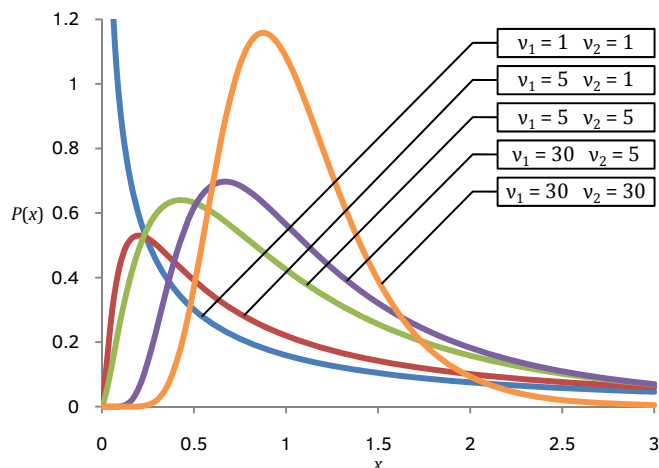


DISTRIBUCIONES DE PROBABILIDAD

Distribución F



La distribución F, también llamada distribución de Fisher-Snedecor, es una distribución de probabilidad continua que aparece frecuentemente en el análisis de varianza.

Esta distribución depende de dos parámetros, v_1 y v_2 , que representan los grados de libertad del numerador y denominador, respectivamente. La función de densidad de probabilidad de la distribución F está dada por:

$$P(x) = \frac{1}{x B\left(\frac{v_1}{2}, \frac{v_2}{2}\right)} \sqrt{\frac{(v_1 x)^{v_1} v_2^{v_2}}{(v_1 x + v_2)^{v_1 + v_2}}}$$

donde $B(\)$ representa la función beta.

Las siguientes tablas presentan F_{α, v_1, v_2} , que es el percentil que define al área de la cola (derecha) correspondiente al valor dado de α para la distribución F con el número indicado de grados de libertad en el numerador y en el denominador.

$$F_{0.05, v_1, v_2}$$

		Grados de libertad del numerador (v_1)																			
		1	2	3	4	5	6	7	8	9	10	12	15	20	25	30	40	50	75	100	∞
Grados de libertad del denominador (v_2)	1	161.4	199.5	215.7	224.6	230.2	234.0	236.8	238.9	240.5	241.9	243.9	245.9	248.0	249.3	250.1	251.1	251.8	252.6	253.0	254.3
	2	18.51	19.00	19.16	19.25	19.30	19.33	19.35	19.37	19.38	19.40	19.41	19.43	19.45	19.46	19.47	19.47	19.48	19.47	19.49	19.50
	3	10.13	9.552	9.277	9.117	9.013	8.941	8.887	8.845	8.812	8.786	8.745	8.703	8.660	8.634	8.617	8.594	8.581	8.563	8.554	8.526
	4	7.709	6.944	6.591	6.388	6.256	6.163	6.094	6.041	5.999	5.964	5.912	5.858	5.803	5.769	5.747	5.717	5.699	5.676	5.664	5.628
	5	6.608	5.786	5.409	5.192	5.050	4.950	4.876	4.818	4.772	4.735	4.678	4.619	4.558	4.521	4.496	4.464	4.444	4.418	4.405	4.365
	6	5.987	5.143	4.757	4.534	4.387	4.284	4.207	4.147	4.099	4.060	4.000	3.938	3.874	3.835	3.808	3.774	3.754	3.726	3.712	3.669
	7	5.591	4.737	4.347	4.120	3.972	3.866	3.787	3.726	3.677	3.637	3.575	3.511	3.445	3.404	3.376	3.340	3.319	3.290	3.275	3.230
	8	5.318	4.459	4.066	3.838	3.687	3.581	3.500	3.438	3.388	3.347	3.284	3.218	3.150	3.108	3.079	3.043	3.020	2.990	2.975	2.928
	9	5.117	4.256	3.863	3.633	3.482	3.374	3.293	3.230	3.179	3.137	3.073	3.006	2.936	2.893	2.864	2.826	2.803	2.771	2.756	2.707
	10	4.965	4.103	3.708	3.478	3.326	3.217	3.135	3.072	3.020	2.978	2.913	2.845	2.774	2.730	2.700	2.661	2.637	2.605	2.588	2.538
	12	4.747	3.885	3.490	3.259	3.106	2.996	2.913	2.849	2.796	2.753	2.687	2.617	2.544	2.498	2.466	2.426	2.401	2.367	2.350	2.296
	15	4.543	3.682	3.287	3.056	2.901	2.790	2.707	2.641	2.588	2.544	2.475	2.403	2.328	2.280	2.247	2.204	2.178	2.142	2.123	2.066
	20	4.351	3.493	3.098	2.866	2.711	2.599	2.514	2.447	2.393	2.348	2.278	2.203	2.124	2.074	2.039	1.994	1.966	1.927	1.907	1.843
	25	4.242	3.385	2.991	2.759	2.603	2.490	2.405	2.337	2.282	2.236	2.165	2.089	2.007	1.955	1.919	1.872	1.842	1.801	1.779	1.711
30	4.171	3.316	2.922	2.690	2.534	2.421	2.334	2.266	2.211	2.165	2.092	2.015	1.932	1.878	1.841	1.792	1.761	1.718	1.695	1.622	
40	4.085	3.232	2.839	2.606	2.449	2.336	2.249	2.180	2.124	2.077	2.003	1.924	1.839	1.783	1.744	1.693	1.660	1.614	1.589	1.509	
50	4.034	3.183	2.790	2.557	2.400	2.286	2.199	2.130	2.073	2.026	1.952	1.871	1.784	1.727	1.687	1.634	1.599	1.551	1.525	1.438	
75	3.968	3.119	2.727	2.494	2.337	2.222	2.134	2.064	2.007	1.959	1.884	1.802	1.712	1.653	1.611	1.555	1.518	1.466	1.437	1.338	
100	3.936	3.087	2.696	2.463	2.305	2.191	2.103	2.032	1.975	1.927	1.850	1.768	1.676	1.616	1.573	1.515	1.477	1.422	1.392	1.283	
∞	3.841	2.996	2.605	2.372	2.214	2.099	2.010	1.938	1.880	1.831	1.752	1.666	1.571	1.506	1.459	1.394	1.350	1.283	1.243	1.000	

