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Parker, Wine Spectator and Retail Prices of Bordeaux Wines in Switzerland: Results from Panel Data 1995-2000

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Abstract

This paper considers the effect of Parker and Wine Spectator ratings on Swiss retail prices of the grand cru classé of Médoc , Graves and St Emilion as well as the most renowned wines of Pomerol in a panel data setting. The application of a two-way fixed effects regression model to data of the vintages 1995 to 2000 of 121 wines leads to the following conclusions: There is clear evidence that WS ratings do not provide additional information for retail prices when we take into account the fixed effects and the Parker ratings. The evidence of a marginal effect of Parker ratings on Bordeaux prices is mixed. We find it for five of the nine appellations, in particular for Paulliac and Pomerol where a one Parker point increase is estimated to lead to a 6-7% price increase. This "only" partial price influence of Parker is confirmed by comparing the estimated "chateau" fixed effects for the Médoc estates with their standing in the "old" 1855 classification and the most recent Parker classification of 2008.

First preliminary draft, August 2010

1. Introduction

Wine is a typical experience good: its quality can only fully be ascertained when it is consumed. Of course this is no really big problem for cheap wines which are ready for consumption when they are sold: try one bottle an buy more if you like it. However, it is a big problem for high quality wines which are often bought before they are mature and have to be stored for many years before they show their full quality in consumption. This is in particular true for the top red wines of Bordeaux as the "Médoc grand crus classés" which are long lasting and often need ten and more years up to full maturity and are often difficult to find or very expensive when they are ready for consumption. Moreover, for Bordeaux wines there exists a forward market: a substantial part of the annual production is sold "en primeur" around a half year after the harvest when the wine is still maturing in barrels and it is bottled and delivered only about two years after the harvest.

In markets for experience goods producers use different instruments as pricing, advertising, reputation building and experts ratings in order to signal the quality of their products. For high quality wines expert reviews turned out to be an important source of information on product quality. In particular we have two internationally strongly recognized wine reviews: those of Robert Parker, which are published in his bimonthly newsletter "The Wine Advocate", and the "Wine Spectator" magazine (WS) which appears with 15 issues per year. Indeed, Robert Parker is considered to be the most worldwide influential wine reviewer who had an influence on rating standards as the 100 point scale, which was adopted by others like WS, and it is even claimed that he has an effect on the style and prices of high quality wines.[1] Besides anecdotal evidence of the impact of Parker and other wine gurus there are a couple of papers trying to provide econometric evidence on this issue. Most of this work uses hedonic price functions which regress prices on observable characteristics of the wines including point grades provided by Parker or other wine reviewers[2]. Jones and Storchmann (2001) consider the effects of

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[1] Agostini and Guichard (2007) provide an elaborated account of the "Parker myth" with a lot of anecdotal evidence.

[2] Alternatively a hedonic price index for different „chateaux" can be constructed and it can be compared to different classifications as the official 1855 Médoc classification or more recent ones provided by current

Parker points on auction prices for 21 top Bordeaux growths controlling for vintage and grape composition. This paper reports a significant influence of Parker ratings on price which varies widely across "chateaux" (4% to over 10% increase in price in response to an additional Parker point). A much lower "Parker effect" is found for "primeur" prices of 132 chateaux over the vintages 1982-1998 (except the off vintage 1984) by Hadj Ali and Nauges (2007). Controlling for average vintage quality and reputation they obtain only an effect of about 1% of an additional Parker point on the price of a wine. The paper Dubois and Nauges (2007) discusses the econometric problems raised by unobserved time variant quality characteristics only known to the producer in the presence of quality signaling by prices.[3] They show that this leads to a positive omitted variable bias of the regression estimates of the reviewer effect and how this bias can be corrected. The application of this approach to 108 chateaux and the years 1994 to 1998 leads to the conclusion that this bias is sizeable: the estimate of the one-point Parker effect is 1.38% with bias correction and 3.95 % without correction, respectively.

