

Appendix 1

Wheat price (*lire* and grams of silver per *moggio*), weight (kgs), yield in flour (kgs), yield in white (sifted) flour (kgs), yield in bread-making flour (kgs), and yield in bread of one *moggio* of Ferrara; yield of the Imola harvest (yield ratio: harvest relative to seed).

The prices and the data on the weight and the yield of the wheat were taken from the *scandagli* produced by the *Congregazione di Abbondanza* of Ferrara. The way the *scandagli* were made and the structure and the content of the archival documents that recorded the results of the tests remained unchanged throughout the Eighteenth century, making this source remarkably consistent. Using the example the test carried out on 18 June 1710 in the bakery of the Jesuit convent of Ferrara,¹ let us briefly describe the structure of the document: first there is the declaration about the granaries (usually private ones or belonging to religious institutions) from which the officials of the *Abbondanza* collected the wheat samples. Then, the document lists, in order: the weight of the wheat before milling; the weight of the total flour obtained after the milling; the quantity of white flour, bran, and other milling residues in the total flour (all these values net of the weight of the sacks). Finally, there are the figures for the amount of flour used to make the bread (a mixture of white flour and bran, in variable ratios) and the number of loaves of a given weight (in this case, of 24 *once*) obtained. All these values are flanked by the cost of the wheat used (according to the market prices, which in turn are regulated by the set price), the cost of milling, the cost of sacks, the cost of transport, and the costs borne by the bakers. The final part of the document is a table that summarises (according to the yield of the wheat and of the total costs of bread production) the weigh that the loaves must have according to specific wheat prices.

Sources:

- Scandagli: HAMF, *Patrimoniale*, b. 254, fasc. 54; b. 257, fasc. 52; b. 273, fasc. 51; b. 276, fasc. 10; HAMF, *Finanziaria XVIII*, b. 77, fos. 152 r., 218, 221 r., r.233 r., 252 r., 266 r., 269 r., 272 r., 314 r., 344 r., 382 r., 388 r., 398 r., 413 r., 440 r., 442 r., 453 r., 481 r., 505 r., 581 r., 585 r.; b. 78,

¹ HAMF, *Patrimoniale*, f. 254.

fos. 158 r.-159 v., 318 r., 324 r.-326 r., 342 r., 360 r.-v., 366 r.-370 r.; b. 79, fos. 23 r.-25 v., 359 r.-362 v., 438 r.-441 v.; b. 80, fos. 68 r.-69 r., 155 r.-177 r., 230 r.-242 v., 248 r.-255 v., 261 r.-262 r., 324 r.-326 r., 430 r., 442 r.-v., 533 r.-534 r., 563 r.-564 r., 612 r.-614 r.; b. 81, fos. 11 r.-21 r., 50 r., 89 r., 228 r., 454 v.-455 r., 486 v.-487 v.; b. 82, fos. 27 r.-v., 64 r.-65 r., 75 r.-v., 89 r.-v., 91 r.-v., 184 v.-185 r.; b. 83, fos. 708 r.-709 r.; b. 84, fos. 194 r.-204 r., 266 r.-270 r.; b. 85, fos. 142 r.-144 r., 817 r.-836 r.; b. 86, fos. 763 v.-764 r., 767 r.; b. 88, fos. 254 r.-328 r., 355 r.; b. 90, fos. 315 r.-317 v., 322 r., 329 r.-332 r.; b. 91, fos. 366 r.-367 r., 372 r.-v.; b. 92, fos. 328 r.-329 r., 332 r.-333 r., 336 r.-337 r.; b. 93, fos. 253 r.-254 r.; b. 94, fos. 92 r.-v., 109 r.-110 r.; b. 96, fos. 129 r.-v., 144 r.-v., 157 r.-164 r., 166 r.-184 r., 217 r.-v., 531 r.-535 r., 553 r.-554 r.; b. 97, fos. 946 r.-953 r.

