Table 3: Coefficient Estimates for Tobin's-Q Equation

Dependent variable: Ln (V/A)	(1)	(2)	(3)
	No individual Effects	Fixed Effects	Fixed Effects (drop SPILLSIC)
$Ln(SPILLTECH_{t-1})$	.022 (.006)	.076 (.042)	0.062 (0.041)
$Ln(SPILLSIC_{t-1})$	.034 (.004)	-.039 (.020)	
$Ln(Industry\ Sales_t)$	.328 (.061)	.197 (.041)	0.196 (.041)
$Ln(Industry\ Sales_{t-1})$	-.413 (.061)	-.146 (.042)	-.151 (.042)
$Ln(R\&D\ Stock/Capital\ Stock)_{t-1}$	.171 (.023)	.354 (.112)	.350 (.112)
$[Ln(R\&D\ Stock/Capital\ Stock)_{t-1}]^2$	-.267 (.081)	.035 (.092)	.039 (.092)
$[Ln(R\&D\ Stock/Capital\ Stock)_{t-1}]^3$	.037 (.029)	-.039 (.028)	-.040 (.028)
$[Ln(R\&D\ Stock/Capital\ Stock)_{t-1}]^4$	-.002 (.004)	.007 (.004)	.007 (.004)
$[Ln(R\&D\ Stock/Capital\ Stock)_{t-1}]^5$	.002 (.181)	-.033[a] (.015)	-.034 [a] (.015)
Year dummies	Yes	Yes	Yes
Firm fixed effects (703)	No	Yes	Yes
No. Observations	12,679	12,679	12,679

[a] coefficient and standard error have been multiplied by 100

Notes: Tobin's Q = V/A is defined as the market value of equity plus debt, divided by the stock of fixed capital. The equation is estimated by OLS (robust standard errors in brackets). A dummy variable is included for observations where lagged R&D stock equals zero. The estimation period is 1981-2001.

Table 4: Coefficient Estimates for the Patent Equation

Dependent variable: Patent Count	(1)	(2)	(3)	(4)
	No individual Effects	Fixed Effects	Fixed Effects + Dynamics	Fixed Effects + Dynamics (drop SPILLSIC)
Ln(SPILLTECH) $_{t-1}$	.523 (.026)	.343 (.148)	.223 (.129)	0.262 (.113)
Ln(SPILLSIC) $_{t-1}$	-.009 (.012)	.043 (.062)	.044 (.060)	
Ln(R&D Stock) $_{t-1}$	.450 (.023)	.223 (.039)	.065 (.035)	0.067 (0.035)
Ln(Sales) $_{t-1}$	.079 (.021)	.561 (.043)	.273 (.037)	0.274 (0.036)
Ln(Patents) $_{t-1}$			.513 (.019)	0.513 (0.019)
Over-dispersion (alpha)	3.884 (.087)	.412 (.018)	.208 (.013)	0.209 (0.013)
Year dummies	Yes	Yes	Yes	Yes
Firm fixed effects (712)	No	Yes	Yes	Yes
No. Observations	11,024	11,024	11,024	11,024
Log Likelihood	-19,512	-14,413	-13,742	-13,742
Pseudo-R^2	.112	.344	.375	.375

Notes: Estimation is conducted using the Negative Binomial model (robust standard errors in brackets). The estimation period is 1981-1998. A dummy variable is included for observations where lagged patent stock or lagged R&D stock equals zero. Fixed effects in columns (2) through (4) are estimated following Hausman, Hall and Griliches (1984). The results are similar when we use the method in Blundell, Griffith and Van Reenen (1999).

Table 5: Coefficient Estimates for the R&D Equation

Dependent variable ln(R&D)	(1)	(2)	(3)
	No Effects	Fixed Effects	Fixed Effects + Dynamics
Ln(SPILLTECH) $_{t-1}$	.179 (.009)	-.018 (.035)	-.010 (.023)
Ln(SPILLSIC) $_{t-1}$	.317 (.009)	.109 (.020)	.025 (.014)
Ln(Capital) $_{t-1}$	0.119 (0.022)	.216 (.017)	.036 (.013)
Ln(Sales) $_{t-1}$	.703 (.025)	.609 (.021)	.189 (.016)
Ln(R&D) $_{t-1}$			.689 (.014)
Ln(Industry Sales) $_t$	.660 (.079)	.143 (.029)	.135 (.022)
Ln(Industry Sales) $_{t-1}$	-.868 (.078)	-.062 (.030)	-.102 (.022)
Year dummies	Yes	Yes	Yes
Firm fixed effects (536)	No	Yes	Yes
No. Observations	8395	8395	8395

Notes: Estimation is by OLS (robust standard errors in brackets). The sample includes only firms which performed R&D continuously in at least two adjacent years. Estimation period is 1981-2001.

Table A1: Coefficient Estimates for the Production Function

Dependent variable Ln(Sales)	(1)	(2)	(3)
	No Effects	Fixed Effects	Fixed Effects
Ln(SPILLTECH) $_{t-1}$	-.0005	.092	.034
	(.035)	(.018)	(.017)
Ln(SPILLSIC) $_{t-1}$	-.014	.023	.002
	(.003)	(.011)	(.009)
Ln(Capital) $_{t-1}$	.292	.183	.180
	(.006)	(.009)	(.009)
Ln(Labour) $_{t-1}$	.645	.641	.632
	(.008)	(.011)	(.011)
Ln(R&D Stock) $_{t-1}$	.045	.056	.042
	(.023)	(.005)	(.005)
Ln(Industry Sales) $_t$			.186
			(.021)
Ln(Industry Sales) $_{t-1}$			-.031
			(.021)
Year dummies	Yes	Yes	Yes
Firm fixed effects (703)	No	Yes	Yes
No. Observations	12,663	12,663	12,663

Notes: Estimation is by OLS (robust standard errors in brackets). A dummy variable for observations where lagged R&D equals to zero is included. Estimation period is 1981-2001.