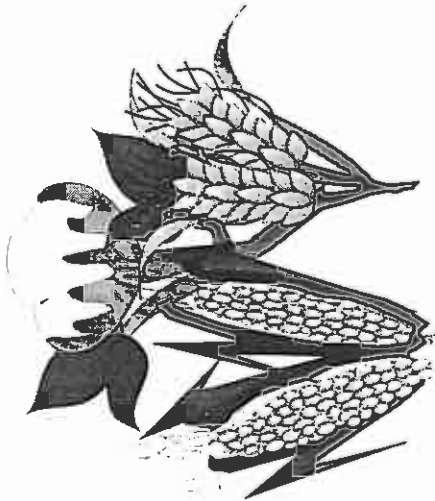
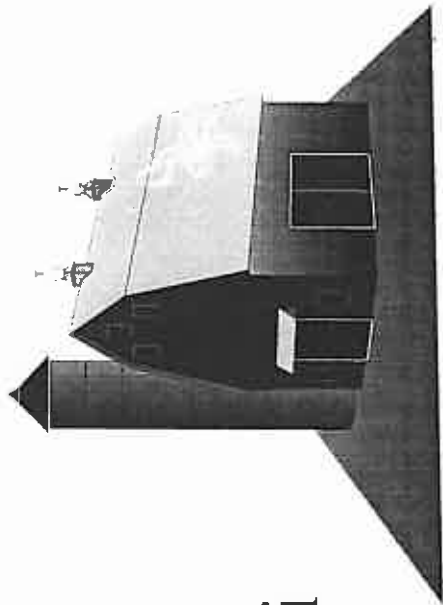


Acreege Response Under the 1996 FAIR Act?



FAPRI

University of Missouri
Iowa State University

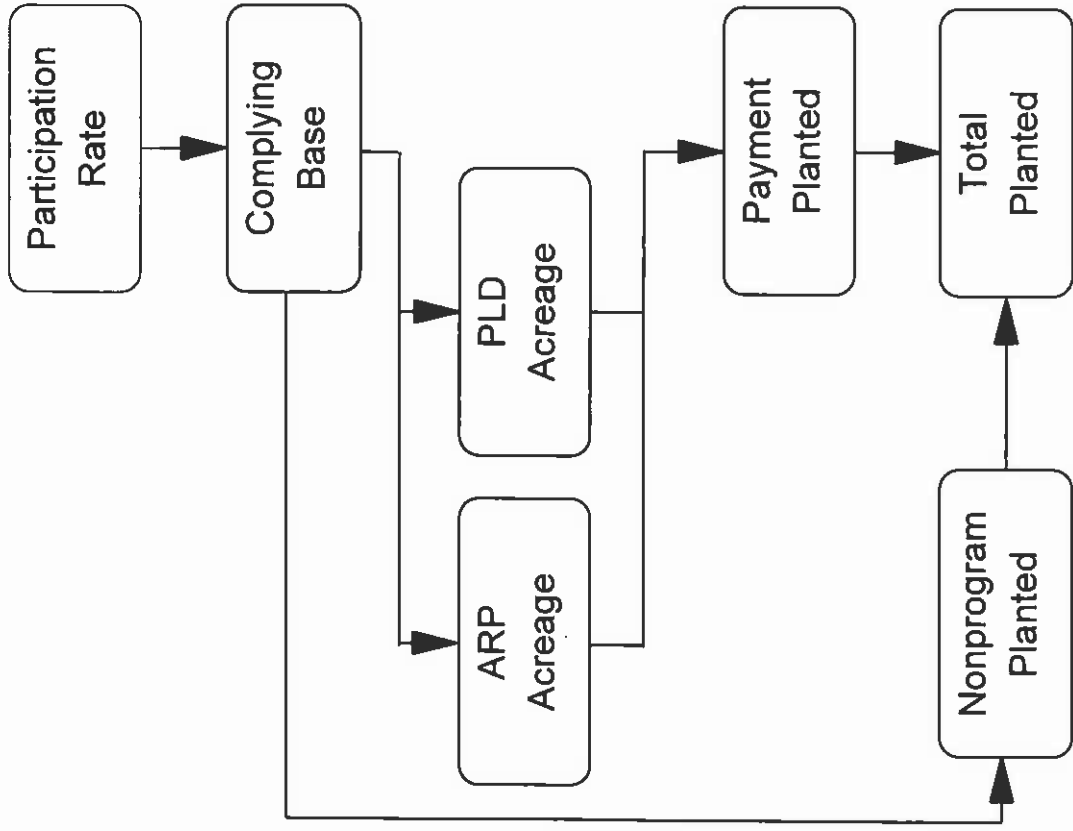


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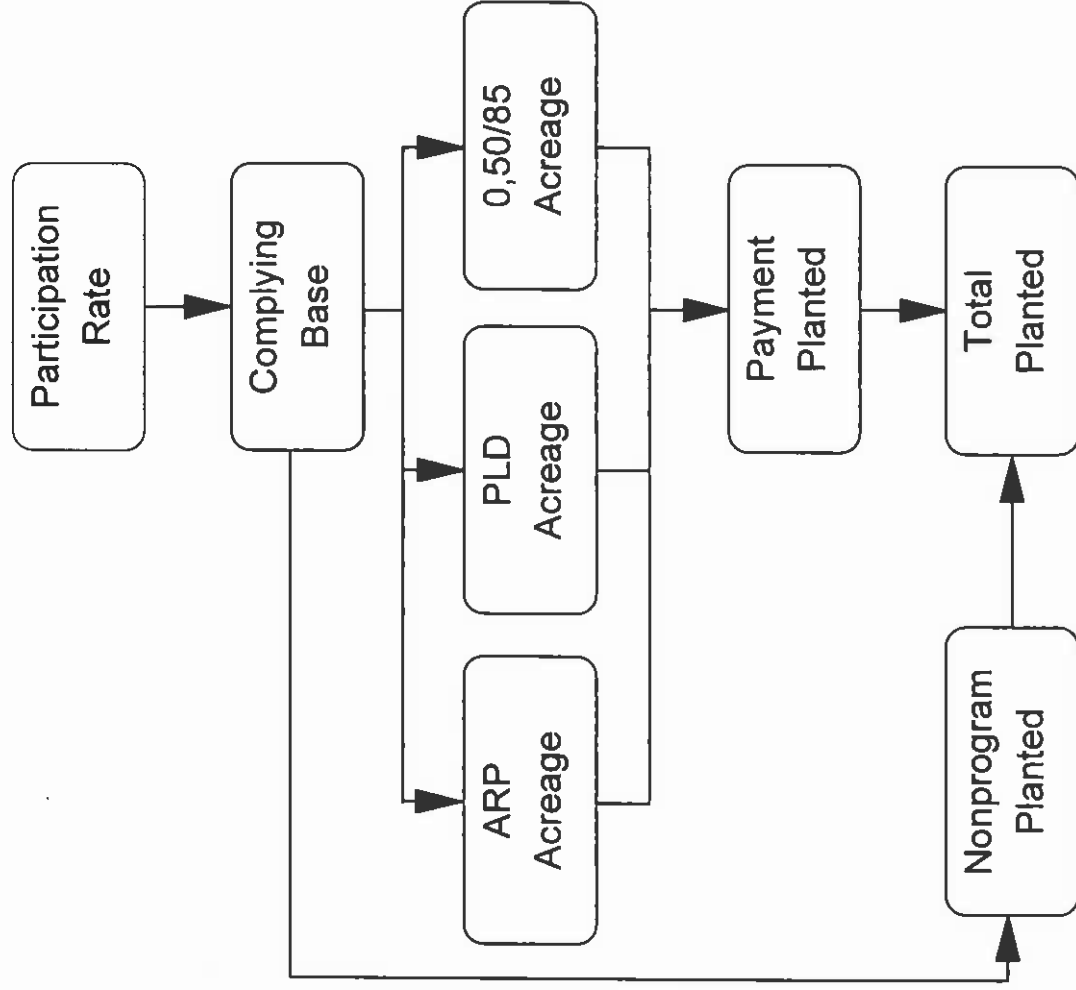
Supply Response Issues under the FAIR Act