- The data on the harvests yield are found in: Claudio Rotelli, *Rendimenti e produzione agricola nell'Imolese dal XVI al XIX secolo*, *Rivista Storica Italiana*, 80, 1968, pp. 107–129, p. 122.

Year	Month	Price_Lire	Price_grAg	Weight	Flour	FlourWhite	FlourBread	Bread	Imola
1712	NA	10.002	58.2911559	473.5211	439.0079	312.3732	337.3953	NA	3.69
1713	NA	9.865	57.49272675	468.3441	433.8309	298.8843	332.9661	NA	6.33
1714	NA	11.097	64.67276115	451.6052	417.092	292.3268	318.4993	NA	8.12
1715	NA	14.827	86.41101465	463.5123	428.9991	294.829	332.8798	NA	4.62
1716	NA	14.577	84.95402715	485.9459	451.4327	342.601	353.3864	NA	5.71
1717	NA	10.92	63.641214	481.9768	447.4636	311.4529	342.3709	NA	7.24
1718	(April)	11.29	65.7975555	474.5565	NA	312.2007	373.9793	NA	5.89
1718	(August)	11.29	65.7975555	469.6671	435.1539	330.4351	336.7625	NA	5.89
1719	NA	8.431	49.13544645	488.1892	453.676	339.4948	348.986	NA	7.3
1720	NA	7.5	43.709625	462.6494	428.1362	256.7207	293.1896	NA	7.3
1721	NA	6.093	35.50969935	459.0256	424.5124	236.9906	290.6587	NA	7.67
1722	NA	7.123	41.51248785	465.7269	431.2137	257.641	293.6786	NA	6.23
1723	NA	6.031	35.14836645	467.6251	433.1119	272.1366	300.2648	NA	6.8
1724	NA	6.84	39.863178	467.7114	433.1982	237.9398	305.8157	NA	5.67
1725	NA	8	46.6236	475.8795	441.3663	243.8933	306.3047	NA	6.1
1726	NA	8	46.6236	458.9968	424.4836	290.2848	311.3091	NA	7.07
1739	NA	9.513	55.44128835	478.353	443.8398	219.3889	298.3666	NA	5.68
1741	NA	10.97	63.9326115	489.7423	441.5389	252.4353	322.3245	NA	5.92
1742	NA	10.71	62.4173445	482.6671	444.7026	300.9263	313.4374	NA	6.16
1743	NA	10.735	62.56304325	461.4415	426.9283	272.3091	305.787	NA	5.5
1744	NA	11.447	66.71254365	477.3751	442.5743	272.8268	313.6387	NA	4.94
1746	NA	14.866	86.6383047	465.0654	430.5522	227.9022	325.6896	NA	4.69
1751	NA	13.632	79.4466144	469.6384	462.7357	NA	308.2892	NA	5.02
1754	NA	9.513	55.44128835	460.291	452.4105	NA	326.6962	450.5754	5.2
1759	NA	13.078	64.1593602	462.9946	456.0919	NA	334.2603	465.3872	6.42
1761	NA	9.084	44.5651956	457.1849	450.2822	NA	329.486	466.465	7.47
1763	NA	13.552	66.4847568	466.8773	459.9747	NA	282.2317	387.0519	3.85
1765	NA	12.261	60.1512399	445.5654	NA	NA	337.194	380.3067	3.77
1766	NA	18.432	90.4255488	456.1495	449.2468	NA	341.3355	482.8413	4.37
1767	NA	15.036	73.7651124	466.0432	459.1406	NA	348.0656	495.4626	5.71
1772	(November)	20.772	101.9053548	478.0078	471.1052	NA	342.0546	458.7462	4.47
1772	(December)	20.772	101.9053548	478.6693	471.7667	NA	402.9704	575.1191	4.47
1774	NA	17.415	85.4362485	463.426	456.5234	NA	357.2691	NA	4.24
1775	NA	12.762	62.6090958	473.0897	466.187	NA	375.7912	528.2153	6.51
1780	NA	16.098	78.9751782	483.2136	476.3109	NA	368.8311	511.6303	6.27
1781	NA	13.388	65.6801892	463.1671	456.2645	NA	360.3753	498.418	5.62
1782	(October)	13	63.7767	479.6184	472.7158	NA	368.5147	517.628	6.15
1782	(December)	13	63.7767	482.6671	474.0388	343.5789	343.5789	483.8149	6.15
1783	(November)	17.929	87.9578811	478.8131	471.9105	NA	391.2359	538.6113	7.23
1783	(November)	17.929	87.9578811	488.5343	479.906	306.1896	306.1896	426.4455	7.23
1785	(January)	15.585	76.4584515	471.8817	469.926	295.2604	295.2604	396.3353	6.29
1785	(November)	15.585	76.4584515	476.1959	467.5676	NA	350.0789	490.0734	6.29
1786	(December)	13.418	65.8273662	477.1738	470.2711	NA	368.5435	509.5094	5.27
1786	(December)	13.418	65.8273662	481.2866	472.6583	307.6564	307.6564	418.8658	5.27
1788	NA	20.342	99.7958178	482.8684	475.937	284.6476	373.7204	NA	5.11
1789	NA	20.681	101.4589179	487.5565	480.6538	264.9751	382.4925	NA	6.26

