] level.

Table 3: Heterogeneous effects by year of interruption: 1861

	(1)	(2)	(3)	(4)	(5)	(6)
	Married a commoner	Married an heir	Difference (absolute value)	Difference (husband - wife)	Married down	Never married
Panel A. Baseline						
Treatment	0.014** (0.006)	-0.013** (0.006)	1.288** (0.485)	-0.786 (0.529)	0.011* (0.006)	0.002 (0.005)
p-value	0.014	0.024	0.015	0.153	0.073	0.775
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	644	644	324	324	324	765
Panel B. Controlling for distance to London						
Treatment	0.018*** (0.0059)	-0.015*** (0.0054)	1.202** (0.545)	-0.800 (0.520)	0.008 (0.0075)	0.000 (0.0067)
p-value	0.003	0.005	0.039	0.139	0.288	0.995
Distance	0.0002 (0.0002)	-0.0001 (0.0002)	0.027* (0.015)	-0.038** (0.015)	0.0005* (0.0002)	-0.0003** (0.0001)
p-value	0.401	0.787	0.096	0.017	0.070	0.013
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	84	484	260	260	260	565

Notes: The baseline sample is all peers' daughters aged 15–35 in 1861 who ever married, excluding second marriages, women married to foreigners, and royals. See Table 2 in [Goni \(2022\)](#) for more details. Column 6 could not be replicated using this specification as information on county (or lat/long) is missing for “never married” women subsample. Significant at the ***[1%] **[5%] *[10%] level.

Table 4: Heterogeneous effects by year of interruption: 1862

	(1)	(2)	(3)	(4)	(5)	(6)
	Married a commoner	Married an heir	Difference (absolute value)	Difference (husband - wife)	Married down	Never married
Panel A. Baseline						
Treatment	0.013** (0.006)	-0.010** (0.005)	1.404** (0.652)	-1.689*** (0.561)	0.028*** (0.007)	0.006 (0.005)
p-value	0.025	0.045	0.043	0.007	0.000	0.247
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	644	644	324	324	324	765
Panel B. Controlling for distance to London						
Treatment	0.017** (0.007)	-0.012** (0.005)	1.300* (0.671)	-1.630*** (0.554)	0.026*** (0.009)	0.006 (0.006)
p-value	0.019	0.018	0.066	0.008	0.002	0.355
Distance	0.0002 (0.0002)	-0.0001 (0.0002)	0.027* (0.015)	-0.038** (0.014)	0.0005* (0.0002)	-0.0003** (0.0001)
p-value	0.419	0.781	0.093	0.015	0.060	0.012
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	84	484	260	260	260	565

Notes: The baseline sample is all peers' daughters aged 15–35 in 1861 who ever married, excluding second marriages, women married to foreigners, and royals. See Table 2 in [Goni \(2022\)](#) for more details. Column 6 could not be replicated using this specification as information on county (or lat/long) is missing for “never married” women subsample. Significant at the ***[1%] **[5%] *[10%] level.

Table 5: Heterogeneous effects by year of interruption: 1863

	(1)	(2)	(3)	(4)	(5)	(6)
	Married a commoner	Married an heir	Difference (absolute value)	Difference (husband - wife)	Married down	Never married
Panel A. Baseline						
Treatment	0.008 (0.006)	-0.005 (0.005)	1.264** (0.582)	-1.468** (0.589)	0.030*** (0.007)	0.009 (0.006)
p-value	0.244	0.302	0.042	0.021	0.000	0.109
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	644	644	324	324	324	765
Panel B. Controlling for distance to London						
Treatment	0.013* (0.007)	-0.009 (0.006)	1.363** (0.581)	-1.661*** (0.574)	0.033*** (0.009)	0.012* (0.006)
p-value	0.070	0.117	0.029	0.009	0.000	0.060
Distance	0.0002 (0.0002)	-0.0001 (0.0002)	0.030* (0.015)	-0.042** (0.015)	0.0005** (0.0002)	-0.0003** (0.0001)
p-value	0.350	0.710	0.060	0.012	0.033	0.017
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	84	484	260	260	260	565

Notes: The baseline sample is all peers' daughters aged 15–35 in 1861 who ever married, excluding second marriages, women married to foreigners, and royals. See Table 2 in [Goni \(2022\)](#) for more details. Column 6 could not be replicated using this specification as information on county (or lat/long) is missing for “never married” women subsample. Significant at the ***[1%] **[5%] *[10%] level.

Table 6: Heterogeneous effects by age during the interruption: Younger (15-26)

	(1)	(2)	(3)	(4)	(5)	(6)
	Married a commoner	Married an heir	Difference (absolute value)	Difference (husband - wife)	Married down	Never married
Panel A. Baseline						
Treatment	0.007 (0.005)	-0.005 (0.005)	0.480 (0.352)	-0.254 (0.317)	0.003 (0.003)	-0.002 (0.002)
p-value	0.122	0.310	0.198	0.438	0.393	0.231
Observations	386	386	214	214	214	765
Mean of Dep Var	.64	.26	31	-6	.58	.23
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Panel B. Controlling for distance to London						
Treatment	0.008* (0.004)	-0.006 (0.004)	0.417 (0.370)	-0.310 (0.329)	0.002 (0.004)	-0.003 (0.002)
p-value	0.071	0.132	0.282	0.365	0.626	0.121
Distance	0.0001 (0.0002)	-0.0000 (0.0002)	0.018 (0.017)	-0.052** (0.019)	0.0003 (0.0003)	-0.0004** (0.0002)
p-value	0.744	0.904	0.029	0.027	0.357	0.013
Observations	289	289	171	171	171	565
Mean of Dep Var	.62	.27	32	-8	.62	.22
Controls	Yes	Yes	Yes	Yes	Yes	Yes

Notes: The baseline sample is all peers' daughters aged 15–26 in 1861 who ever married, excluding second marriages, women married to foreigners, and royals. See Table 2 in [Goni \(2022\)](#) for more details. Significant at the ***[1%] **[5%] *[10%] level.

Table 7: Heterogeneous effects by age during the interruption: Older (27-35)

	(1)	(2)	(3)	(4)	(5)	(6)
	Married a commoner	Married an heir	Difference (absolute value)	Difference (husband - wife)	Married down	Never married
Panel A. Baseline						
Treatment	0.002 (0.006)	-0.007 (0.008)	0.433 (0.708)	-0.319 (0.419)	0.006 (0.006)	0.011*** (0.003)
p-value	0.811	0.378	0.554	0.463	0.301	0.000
Observations	295	295	134	134	134	765
Mean of Dep Var	.63	.27	26	1	.44	.23
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Panel B. Controlling for distance to London						
Treatment	0.003 (0.008)	-0.010 (0.007)	0.278 (0.545)	0.317 (0.604)	-0.006 (0.011)	0.009*** (0.003)
p-value	0.663	0.143	0.621	0.611	0.603	0.001
Distance	0.0002 (0.0003)	-0.0000 (0.0003)	0.028 (0.029)	-0.019 (0.022)	0.0009*** (0.0003)	-0.0003** (0.0001)
p-value	0.483	0.956	0.054	0.416	0.002	0.118
Observations	221	221	106	106	106	565
Mean of Dep Var	.59	.29	27	1	.44	.22
Controls	Yes	Yes	Yes	Yes	Yes	Yes

Notes: The baseline sample is all peers' daughters aged 27–35 in 1861 who ever married, excluding second marriages, women married to foreigners, and royals. See Table 2 in [Goni \(2022\)](#) for more details. Significant at the ***[1%] **[5%] *[10%] level.