- New era essentially free of planting restrictions
 - exceptions are rotations and conservation compliance
- What will happen to land previously idled under government programs?
- Elasticities under the new program?
 - Historical non-program planted
 - Normal flex acreage

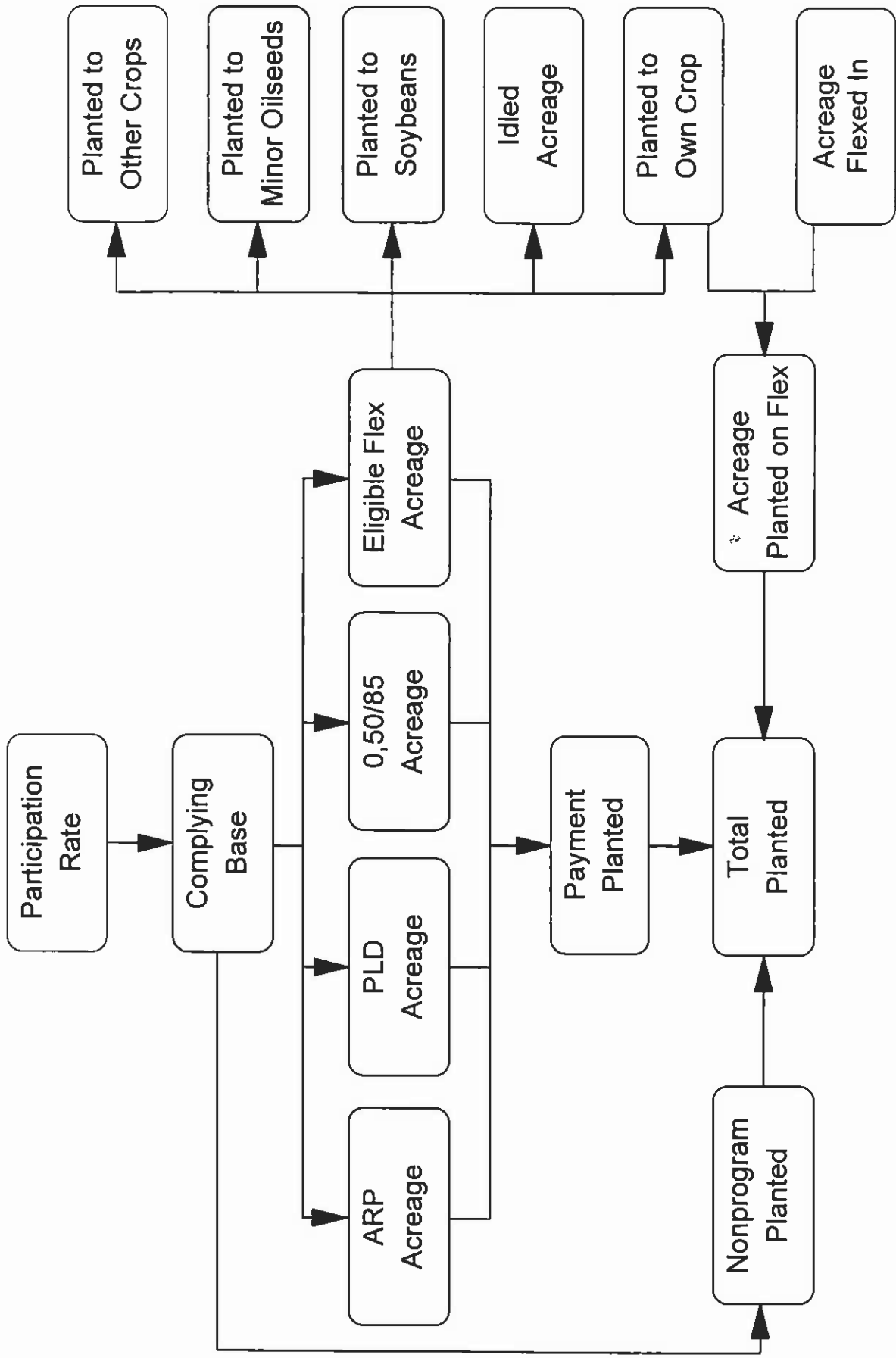
Program Crop Supply Structure, 1982-85



Program Crop Supply Structure, 1986-90



Program Crop Supply Structure, 1991-95

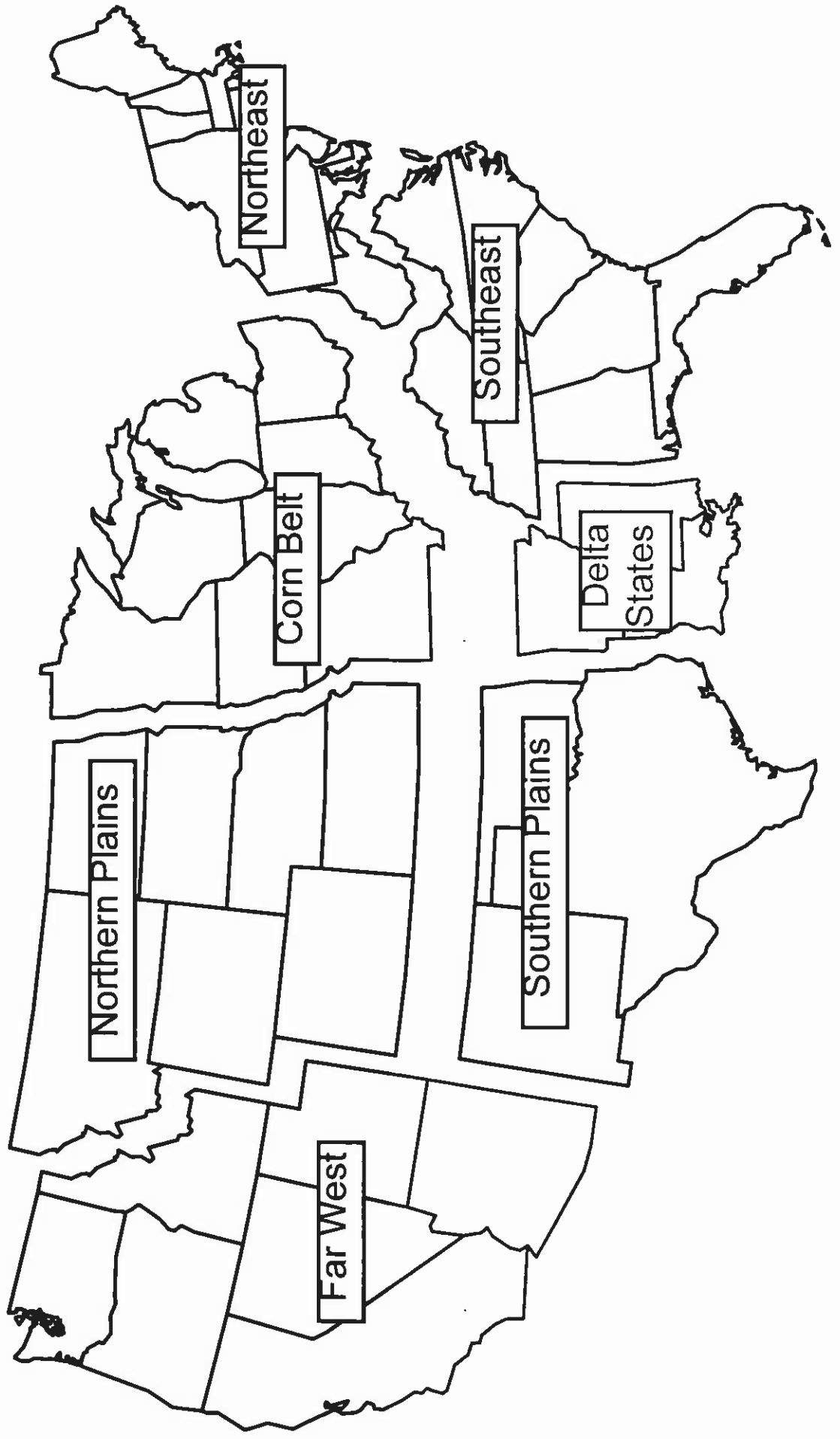


Use of NFA Data

- 5 Years of Data Exist
- Crops are modeled in 3-5 production regions
- Time series was pooled with cross-section data

$$\text{LN} \left(\frac{\left(\frac{\text{Acres Flexed}}{\text{Acres Eligible}} \right)}{1 - \left(\frac{\text{Acres Flexed}}{\text{Acres Eligible}} \right)} \right) = f(\text{Relative Returns})$$

U.S. Crop Regions



Corn Acreage Elasticities

	1982-85	1986-90	1991-95	Flex	FAIR Act
U.S. Acreage					
Corn Price	0.219	0.207	0.235	0.670	0.412
Cotton Price	-0.032	-0.030	-0.026	-0.023	-0.043
Sorghum Price	-0.004	-0.003	-0.002	-0.015	-0.021
Soybean price	-0.115	-0.099	-0.114	-0.350	-0.217
Wheat Price	-0.025	-0.022	-0.024	-0.065	-0.024
Corn Belt Acreage					
Corn Price	0.231	0.159	0.173	0.673	0.372
Sorghum Price			-0.000	-0.003	
Soybean price	-0.100	-0.088	-0.104	-0.364	-0.213
Wheat Price			-0.004	-0.044	
Northern Plains Acreage					
Corn Price	0.009	0.101	0.179	0.986	0.381
Sorghum Price	-0.023	-0.015	-0.008	-0.036	-0.094
Soybean price	-0.027	-0.021	-0.052	-0.463	-0.138
Wheat Price			-0.017	-0.207	
Other U.S. Acreage					
Corn Price	0.194	0.311	0.311	0.499	0.398
Cotton Price			-0.001	-0.080	
Sorghum Price			-0.003	-0.060	
Soybean price	-0.139	-0.123	-0.111	-0.220	-0.245
Southeast Acreage					
Corn Price	0.597	0.785	0.837	0.474	0.907
Cotton Price	-0.355	-0.360	-0.343	-0.107	-0.642
Sorghum Price			-0.000	-0.002	
Soybean price	-0.360	-0.334	-0.312	-0.178	-0.393
Wheat Price	-0.284	-0.281	-0.253	-0.024	-0.366

Wheat Acreage Elasticities

	1982-85	1986-90	1991-95	Flex	FAIR Act
U.S. Acreage					
Wheat Price	0.339	0.336	0.410	1.025	0.467
Barley Price	-0.091	-0.080	-0.078	-0.105	-0.113
Corn Price	-0.038	-0.030	-0.041	-0.104	-0.064
Cotton Price	-0.029	-0.028	-0.029	-0.088	-0.089
Sorghum Price	-0.078	-0.058	-0.067	-0.092	-0.126