This paper considers the effect of Parker and WS grades on Swiss retail prices of the "grand crus classes" of Médoc (five "appellations"), Graves and St Emilion as well as the most renowned wines of Pomerol where there is no official classification. Our panel data consists of median retail prices as well as Parker and WS ratings in fall 2009 for the vintages 1995 to 2000 of 121 wines in total. In order to control for unobserved quality we use a two-way fixed effects regression model (chateaux and vintage effects for each of the nine "appellations") with the two ratings as explanatory variables. Our study differs from those mentioned above using mostly "primeur" prices above in three respects: first, retail prices of mature or nearly mature wines are of interest as the quality of the product can be checked by experienced consumers themselves by sampling one bottle. Thus we would expect that wine reviews would be less important than for "primeur" prices unless

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wine reviewers. Such an analysis of the "Médoc grand cru classé" by Di Vittorio and Ginsburgh (1996) suggest that the 1855 classification outperform the more recent one by Parker.

[3] An alternative approach to address this problem is the difference in difference estimator which can be used if reviews are released for the same product at different times. An application of this idea for the Bordeaux vintages 2001 and 2002 when the "primeur" wines were reviewed by Parke in spring (before prices were set) and in fall (after prices were set) of the next year, respectively, is provided by Hadj Ali, Lecocq and Visser (2007). The estimate obtained for the Parker effect "at the extensive margin" is rather high, namely2.8 Euro per bottle with an average price of 19.01 Euro (2001) and 15.65 Euro (2002).

we have a kind of snob effect making the consumer's utility dependent on the grade of a wine. Of course, "primeur" prices effect retail prices to the extent that wine merchants buy their stocks "en primeur". However, retail prices somehow differ substantially from retail prices when the assessment of the vintage and/or the market situation changes, as it was the case with 1997 vintage in our sample. Second, we use two different ratings at the same time in order to test for the relevance of both reviews jointly. Third, we use the two-way fixed effects model at the level of the "appellation" in order to account for a disaggregated vintage fixed effect and a better change to control for the time-varying quality of the wines.

The remainder of the paper is organized as follows. The data and the econometric model are briefly discussed in section 2. The empirical results are provided in section 3 and section 4 concludes.

2. Data and Econometric Model

The data source is the publication "Vinfox 2010" which is survey of about 127'500 retail offerings of nearly 35'000 wines provided by Swiss wine merchants. Nearly 25% of these offering are for wines of the Bordeaux region which is clearly the most important source of supply in the Swiss retail quality red wine market. For all these wines the offered prices and available grades are published. For most of the Bordeaux classified growths and the vintages 1995-2000 we have more then one offering, sometimes up to 20. We used the median of the price data for each chateaux and vintage. The grades are the most recent ones available[4]. We included all the "Médoc grand crus classés " of the 1855 classification, those of Saint-Emilion of the 1954 classification and Graves of the 1959 classification, respetively. For the "appellation Pomerol" we relied on the non-official grand cru classification provided by Debuigne (1973) in the "Larousse dictionnaire des vins". The data set is not complete in the sense that some of the less known classified

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[4] Parker and WS grades are on a 100 point scale. Values below 70 indicate a very poor or even undrinkable wine, the range between 90 and 100 indicates a wine of outstanding or even "classic" quality. When only a cask sample review is available, reviewers usually give a range [e. g. 92-94] we use the midpoint [e. g. 93].

chateaux were not offered. The same is true for the some vintages and for some wines no Parker and/or WS grade were available. Thus we have unbalanced panel data sets.

The characteristics of the data for the five "Médoc appellations" (Saint-Estephe, Paulliac, Saint-Julien, Margaux, Haut Médoc), Graves, Saint Emilion and Pomerol are reported in Table 1. For the Médoc and Graves wines most or all of the classified growth could be included in or sample. For only 4 out of 55 Médoc "chateaux" the necessary data were not available for all six years. The vintage coverage for in these cases is also very good as on average at least 78% of the vintages can be included in the samples. For Saint-Emilion and Pomerol only half of the chateaux are offered as well as rated and the vintage coverage is only 60 % for those included. This reflects the very generous classification for the two areas including quite a large number of relatively unknown estates.

