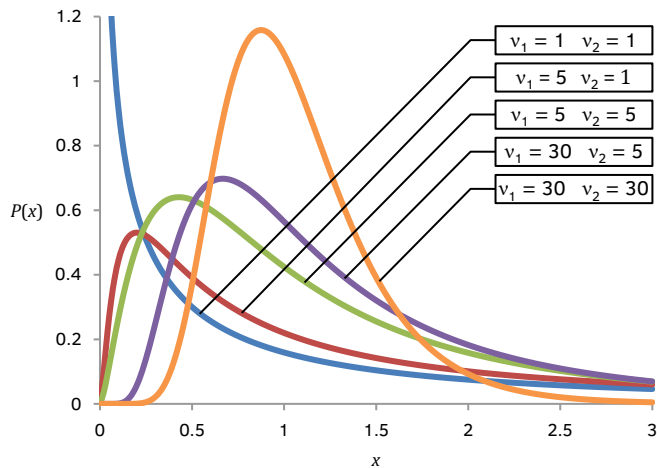


DISTRIBUCIONES DE PROBABILIDAD

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	99.500
	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	