Soybean Price	-0.002	-0.002	-0.007	-0.100	-0.005
Corn Belt Acreage					
Wheat Price	0.634	0.553	0.594	0.901	0.670
Corn Price	-0.178	-0.133	-0.186	-0.635	-0.280
Soybean Price	-0.128	-0.109	-0.118	-0.229	-0.209
Far West Acreage					
Wheat Price	0.662	1.008	1.180	2.743	0.831
Barley Price	-0.444	-0.438	-0.465	-0.639	-0.626
Northern Plains Acreage					
Wheat Price	0.243	0.201	0.271	0.811	0.356
Barley Price	-0.107	-0.090	-0.086	-0.112	-0.118
Sorghum Price	-0.159	-0.112	-0.118	-0.109	-0.159
Soybean Price			-0.005	-0.048	
Other U.S. Acreage					
Wheat Price	0.169	0.216	0.404	2.226	0.546
Corn Price	-0.165	-0.161	-0.225	-0.607	-0.428
Cotton Price	-0.281	-0.316	-0.345	-1.017	-0.659
Soybean Price	0.136	0.136	0.117	-1.012	0.272
Southern Plains Acreage					
Wheat Price	0.354	0.336	0.398	0.960	0.443
Cotton Price			-0.001	-0.194	-0.260
Sorghum Price			-0.009	-0.129	-0.244
Soybean Price			-0.002	-0.025	

Soybean Acreage Elasticities

	1982-85	1986-90	1991-95	Flex	FAIR Act
U.S. Acreage					
Soybean Price	0.268	0.237	0.271	0.994	0.364
Barley Price			-0.002	-0.028	
Corn Price	-0.182	-0.172	-0.230	-0.803	-0.276
Cotton Price	-0.045	-0.044	-0.040	-0.021	-0.061
Oats Price			-0.002	-0.016	
Rice Price			-0.002	-0.020	
Sorghum Price	-0.005	-0.004	-0.009	-0.075	-0.005
Wheat Price	0.008	0.007	-0.007	-0.170	0.010
Corn Belt Acreage					
Soybean Price	0.304	0.254	0.262	0.835	0.323
Barley Price			-0.001	-0.012	
Corn Price	-0.253	-0.213	-0.265	-0.900	-0.273
Oats Price			-0.002	-0.013	
Sorghum Price			-0.002	-0.017	
Wheat Price			-0.007	-0.088	
Delta States Acreage					
Soybean Price	0.194	0.199	0.217	0.598	0.411
Corn price	-0.043	-0.051	-0.057		-0.144
Cotton Price	-0.064	-0.080	-0.086	-0.149	-0.144
Rice Price			-0.015	-0.187	
Sorghum Price	-0.032	-0.028	-0.040	-0.102	-0.055
Wheat Price			-0.028	-0.414	
Northern Plains Acreage					
Soybean Price	0.271	0.174	0.263	1.223	0.371
Barley Price			-0.010	-0.090	
Corn Price	-0.177	-0.197	-0.259	-0.748	-0.321
Oats Price			-0.005	-0.033	
Sorghum Price			-0.024	-0.207	
Wheat Price			-0.030	-0.265	
Other U.S. Acreage					
Soybean Price	0.211	0.244	0.304	1.806	0.495
Corn Price	-0.099	-0.117	-0.192	-1.402	-0.384
Cotton Price	-0.172	-0.219	-0.238	-0.078	-0.465
Wheat Price	0.041	0.051	0.040	-0.283	0.101