In order to get an impression of the data consider the "appellation" Saint Estephe with five classified growths. Figure 1 contains the plots of the price and the two ratings for the five classified growths of Saint-Estephe. For the three highly known estates Cos-D'Estournel, and Calon-Segur we have data for all six vintages and we note a relatively high correlation between prices and ratings. Indeed, the correlation coefficient for these 18 observations is about 0.91 (0.86) for price and Parker (WS) ratings, which themselves are correlated with a coefficient of about 0.77. Of course these simple correlations have to be interpreted cautiously as we do not control for quality. Finally, for the les well known and demanded "chateaux" Lafon-Rochet and Cos-Labory we have the unbalanced data situation which is typical for less known and demanded estates.

For each of these nine data sets we apply the following two-way fixed effects model for the log of prices:

$$\log(p_{it}) = \beta_1 ratingpar_{it} + \beta_2 ratingws + \alpha_i + \eta_t + \varepsilon_{it}$$
$$i = 1,2.....N, \ t = 1,2.....T = 6$$
$$\alpha_i : unobservable \ chateau \ specific \ fixed \ effect$$
$$\eta_t : unobservable \ time \ specific \ fixed \ effect$$
$$\varepsilon_{it} : "usual" \ regression \ error$$

Besides the two rating variables with marginal effects β_1, β_2 we include two fixed effects which are crucial as they control for time invariant and time-variant quality characteristics of the wine. The chateau fixed effect is a catch all term for the time-invariant price effects of the quality (soil, ages of vines, exposition, skills of the producer) as well as the reputation of a producer. The time effect controls for the time-varying quality of the wine which is assumed to be common to all estates of the "appellation". The latter term reflects all local weather condition during the growing period and is a catch all term for the time-variant explanatory variables considered by the well known model of Ashenfelter, Ashmore and Lalonde (1995). This specification appears very attractive as it allows controlling for the unobserved quality of the wines in a simple way. Finally note that this semi-logarithmic specification implies an exponential effect of grades on prices. This specification turns out to be empirically slightly better than the double-logarithmic alternative.

Table 1: Description of the Bordeaux Wine data sets for the Years 1995 – 2000,

	Saint Estéphe	Paulliac	Saint Julien	Margaux	Haut Medoc	Graves rouges	Saint Emilion	Pomerol
classified	5	18	11	16	5	13	72	62
included	5	16	11	14	5	13	37	31
Vintage coverage	0.867	0.906	0.939	0.774	0.833	0.782	0.608	0.608

