

Measurement of the dependence of the hadron production fraction ratios f_s/f_u and f_d/f_u on B meson kinematic variables in proton-proton collisions at $\sqrt{s} = 13$ TeV

—Supplemental Material—
Numerical results in bins of p_T and $|y|$

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Tables I and II provide the numerical \mathcal{R}_s results in bins of p_T and $|y|$, respectively, as shown in Fig. 2. Tables III and IV provide the numerical f_d/f_u results in bins of p_T and $|y|$, respectively, as shown in Fig. 3. Besides the central values, the tables include the statistical and systematic uncertainties for each bin. Not included in the tables is an additional systematic uncertainty of 2.3% associated with the track reconstruction efficiency that applies to all results. In addition, the f_d/f_u results have systematic uncertainties of 4.6% and 2.5% reflecting the uncertainties in the branching fractions from Eq. (2) and the $\mathcal{R}^{\pm,0}$ correction factor, respectively, that are not included in the tables.

TABLE I. The measured \mathcal{R}_s values as a function of p_T , with the statistical (σ_{stat}) and bin-to-bin systematic (σ_{sys}) uncertainties, in percent. Not included in the table is an additional systematic uncertainty of 2.3% that is common to all bins and is associated with the track reconstruction efficiency.

p_T (GeV)	\mathcal{R}_s	σ_{stat} (%)	σ_{sys} (%)
12–13	0.1314	2.1	3.1
13–14	0.1196	1.6	2.7
14–15	0.1165	1.3	2.4
15–16	0.1154	1.2	2.6
16–18	0.1135	0.8	2.6
18–20	0.1106	0.8	2.8
20–23	0.1105	0.7	2.9
23–26	0.1110	0.8	2.6
26–29	0.1091	0.9	3.2
29–34	0.1095	0.9	2.3
34–45	0.1088	0.9	2.8
45–70	0.1117	1.3	2.6

TABLE II. The measured \mathcal{R}_s values as a function of $|y|$, with the statistical (σ_{stat}) and bin-to-bin systematic (σ_{sys}) uncertainties, in percent. Not included in the table is an additional systematic uncertainty of 2.3% that is common to all bins and is associated with the track reconstruction efficiency.

$ y $	\mathcal{R}_s	σ_{stat} (%)	σ_{sys} (%)
0.00–0.25	0.1110	0.6	1.8
0.25–0.50	0.1104	0.6	2.0
0.50–0.75	0.1100	0.6	1.9
0.75–1.00	0.1126	0.7	3.9
1.00–1.30	0.1117	0.8	4.3
1.30–1.60	0.1069	1.0	4.3
1.60–2.40	0.1099	1.0	4.4

TABLE III. The measured f_d/f_u values as a function of p_T , with the statistical (σ_{stat}) and bin-to-bin systematic (σ_{sys}) uncertainties, in percent. Not included in the table is an additional systematic uncertainty of 5.7% that is common to all bins and is the sum in quadrature of uncertainties associated with the track reconstruction efficiency, branching fractions from Eq. (2), and the $\mathcal{R}^{\pm,0}$ correction factor.

p_T (GeV)	f_d/f_u	σ_{stat} (%)	σ_{sys} (%)
12–13	0.975	3.9	7.8
13–14	1.074	3.4	5.6
14–15	0.988	2.8	4.4
15–16	0.994	1.7	3.3
16–18	0.993	1.1	3.9
18–20	1.018	1.3	3.8
20–23	1.032	1.4	5.1
23–26	1.025	1.4	4.1
26–29	1.037	1.1	4.6
29–34	1.024	1.1	3.8
34–45	0.981	0.8	2.5
45–70	0.965	1.9	2.4

TABLE IV. The measured f_d/f_u values as a function of $|y|$, with the statistical (σ_{stat}) and bin-to-bin systematic (σ_{sys}) uncertainties, in percent. Not included in the table is an additional systematic uncertainty of 5.7% that is common to all bins and is the sum in quadrature of uncertainties associated with the track reconstruction efficiency, branching fractions from Eq. (2), and the $\mathcal{R}^{\pm,0}$ correction factor.

$ y $	f_d/f_u	σ_{stat} (%)	σ_{sys} (%)
0.00–0.25	1.002	0.9	2.3
0.25–0.50	1.016	0.9	2.4
0.50–0.75	1.010	0.8	2.3
0.75–1.00	1.019	0.9	4.5
1.00–1.30	1.006	0.9	4.9
1.30–1.60	0.984	1.0	4.2
1.60–2.40	0.975	0.6	4.3