Cotton Acreage Elasticities

	1982-85	1986-90	1991-95	Flex	FAIR Act
U.S. Acreage					
Cotton Price	0.531	0.432	0.401	1.037	0.634
Corn Price	-0.029	-0.019	-0.014	-0.011	-0.077
Sorghum Price	-0.142	-0.085	-0.076	-0.200	-0.147
Soybean Price	-0.064	-0.046	-0.034	-0.100	-0.090
Wheat Price	-0.035	-0.026	-0.035	-0.095	-0.088
Delta States Acreage					
Cotton Price	0.671	0.424	0.419	0.900	0.731
Sorghum Price			-0.002		
Soybean Price	-0.202	-0.130	-0.085	-0.490	-0.223
Wheat Price	-0.167	-0.113	-0.095	-0.080	-0.211
Far West Acreage					
Cotton Price	0.517	0.481	0.759	3.294	0.665
Wheat Price			-0.018	-0.190	
Other U.S. Acreage					
Cotton Price	0.621	0.447	0.402	0.744	0.626
Corn Price	-0.230	-0.128	-0.089	-0.360	-0.265
Soybean Price	-0.165	-0.098	-0.059	-0.120	-0.139
Southern Plains Acreage					
Cotton Price	0.378	0.345	0.263	0.797	0.564
Sorghum Price	-0.294	-0.193	-0.171	-0.450	-0.361

Rice Acreage Elasticities

	1982-85	1986-90	1991-95	Flex	FAIR Act
U.S. Acreage					
Rice Price	0.417	0.334	0.536	0.732	0.604
Sorghum Price	-0.196	-0.146	-0.132	-0.104	-0.317
Soybean Price	-0.181	-0.159	-0.118	-0.350	-0.304
Delta States Acreage					
Rice Price	0.472	0.373	0.418	0.733	0.622
Sorghum Price	-0.296	-0.211	-0.178	-0.116	-0.466
Soybean Price	-0.275	-0.229	-0.146	-0.500	-0.439
Far West Acreage					
Rice Price	0.658	0.434	1.693	1.258	0.785
Southern Plains Acreage					
Rice Price	0.189	0.227	0.605	1.247	0.615

Sorghum Acreage Elasticities

	1982-85	1986-90	1991-95	Flex	FAIR Act
U.S. Acreage					
Sorghum Price	0.615	0.481	0.602	1.681	0.703
Corn Price	-0.202	-0.183	-0.217	-0.763	-0.298
Cotton Price	-0.124	-0.166	-0.141	-0.256	-0.203
Soybean Price	-0.088	-0.090	-0.093	-0.287	-0.067
Wheat Price	-0.076	-0.080	-0.096	-0.478	-0.171
Northern Plains Acreage					
Sorghum Price	0.561	0.462	0.642	1.770	0.637
Corn Price	-0.486	-0.382	-0.470	-0.790	-0.604
Soybean Price			-0.026	-0.333	
Wheat Price	-0.177	-0.157	-0.196	-0.567	-0.220
Other U.S. Acreage					
Sorghum Price	0.376	0.372	0.398	2.179	0.742
Corn Price			-0.022	-0.907	
Cotton Price			-0.019	-0.669	
Soybean Price	-0.378	-0.515	-0.345	-0.646	-0.673
Wheat Price			-0.019	-0.513	
Southern Plains Acreage					
Sorghum Price	0.846	0.604	0.666	1.314	0.766
Corn Price			-0.042	-0.704	
Cotton Price	-0.308	-0.423	-0.344	-0.454	-0.500
Soybean Price			-0.004	-0.062	
Wheat Price			-0.021	-0.327	-0.146

Barley Acreage Elasticities

	1982-85	1986-90	1991-95	Flex	FAIR Act
U.S. Acreage					
Barley Price	0.226	0.322	0.842	2.875	0.747
Soybean Price			-0.021	-0.602	-0.012
Wheat Price	-0.187	-0.162	-0.208	-1.037	-0.412
Far West Acreage					
Barley Price	0.158	0.518	1.960	4.021	1.178
Wheat Price	-0.383	-0.435	-0.651	-0.964	-0.500
Northern Plains					
Barley Price	0.170	0.201	0.645	2.841	0.570
Soybean Price			-0.024	-0.615	
Wheat Price	-0.122	-0.098	-0.147	-1.131	-0.351
Other U.S.					
Barley Price	0.570	0.462	0.624	1.807	1.027
Soybean Price			-0.027	-1.201	-0.086
Wheat Price	-0.138	-0.105	-0.112	-0.736	-0.593