Figure 1: Ratings (Parker, WS) and prices (PMED, SFr) for St Estèphe growths Cos-D'Estournel (CDE), Montrose (MON), Calon-Segur (CSA), Lafon Rochet (LRA) and Cos Labory (CLA), years 1995-2000
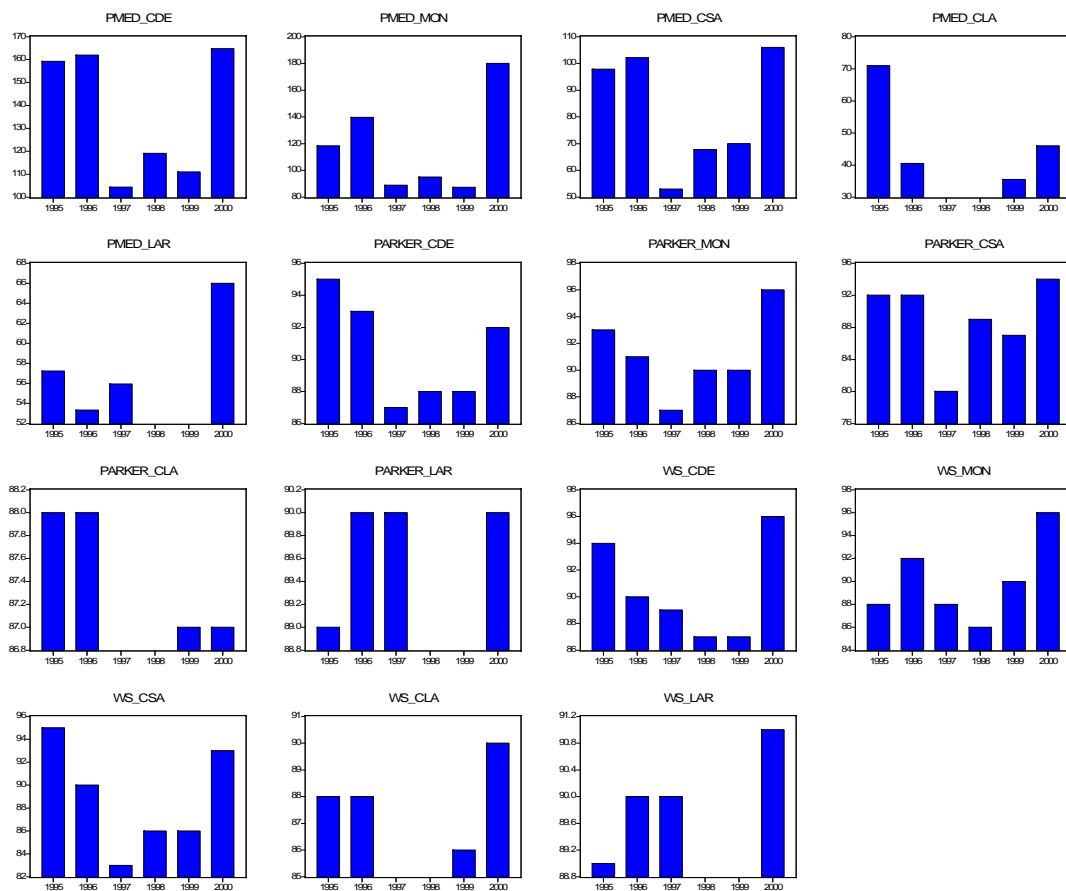
3. Empirical Results

Table 1 provides us with the empirical findings of our two-way fixed effects model. First note that in four out of nine sample no significant price effects of Parker and WS grades can be detected (Saint-Estephe, Margaux, Graves and Haut Medoc). This means that in theses cases prices can only be explained by the chateaux and the ("appellation" specific) vintage characteristic. For these wines the expert grades appear irrelevant, at least for Swiss retail prices. For the remaining five appellations there is a statistically significant marginal Parker price effect, but the WS slope coefficient turns out to be statistically insignificant in all cases. The Parker effect is very strong for Paulliac and Pomerol wines: a one-Parker-point increase is associated with a very sizable 5.8% and 7.4% price increase, respectively. The Parker effect is although statistically significant for Saint-Julien and Saint-Emilon but the estimates are considerably lower than those for Paulliac and Pomerol (2.6 and 3.8 %, respectively). The joint F-test for the statistical significance of the fixed effects indicates highly significant "chateau" and year effects for all panels. The R-squared are relatively high and with one exception (Haut Médoc) clearly over 0.85. Moreover, it interesting to note that even for the cases with statistically significant Parker effects the inclusion of the rating variables increases the R-squared only about 1 – 2 percentage points. Thus even in this cases the two-way fixed effects model explains most of the price variation.

In order to show the importance of the two-way fixed effect specification the estimates for the marginal reviewer effect with only one fixed effect are reported in Table 3 and 4. Omitting one of the fixed effects leads to much larger and seemingly statistically significant slope coefficient for Parker and Wine Spectator grades and a clearly lower R-squared. This shows that it is important to include the time-invariant and time variant quality characteristics in order to avoid large omitted variable biases.

In sum our result show that Parker ratings are more important for retail prices in Switzerland than WS ratings. The former is statistically significant in five out of nine "appellations" whereas the later is always statistically insignificant. Thus, our results confirm the image of Parker as the most influential wine reviewer for red Bordeaux wine.