$$F_{0.01, v_1, v_2}$$

		Grados de libertad del numerador (v_1)																			
		1	2	3	4	5	6	7	8	9	10	12	15	20	25	30	40	50	75	100	∞
Grados de libertad del denominador (v_2)	1	4052.2	4999.5	5403.4	5624.6	5763.6	5859.0	5928.4	5981.1	6022.5	6055.8	6106.3	6157.3	6208.7	6239.8	6260.6	6286.8	6302.5	6323.6	6334.1	6365.7
	2	98.50	99.00	99.17	99.25	99.30	99.33	99.36	99.37	99.39	99.40	99.42	99.43	99.45	99.47	99.47	99.47	99.47	99.49	99.49	99.50
	3	34.12	30.82	29.47	28.71	28.24	27.91	27.67	27.49	27.35	27.23	27.05	26.87	26.69	26.58	26.50	26.41	26.35	26.28	26.24	26.125
	4	21.20	18.00	16.69	15.98	15.52	15.21	14.98	14.80	14.66	14.55	14.37	14.20	14.02	13.91	13.84	13.75	13.69	13.61	13.58	13.463
	5	16.26	13.27	12.06	11.39	10.97	10.67	10.47	10.29	10.16	10.05	9.888	9.722	9.553	9.449	9.379	9.291	9.238	9.166	9.130	9.020
	6	13.75	10.92	9.780	9.147	8.747	8.466	8.260	8.102	7.976	7.874	7.718	7.559	7.396	7.296	7.229	7.143	7.091	7.022	6.987	6.880
	7	12.25	9.547	8.451	7.847	7.460	7.191	6.993	6.840	6.719	6.620	6.469	6.314	6.155	6.058	5.992	5.908	5.858	5.789	5.755	5.650
	8	11.26	8.649	7.591	7.006	6.632	6.371	6.178	6.029	5.911	5.814	5.667	5.515	5.359	5.263	5.198	5.116	5.065	4.998	4.963	4.859
	9	10.56	8.022	6.992	6.422	6.057	5.802	5.613	5.467	5.351	5.257	5.111	4.962	4.808	4.713	4.649	4.567	4.517	4.449	4.415	4.311
	10	10.04	7.559	6.552	5.994	5.636	5.386	5.200	5.057	4.942	4.849	4.706	4.558	4.405	4.311	4.247	4.165	4.115	4.047	4.014	3.909
	12	9.330	6.927	5.953	5.412	5.064	4.821	4.640	4.499	4.388	4.296	4.155	4.010	3.858	3.765	3.701	3.619	3.569	3.501	3.467	3.361
	15	8.683	6.359	5.417	4.893	4.556	4.318	4.142	4.004	3.895	3.805	3.666	3.522	3.372	3.278	3.214	3.132	3.081	3.012	2.977	2.868
	20	8.096	5.849	4.938	4.431	4.103	3.871	3.699	3.564	3.457	3.368	3.231	3.088	2.938	2.843	2.778	2.695	2.643	2.572	2.535	2.421
	25	7.770	5.568	4.675	4.177	3.855	3.627	3.457	3.324	3.217	3.129	2.993	2.850	2.699	2.604	2.538	2.453	2.400	2.327	2.289	2.169
	30	7.562	5.390	4.510	4.018	3.699	3.473	3.304	3.173	3.067	2.979	2.843	2.700	2.549	2.453	2.386	2.299	2.245	2.170	2.131	2.006
	40	7.314	5.179	4.313	3.828	3.514	3.291	3.124	2.993	2.888	2.801	2.665	2.522	2.369	2.271	2.203	2.114	2.058	1.980	1.938	1.805
	50	7.171	5.057	4.199	3.720	3.408	3.186	3.020	2.890	2.785	2.698	2.562	2.419	2.265	2.167	2.098	2.007	1.949	1.868	1.825	1.683
	75	6.985	4.900	4.054	3.580	3.272	3.052	2.887	2.758	2.653	2.567	2.431	2.287	2.132	2.031	1.960	1.866	1.806	1.720	1.674	1.516
	100	6.895	4.824	3.984	3.513	3.206	2.988	2.823	2.694	2.590	2.503	2.368	2.223	2.067	1.965	1.893	1.797	1.735	1.647	1.598	1.427
∞	6.635	4.605	3.782	3.319	3.017	2.802	2.639	2.511	2.407	2.321	2.185	2.039	1.878	1.773	1.696	1.592	1.523	1.419	1.358	1.000	