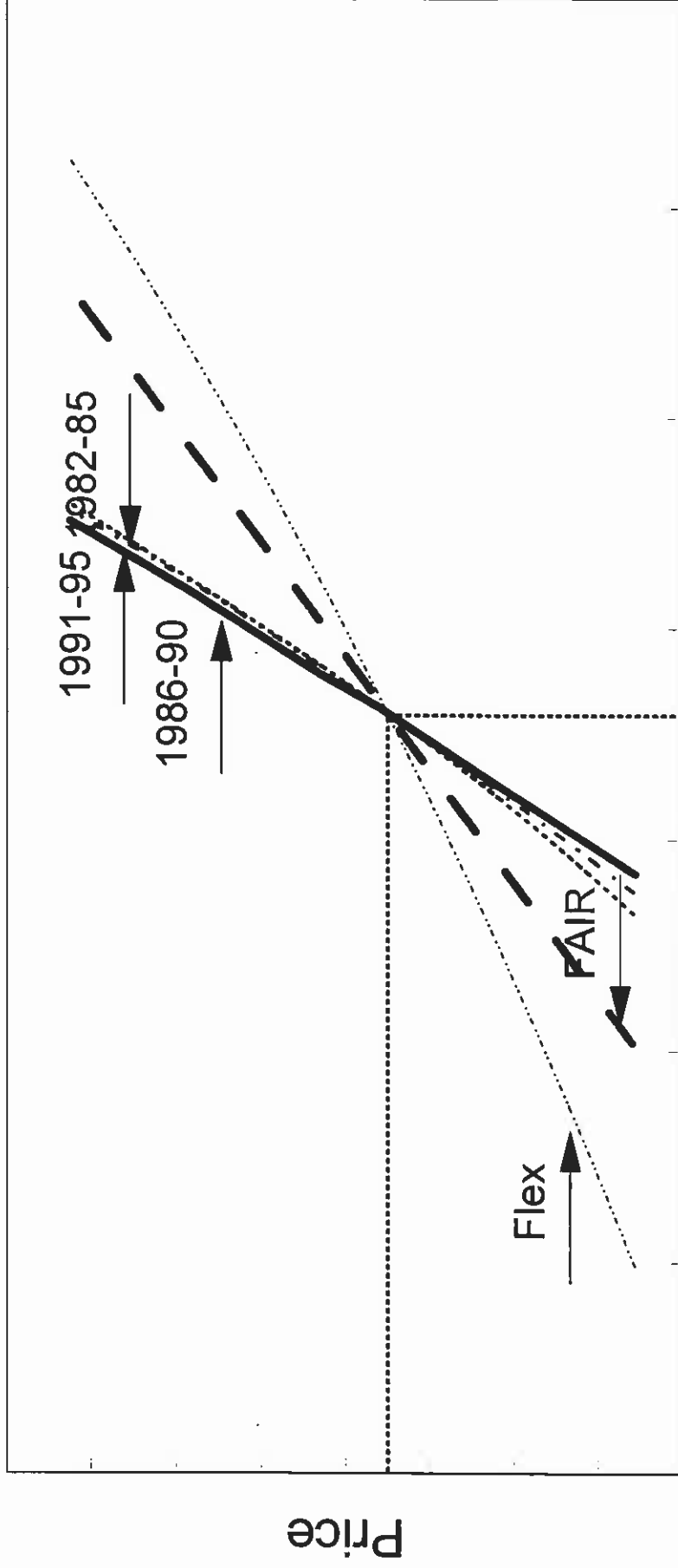
Oat Acreage Elasticities

	1982-85	1986-90	1991-95	Flex	FAIR Act
U.S. Acreage					
Oats Price	0.407	0.488	0.653	2.053	0.500
Barley Price	-0.065	-0.070	-0.090		-0.094
Corn Price	-0.110	-0.105	-0.160	-0.134	-0.155
Soybean Price	-0.063	-0.069	-0.134	-1.605	-0.091
Wheat Price	-0.064	-0.071	-0.120	-0.986	-0.106
Corn Belt Acreage					
Oats Price	0.397	0.430	0.599	2.199	0.546
Corn Price	-0.197	-0.181	-0.297	-0.144	-0.304
Soybean Price	-0.141	-0.149	-0.270	-2.625	-0.227
Wheat Price			-0.013	-0.823	
Northern Plains Acreage					
Oats Price	0.458	0.633	0.841	2.161	0.578
Barley Price	-0.160	-0.191	-0.236		-0.236
Soybean Price			-0.050	-1.276	
Wheat Price	-0.165	-0.196	-0.304	-1.167	-0.275
Other U.S. Acreage					
Oats Price	0.416	0.436	0.628	2.137	0.435
Corn Price	-0.141	-0.127	-0.173	-0.346	-0.167
Soybean Price			-0.007	-0.703	
Wheat Price			-0.006	-0.589	

U.S. Acreage Elasticities

	1982-85	1986-90	1991-95	Flex	FAIR Act
Barley Acreage					
Barley Price	0.226	0.322	0.842	2.875	0.747
Soybean Price			-0.021	-0.602	-0.012
Wheat Price	-0.187	-0.162	-0.208	-1.037	-0.412
Corn Acreage					
Corn Price	0.219	0.207	0.235	0.670	0.412
Cotton Price	-0.032	-0.030	-0.026	-0.023	-0.043
Sorghum Price	-0.004	-0.003	-0.002	-0.015	-0.021
Soybean price	-0.115	-0.099	-0.114	-0.350	-0.217
Wheat Price	-0.025	-0.022	-0.024	-0.065	-0.024
Cotton Acreage					
Cotton Price	0.531	0.432	0.401	1.037	0.634
Corn Price	-0.029	-0.019	-0.014	-0.011	-0.077
Sorghum Price	-0.142	-0.085	-0.076	-0.200	-0.147
Soybean Price	-0.064	-0.046	-0.034	-0.100	-0.090
Wheat Price	-0.035	-0.026	-0.035	-0.095	-0.088
Oats Acreage					
Oats Price	0.407	0.488	0.653	2.053	0.500
Barley Price	-0.065	-0.070	-0.090		-0.094
Corn Price	-0.110	-0.105	-0.160	-0.134	-0.155
Soybean Price	-0.063	-0.069	-0.134	-1.605	-0.091
Wheat Price	-0.064	-0.071	-0.120	-0.986	-0.106
Rice Acreage					
Rice Price	0.417	0.334	0.536	0.732	0.604
Sorghum Price	-0.196	-0.146	-0.132	-0.104	-0.317
Soybean Price	-0.181	-0.159	-0.118	-0.350	-0.304
Soybean Acreage					
Soybean Price	0.268	0.237	0.271	0.994	0.364
Barley Price			-0.002	-0.028	
Corn Price	-0.182	-0.172	-0.230	-0.803	-0.276
Cotton Price	-0.045	-0.044	-0.040	-0.021	-0.061
Oats Price			-0.002	-0.016	
Rice Price			-0.002	-0.020	
Sorghum Price	-0.005	-0.004	-0.009	-0.075	-0.005
Wheat Price	0.008	0.007	-0.007	-0.170	0.010
Sorghum Acreage					
Sorghum Price	0.615	0.481	0.602	1.681	0.703
Corn Price	-0.202	-0.183	-0.217	-0.763	-0.298
Cotton Price	-0.124	-0.166	-0.141	-0.256	-0.203
Soybean Price	-0.088	-0.090	-0.093	-0.287	-0.067
Wheat Price	-0.076	-0.080	-0.096	-0.478	-0.171
Wheat Acreage					
Wheat Price	0.339	0.336	0.410	1.025	0.467
Barley Price	-0.091	-0.080	-0.078	-0.105	-0.113
Corn Price	-0.038	-0.030	-0.041	-0.104	-0.064
Cotton Price	-0.029	-0.028	-0.029	-0.088	-0.089
Sorghum Price	-0.078	-0.058	-0.067	-0.092	-0.126
Soybean Price	-0.002	-0.002	-0.007	-0.100	-0.005