This is in particular true for the "appelations" Pauillac and Pomerol, to a lesser extent Saint Emilion and Saint Julien, but not for Saint Estephe, Margaux, Haut Medoc and Graves.

Why do we get such a differing pattern of results across "appellation" or community? The first potential explanation is the small sample size for Saint Estephe and Haut Médoc, but this argument does not apply to Margaux and Graves. Moreover, we get the same qualitative result when we pool the four panels with "appellation" specific year effects. More interesting is a second hypothesis that the larges share of most prestigious luxury wines are from Pauillac and Pomerol, which are favored by rich "snob" consumers who drink only wine with very high Parker ratings: Pauillac has three of the five "premier grand cru classé" of the 1855 classification (Lafite Rothschild, Latour, Mouton Rothschild)[5], Margaux (Margaux) and Graves (Haut Brion) only one. The chateaux Petrus and Le Pin of Pomerol may today be even more prestigious as the 1855 "premier grand cru classé". The results for Saint Emilion with its two "premier grand classé cru A" Ausone and Cheval Blanc are in line with this patter. However, this hypothesis is not supported by the data as we get essentially the same estimation results when we skip these top "chateaux" from the sample. Third we may conjecture that Parker is an expert on the five communities, in particular Pauillac and Pomerol, and his rating provide more information than just the "chateau" and vintage effects. This hypothesis is indirectly supported by the distribution of estates rated as "outstanding" by Parker in his 1995 "Wine Buyer's Guide" (178-180) provided in Table 5: over half of the 25 top wines according to Parker in 1995 are from Paulliac (24%) and Pomerol (28%) and these two "appellations" are clearly over-represented.

Finally or econometric results allow to shed some light on the appropriateness of the "old" 1855 classification and compare it to the most recent one proposed by Parker in the 2008 edition of his "Wine Buyers Guide" (156-159). To this end we use the fixed effects estimated for the Médoc wines defined as deviation from average and plot it against the

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[5] In fact there was one change in the 1855 classification, namely the upgrading of Mouton Rothschilc from a second to a first growth in 1973.

five 1855 classes (first to fifth in descending quality order) and the four Parker classes (** to ***** in ascending quality order). These two scatter plots are given in Figures 2 and 3. The maximum fixed effect is estimated for 1855 first growth Lafite Rothschild (log price 2.17 higher than Médoc average) followed by Latour, Margaux and Mouton Rothschild. The lowest is found for the forth Haut Médoc growth La Tour Carnet (log Price -0.83 below Médoc average). It appears that the 1855 does a better job in explaining the pattern of "chateau" fixed effects than the most recent Parker classification. Indeed, the correlation coefficient is -0.67 for the former and 0.59 for the latter, respectively. Moreover, taking into account the apparent non-linearity and correlating the fixed effects with the log of the classification leads to a absolutely higher correlation for the 1855 classification (-0.78) whereas that that with the parker rating is even slightly reduced to 0.54. Thus, the "old" 1855 classification does still a good job in explaining the quality of the Médoc wines, at least according to the prices they fetch on average for the 1995 to 2000 vintages in the Swiss retail market. This finding provides additional evidence that the Parker effect on wine does not hold in general for the entire Medoc region.

Table 2: Marginal Effect of Parker and Wine Spectator Ratings on Swiss Retail Bordeaux Prices of the Years 1995 – 2000, Two-way fixed effects Panel Regression

$\log(p_{it}) = \beta_1 ratingpar_{it} + \beta_2 ratingws + \alpha_i + \eta_t + \varepsilon_{it}$