1790	NA	15.907	78.0381513	489.3397	482.437	NA	382.7514	NA	8.63
1791	NA	13.46	66.033414	487.7003	480.7976	NA	380.7669	NA	6.38
1792	NA	14.17	69.516603	491.2954	484.3928	NA	392.5877	NA	6.87
1793	NA	16.49	80.898291	485.3994	478.4968	NA	368.3709	NA	5.55
1794	NA	17.308	84.9113172	467.3087	460.4061	NA	357.3267	NA	5.81

Table 1: Pearson correlation coefficients between proxies of quality (detrended)

(Data source: see appendix)

	First obs.	Last obs.
Weight of grain and yield in flour	0.88	0.88
Weight of grain and yield in breadmaking flour	0.45	0.31
Yield in flour and yield in breadmaking flour	0.34	0.28

Table 2: Effect of grain quality on price: first or single observations, detrended**(Data source: see appendix)**

	<i>Dependent variable:</i>		
	Price (gr. Ag)		
	(1)	(2)	(3)
Weight	0.405* p = 0.052		
Flour yield		0.185 p = 0.422	
Breadmaking flour yield			0.204** p = 0.031
Harvest yield	-5.222*** p = 0.006	-5.693*** p = 0.005	-5.453*** p = 0.004
Constant	-0.212 p = 0.909	0.172 p = 0.930	-0.130 p = 0.944
Observations	45	43	45
R ²	0.224	0.191	0.240
Adjusted R ²	0.187	0.151	0.204
Residual Std. Error	12.316 (df = 42)	12.724 (df = 40)	12.187 (df = 42)
F Statistic	6.051*** (df = 2; 42)	4.727** (df = 2; 40)	6.631*** (df = 2; 42)
<i>Note:</i>		*p<0.1; ** p<0.05; *** p<0.01	

Table 3: Effect of grain quality on price: last or single observations, detrended
(Data source: see appendix)

	<i>Dependent variable:</i>		
	Price (gr. Ag)		
	(1)	(2)	(3)
Weight	0.398* p = 0.052		
Flour yield		0.206 p = 0.357	
Breadmaking flour yield			0.236*** p = 0.008
Harvest yield	-5.336*** p = 0.006	-5.799*** p = 0.004	-5.027*** p = 0.006
Constant	-0.217 p = 0.907	0.317 p = 0.869	-0.127 p = 0.944
Observations	45	44	45
R ²	0.224	0.198	0.284
Adjusted R ²	0.187	0.159	0.250
Residual Std. Error	12.316 (df = 42)	12.576 (df = 41)	11.830 (df = 42)
F Statistic	6.055*** (df = 2; 42)	5.064** (df = 2; 41)	8.321*** (df = 2; 42)
<i>Note:</i>	*p<0.1; **p<0.05; ***p<0.01		