U.S. Corn Supply Response

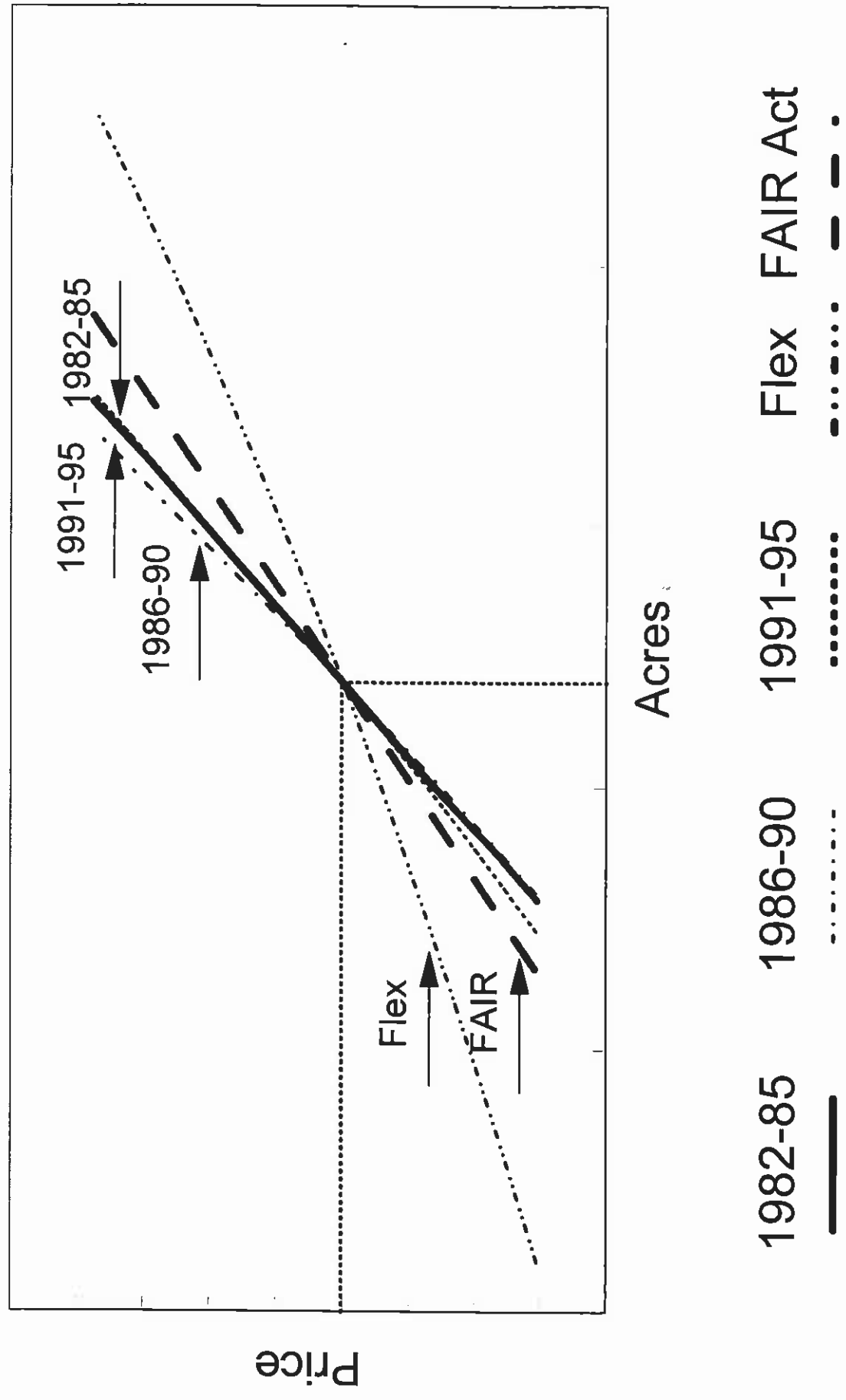


Acres

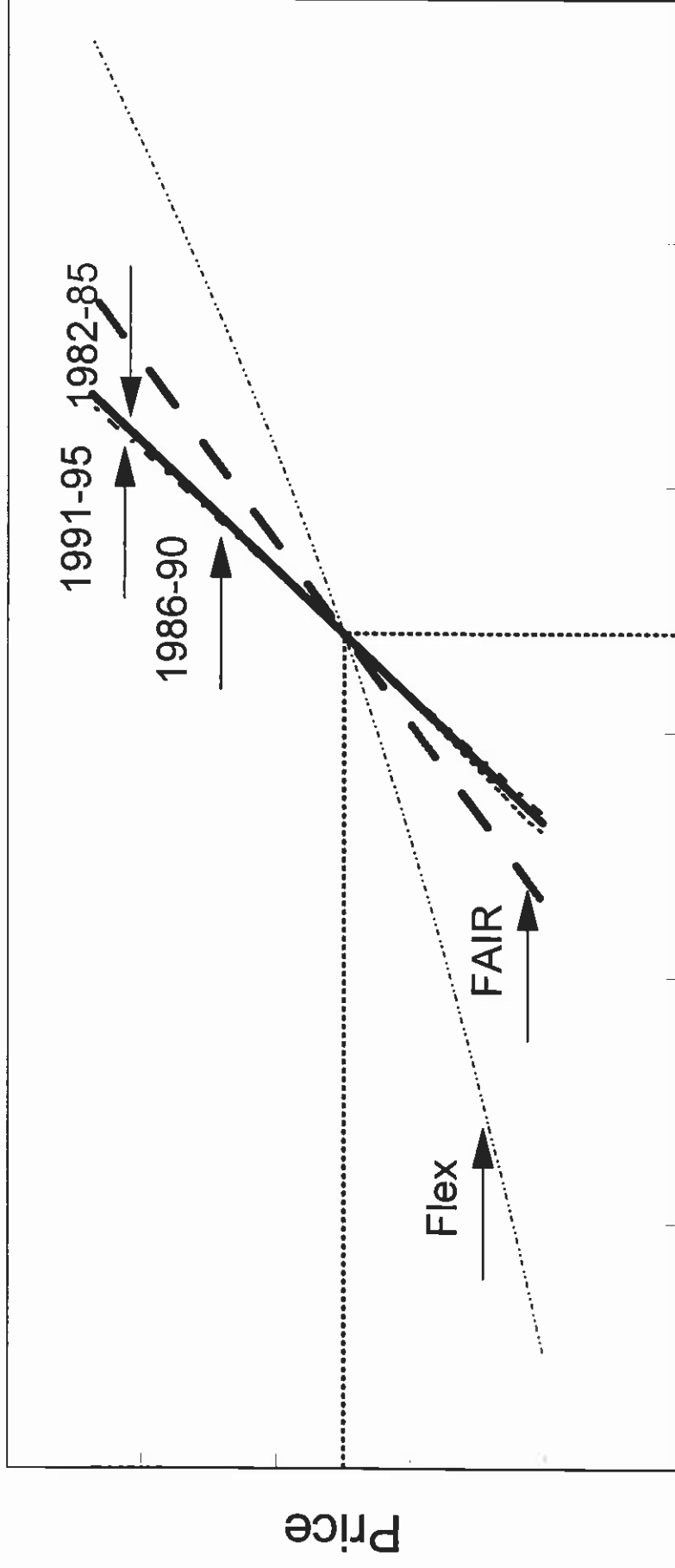
1982-85 1986-90 1991-95 Flex FAIR Act

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U.S. Wheat Supply Response



U.S. Soybean Supply Response

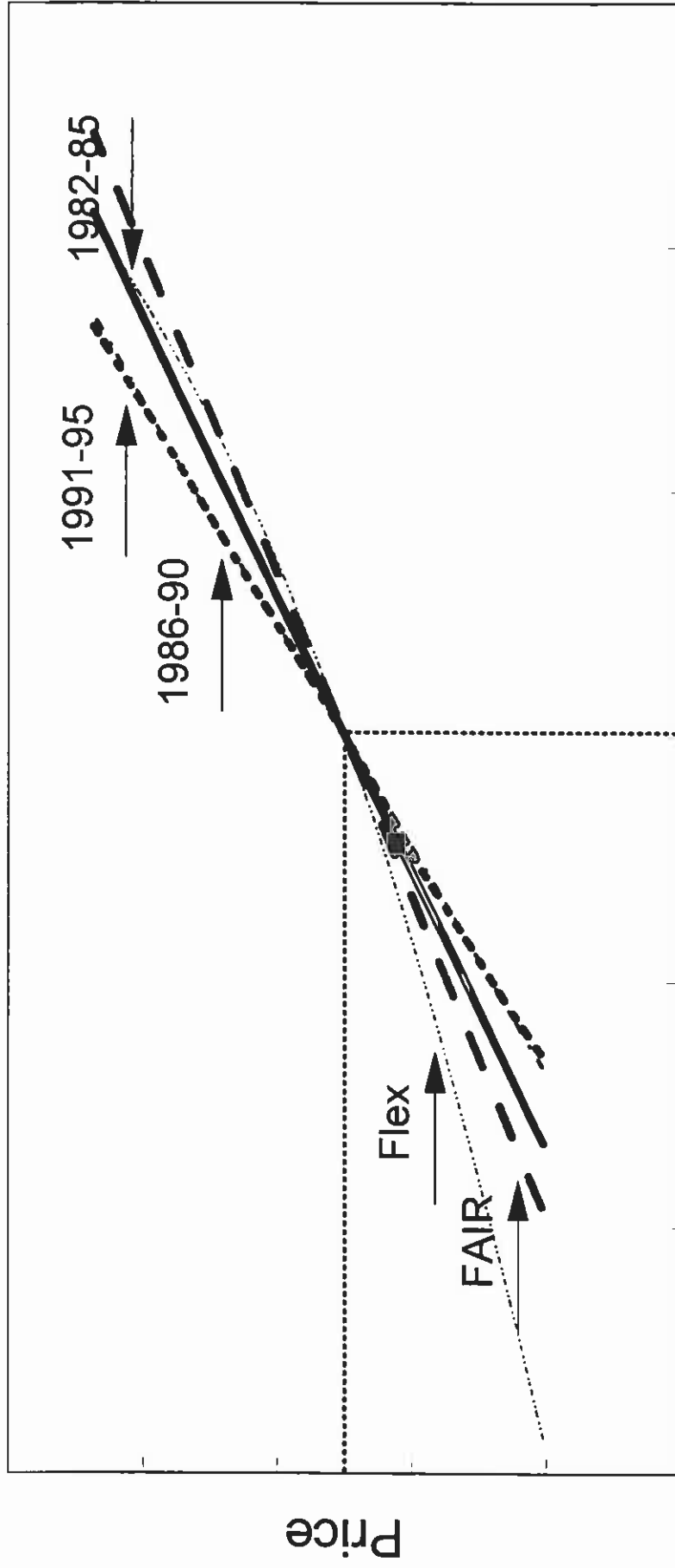


Acres

1982-85 1986-90 1991-95 Flex FAIR Act

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U.S. Cotton Supply Response