$i = 1,2.....N, \ t = 1,2.....T = 6$

α_i : *unobservable chateau specific fixed effect*

η_t : *unobservable time specific fixed effect*

ε_{it} : "*usual*" *regression error*

	Saint Estéphe	Paulliac	Saint Julien	Margaux	Haut Medoc	Graves rouges	Saint Emilion	Pomerol
β_1	0.0316	0.0582	0.0260	0.0063	0.0173	0.0168	0.0383	0.0736
	(1.629)	(4.544)	(2.263)	(0.652)	(1.071)	(0.906)	(2.856)	(3.050)
β_2	0.0074	0.0070	0.0149	0.0136	-0.005	-0.0045	0.0126	0.0109
	(0.372)	(0.599)	(1.183)	(0.875)	(-0.33)	(-0.33)	(0.981)	(1.320)
R^2	0.945	0.973	0.933	0.958	0.867	0.938	0.925	0.960
Durbin Watson	2.597	2.105	2.023	2.576	2.170	2.081	1.759	2.479
sample size	26	87	62	65	26	61	135	113
Fixed Effect F test	14.676 (.0000)	31.304 (0.000)	13.619 (0.000)	28.852 (0.000)	10.160 (0.001)	16.971 (0.000)	15.372 (0.000)	25.244 (0.000)

Fixed effects are not reported, t-Statistics in parentheses beneath coefficient estimates, White (heteroskedasticity-consistent) standard errors, marginal significance level in parentheses beneath F-values.

Table 3: Marginal Effect of Parker and Wine Spectator Ratings on Swiss Retail Bordeaux Prices of the Years 1995 – 2000, Year Fixed Effects Panel Regression

$$\log(p_{it}) = \beta_1 ratingpar_{it} + \beta_2 ratingws + \eta_t + \varepsilon_{it}$$
$$i = 1,2.....N, \ t = 1,2.....T = 6$$

	Saint Estéphe	Paulliac	Saint Julien	Margaux	Haut Medoc	Graves rouges	Saint Emilion	Pomerol
β_1	0. 0812	0.1916	0.0735	0.0385	-0.0081	0.105	0.0808	0.1576
	(1.797)	(8.564)	(4.434)	(1.793)	(-0.26)	(4.336)	(3.573)	(4.305)
β_2	0.0489	0.0723	0.0353	0.1354	-0.0166	0.105	0.0949	0.1116
	(0.965)	(3.038)	(1.815)	(4.639)	(-0.61)	(4.364)	(4.078)	(3.252)
R^2	0.511	0.792	0.676	0.547	0.281	0.569	0.610	0.657
DW	0.935	1.201	0.724	0.801	0.565	0.998	0.610	0.463

Table 4: Marginal Effect of Parker and Wine Spectator Ratings on Swiss Retail Bordeaux Prices of the Years 1995 – 2000, Chateaux Fixed Effects Panel Regression

$$\log(p_{it}) = \beta_1 ratingpar_{it} + \beta_2 ratingws + \alpha_i + \varepsilon_{it}$$
$$i = 1,2.....N, \ t = 1,2.....T = 6$$

	Saint Estéphe	Paulliac	Saint Julien	Margaux	Haut Medoc	Graves rouges	Saint Emilion	Pomerol
β_1	0.0393	0.0717	0.0413	0.0119	0.0247	0.0323	0.0512	0.0889
	(2.599)	(6.672)	(3.462)	(1.415)	(1.516)	(1.723)	(3.723)	(4.632)
β_2	0.0268	0.0182	0.0372	0.0409	0.0003	0.0297	0.0223	0.0245
	(1.851)	(2.136)	(3.516)	(4.196)	(0.025)	(3.309)	(2.227)	(2.656)
R^2	0.922	0.971	0.874	0.947	0.750	0.916	0.915	0.965
DW	2.380	2.205	1.999	2.837	1.548	2.234	1.804	2.503

Table 5: Distribution of outstanding "Chateaux", Parker 1995

Saint Estéphe	Paulliac	Saint Julien	Margaux	Haut Medoc	Graves Rouges	Saint Emilion	Pomerol
4%	24%	8%	4%	0%	8%	24%	28%