$$F_{0.005, v_1, v_2}$$

		Grados de libertad del numerador (v_1)																			
		1	2	3	4	5	6	7	8	9	10	12	15	20	25	30	40	50	75	100	∞
Grados de libertad del denominador (v_2)	1	16210.7	19999.5	21614.7	22499.6	23055.8	23437.1	23714.6	23925.4	24091.0	24224.5	24426.4	24630.2	24836.0	24960.3	25043.6	25148.2	25211.1	25295.3	25337.5	25464.1
	2	198.5	199.0	199.2	199.2	199.3	199.3	199.4	199.4	199.4	199.4	199.4	199.4	199.4	199.5	199.5	199.5	199.5	199.5	199.5	199.5
	3	55.55	49.80	47.47	46.19	45.39	44.84	44.43	44.13	43.88	43.69	43.39	43.08	42.78	42.59	42.47	42.31	42.21	42.09	42.02	41.83
	4	31.33	26.28	24.26	23.15	22.47	21.97	21.62	21.35	21.14	20.97	20.70	20.44	20.17	20.00	19.89	19.75	19.67	19.55	19.50	19.32
	5	22.78	18.31	16.53	15.56	14.94	14.51	14.20	13.96	13.77	13.62	13.38	13.15	12.90	12.76	12.66	12.53	12.45	12.35	12.30	12.14
	6	18.63	14.54	12.92	12.03	11.47	11.07	10.79	10.57	10.39	10.25	10.03	9.814	9.589	9.451	9.358	9.241	9.170	9.074	9.026	8.879
	7	16.24	12.40	10.88	10.05	9.522	9.155	8.885	8.678	8.514	8.380	8.176	7.968	7.754	7.623	7.534	7.422	7.354	7.263	7.217	7.076
	8	14.69	11.04	9.596	8.805	8.302	7.952	7.694	7.496	7.339	7.211	7.015	6.814	6.608	6.482	6.396	6.288	6.222	6.133	6.088	5.951
	9	13.61	10.11	8.717	7.956	7.471	7.134	6.885	6.693	6.541	6.417	6.227	6.032	5.832	5.708	5.625	5.519	5.454	5.367	5.322	5.188
	10	12.83	9.427	8.081	7.343	6.872	6.545	6.302	6.116	5.968	5.847	5.661	5.471	5.274	5.153	5.071	4.966	4.902	4.816	4.772	4.639
	12	11.75	8.510	7.226	6.521	6.071	5.757	5.525	5.345	5.202	5.085	4.906	4.721	4.530	4.412	4.331	4.228	4.165	4.080	4.037	3.904
	15	10.80	7.701	6.476	5.803	5.372	5.071	4.847	4.674	4.536	4.424	4.250	4.070	3.883	3.766	3.687	3.585	3.523	3.437	3.394	3.260
	20	9.944	6.986	5.818	5.174	4.762	4.472	4.257	4.090	3.956	3.847	3.678	3.502	3.318	3.203	3.123	3.022	2.959	2.872	2.828	2.690
	25	9.475	6.598	5.462	4.835	4.433	4.150	3.939	3.776	3.645	3.537	3.370	3.196	3.013	2.898	2.819	2.716	2.652	2.564	2.519	2.377
	30	9.180	6.355	5.239	4.623	4.228	3.949	3.742	3.580	3.450	3.344	3.179	3.006	2.823	2.708	2.628	2.524	2.459	2.370	2.323	2.176
	40	8.828	6.066	4.976	4.374	3.986	3.713	3.509	3.350	3.222	3.117	2.953	2.781	2.598	2.482	2.401	2.296	2.230	2.137	2.088	1.932
	50	8.626	5.902	4.826	4.232	3.849	3.579	3.376	3.219	3.092	2.988	2.825	2.653	2.470	2.353	2.272	2.164	2.097	2.001	1.951	1.786
	75	8.366	5.691	4.635	4.050	3.674	3.407	3.208	3.052	2.927	2.823	2.661	2.490	2.306	2.188	2.105	1.995	1.925	1.824	1.771	1.589
	100	8.241	5.589	4.542	3.963	3.589	3.325	3.127	2.972	2.847	2.744	2.583	2.411	2.227	2.108	2.024	1.912	1.840	1.737	1.681	1.485
∞	7.879	5.298	4.279	3.715	3.350	3.091	2.897	2.744	2.621	2.519	2.358	2.187	2.000	1.877	1.789	1.669	1.590	1.470	1.402	1.000	