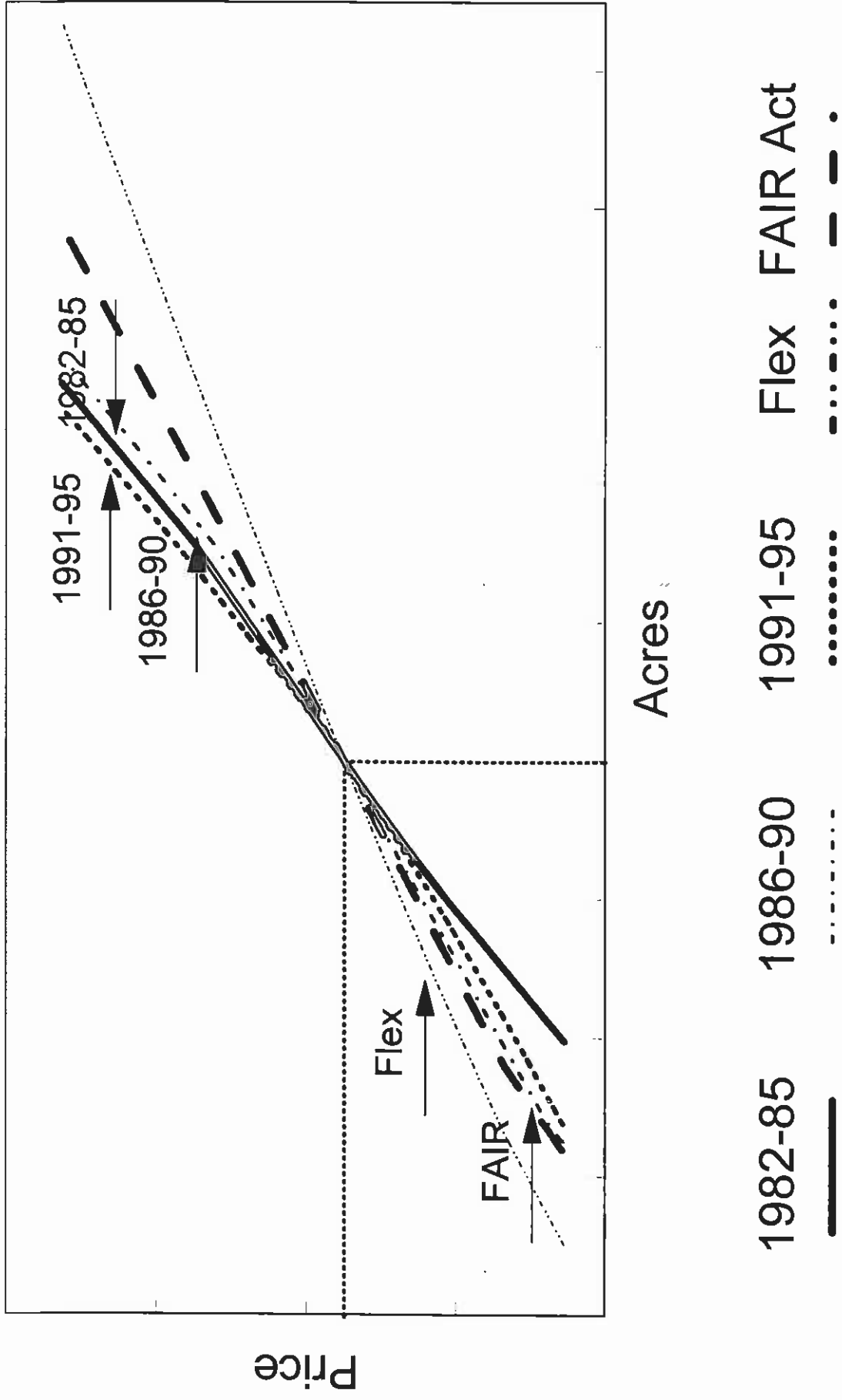


Acres

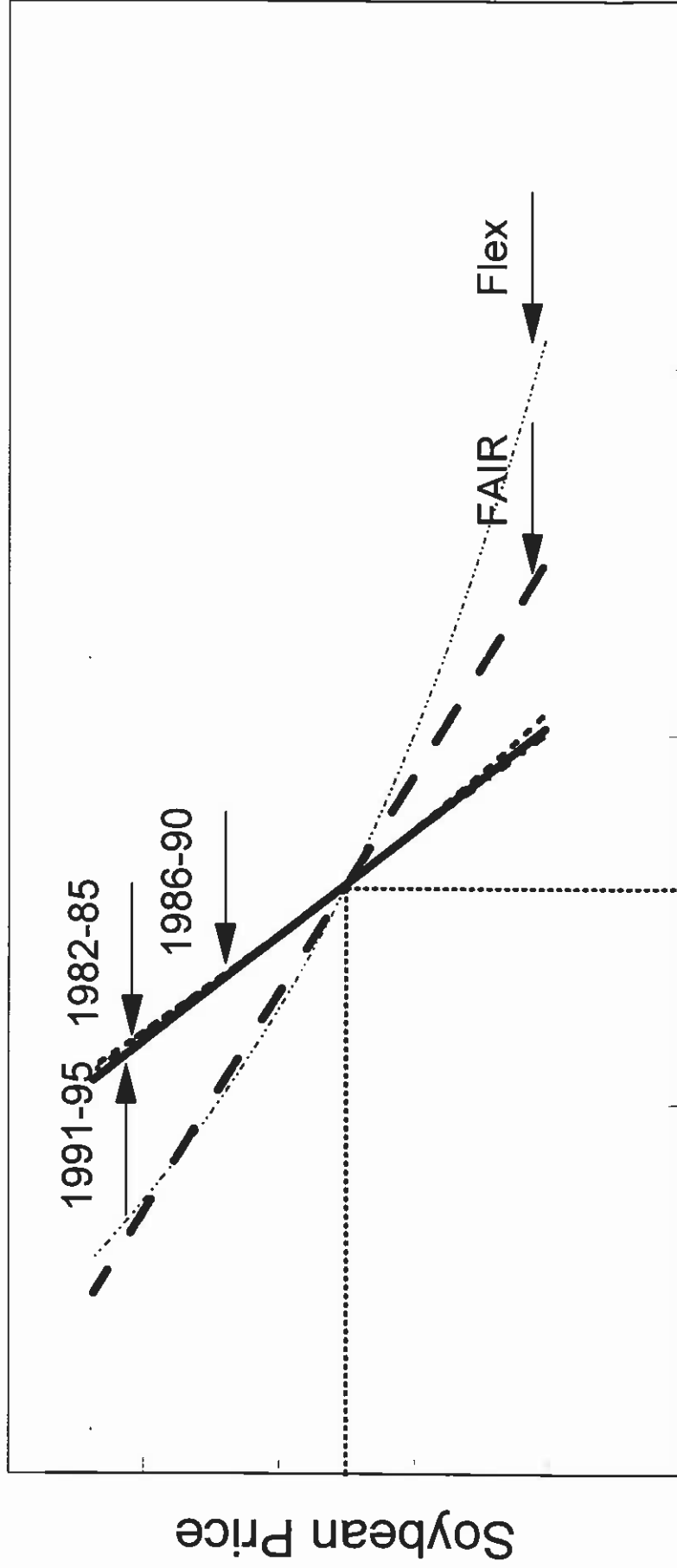
1982-85 1986-90 1991-95 Flex FAIR Act

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U.S. Rice Supply Response



U.S. Corn Acres vs Soybean Price

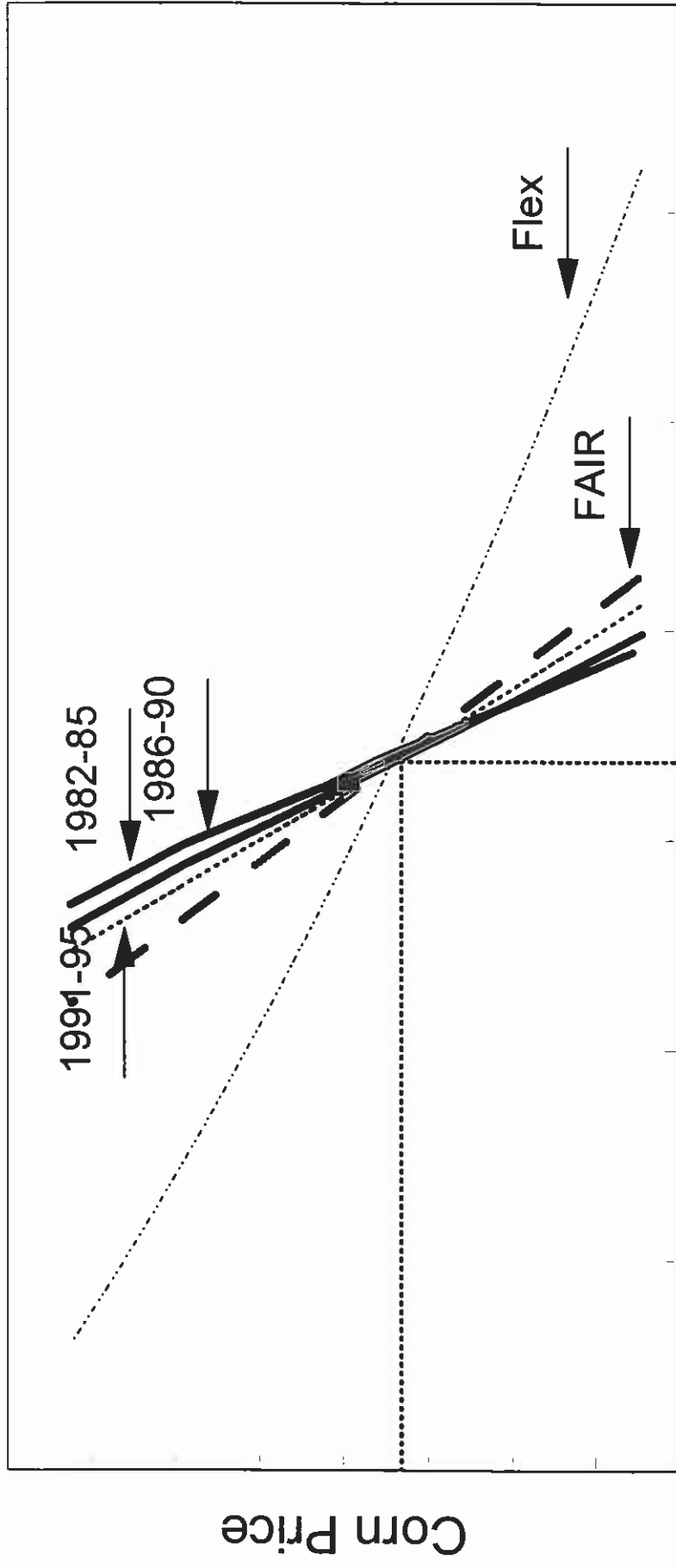


Corn Acres

1982-85 1986-90 1991-95 Flex FAIR Act

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U.S. Soybean Acres vs Corn Price



Soybean Acres

1982-85 1986-90 1991-95 Flex FAIR Act

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Some General Thoughts

- Acreage should be more price responsive than in the past
- Uncertainty of elasticities
 - reliance on historical elasticities
 - flex acreage response
 - acreage response during 1974-77, 1980-81 period
- Track total acreage as a check
- Detail of data under the FAIR Act