Figure 2: Médoc chateau fixed effects and the classifications of 1855 and Parker 2008
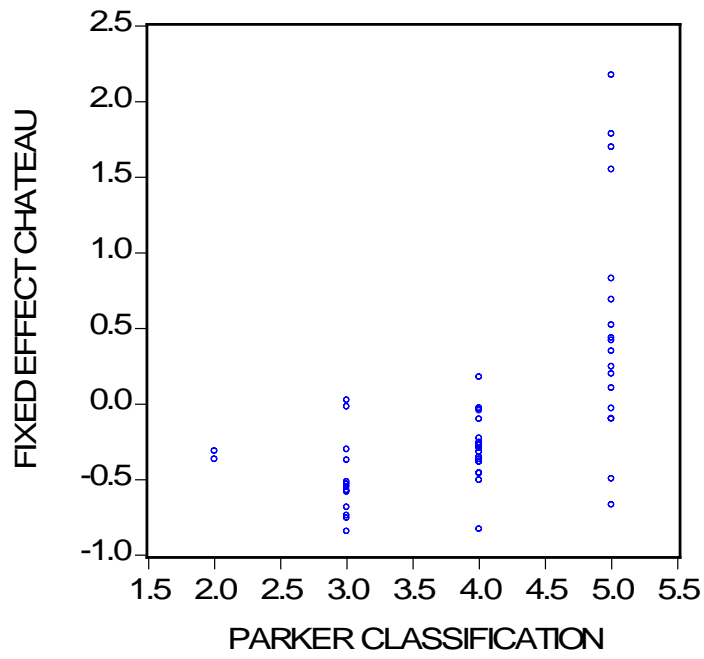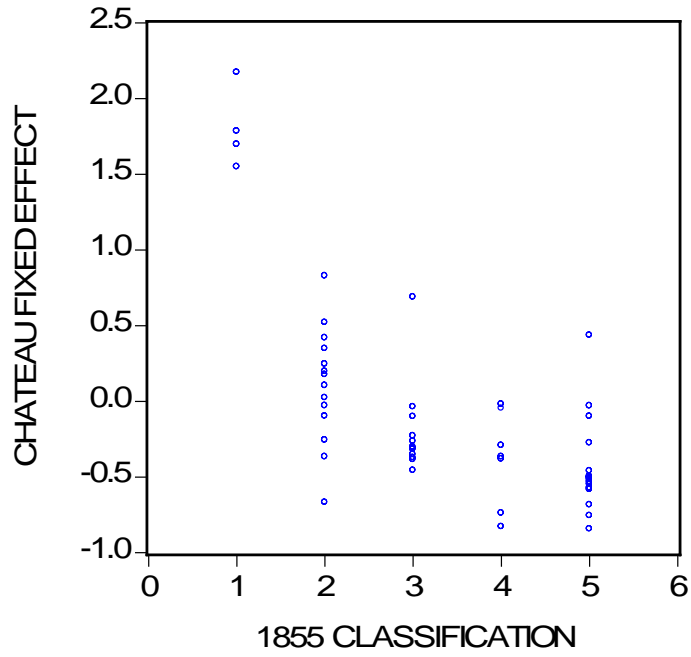
4. Conclusion

This paper considers the effect of Parker and Wine Spectator grades on Swiss retail prices of the "grand crus classes" of Médoc (five "appellations"), Graves and St Emilion as well as the most renowned wines of Pomerol in a panel data setting. The application of a two-way fixed effects regression model (chateaux and vintage for each of the nine "appellations") with the two ratings as explanatory variables to data of the vintages 1995 to 2000 of 121 wines leads to the following conclusions: There is clear evidence that WS ratings do not provide additional information for retail prices when we take into account the two fixed effects and the Parker ratings. The evidence of a marginal effect of Parker ratings on Bordeaux Swiss retail prices is mixed. We find it for five of the nine appellations, in particular for Paulliac and Pomerol where a one Parker point increase leads to a 6-7% price increase. For the other "appellation" the effect is much smaller or even statistically insignificant (Saint Estephe, Margaux, Haut Medoc and Graves). This partial influence of Parker is confirmed by comparing the estimated "chateau" fixed effects for the Médoc estates with their standing in the "old" 1855 classification and the most recent Parker classification of 2008: the old classification accounts much better for the pattern of the fixed effects than the new Parker classification.

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