10. ANEXOS

Anexo Matemático:

Meade (1974)

Las condiciones de segundo orden para el programa de maximización de la EC monopólica son las siguientes,

$\frac{\partial^2 R}{\partial X^2} = \frac{\partial V}{\partial X} - W\frac{\partial \lambda}{\partial X} < 0$ y utilizando el resultado de las CPO

$$\frac{\partial^2 R}{\partial X^2} = V\left\{\frac{1}{V}\frac{\partial V}{\partial X} - \frac{1}{\lambda}\frac{\partial \lambda}{\partial X}\right\} < 0$$

A partir de las CPO se deduce también que,

$$\frac{\partial^2 R}{\partial X \partial \alpha} = \frac{\partial V}{\partial \alpha} \text{ y } \frac{\partial^2 R}{\partial X \partial F} = 0$$

Las condiciones de segundo orden para el caso de una cooperativa monopólico surgen a partir de que,

$$\frac{\partial^2 A}{\partial X^2} = \frac{\partial (V/L)}{\partial X} - \frac{\partial (\lambda A/L)}{\partial X}$$

$$\frac{\partial^2 A}{\partial X^2} = \frac{\frac{\partial V}{\partial X}L - \lambda V}{L^2} - \frac{\left(\frac{\partial \lambda}{\partial X}A + \frac{\partial A}{\partial X}\lambda\right)L - \lambda^2 A}{L^2}$$

$$\frac{\partial^2 A}{\partial X^2} = \frac{\partial V}{\partial X}\frac{1}{L} - \frac{\lambda V}{L^2} - \frac{A}{L}\frac{\partial \lambda}{\partial X} - \frac{\lambda}{L}\frac{\partial A}{\partial X} + \frac{\lambda^2 A}{L^2}$$

$$\frac{\partial^2 A}{\partial X^2} = \frac{1}{L}\left\{\frac{\partial V}{\partial X} - \lambda\frac{\partial A}{\partial X} - A\frac{\partial \lambda}{\partial X}\right\} - \frac{\lambda}{L^2}\{V - \lambda A\} < 0$$

como $\partial A/\partial X = 0$ y $A = (V/\lambda)$

$$\frac{\partial^2 A}{\partial X^2} = \frac{V}{L}\left\{\frac{1}{V}\frac{\partial V}{\partial X} - \frac{1}{\lambda}\frac{\partial \lambda}{\partial X}\right\} < 0$$

y también

$$\frac{\partial^2 A}{\partial X \partial \alpha} = \frac{\partial (V/L)}{\partial \alpha} - \frac{\partial (\lambda A / L)}{\partial \alpha}$$

$$\frac{\partial^2 A}{\partial X \partial \alpha} = \frac{\partial V}{\partial \alpha}\frac{1}{L} - \frac{\partial A}{\partial \alpha}\lambda\frac{1}{L}$$ y como $A = (PX - F) / L$

$$\frac{\partial^2 A}{\partial X \partial \alpha} = \frac{\partial V}{\partial \alpha}\frac{1}{L} - \frac{\partial P}{\partial \alpha}\frac{X\lambda}{L^2}$$

$$\frac{\partial^2 A}{\partial X \partial \alpha} = \frac{1}{L}\left\{\frac{\partial V}{\partial \alpha} - \frac{\lambda X}{L}\frac{\partial P}{\partial \alpha}\right\}$$

Steinherr y Thisse (1979)

Demostración (1)

Dado el supuesto de continuidad de *y(L)* y que *y(L)* tiende a *0* cuando *L* tiende a infinito, si existe un valor de *L* que maximize *y(L)* lo llamaremos *L**. Sea $\overline{L}(K_0)$ el valor de L para el cual la productividad marginal del trabajo $F'_L(K_0, L)$ aumenta en el intervalo $\left[0, \overline{L}(K_0)\right]$ y cae en el intervalo $\left[\overline{L}(K_0), \infty\right]$ claramente $\overline{L}(K_0) < L_1$.

Supongamos primero que $L^* \in \left[0, \overline{L}(K_0)\right]$. En este caso,

$$V(L^*) = U\left[y(L^*)\right](1-\pi) + U(w)\pi$$

$$V(L^*) = U\left[y(L^*)\right]\frac{L^*}{L_0} + U(w)\frac{L_0 - L^*}{L_0}$$

$$V(L^*) = U\left[y(L^*)\right]\frac{L^*}{L_0} - U(w)\frac{L^*}{L_0} + U(w)\frac{L_0}{L_0}$$

$$V(L^*) < U\left[y(L^*)\right]\frac{L^*}{L_0} - U(w)\frac{L^*}{L_0} + U(w)\frac{L_0}{L_0} + \left\{U\left[y(L_1)\right] - U\left[y(L^*)\right]\right\}\frac{L_1}{L_0}$$

ya que $y(L^*) < y(L_1)$

$$V(L^*) < U\left[y(L^*)\right]\frac{L^*}{L_0} - U(w)\frac{L^*}{L_0} + U(w)\frac{L_0}{L_0} + \left\{U\left[y(L_1)\right] - U(w) - U\left[y(L^*)\right] + U(w)\right\}\frac{L_1}{L_0}$$

$$V(L^*) < U\left[y(L^*)\right]\frac{L^*}{L_0} - U(w)\frac{L^*}{L_0} + U(w)\frac{L_0}{L_0} + \left\{U\left[y(L_1)\right] - U(w) - U\left[y(L^*)\right] + U(w)\right\}\frac{L_1}{L_0}$$

$$V(L^*) < U\left[y(L^*)\right]\frac{L^*}{L_0} - U(w)\frac{L^*}{L_0} + U\left[y(L_1)\right]\frac{L_1}{L_0} + U(w)\frac{L_0}{L_0} - U(w)\frac{L_1}{L_0} + \left\{-U\left[y(L^*)\right] + U(w)\right\}\frac{L_1}{L_0}$$

$$V(L^*) < U\left[y(L_1)\right]\frac{L_1}{L_0} + U(w)\frac{L_0 - L_1}{L_0} + U\left[y(L^*)\right]\frac{L^*}{L_0} - U(w)\frac{L^*}{L_0} + \left\{-U\left[y(L^*)\right] + U(w)\right\}\frac{L_1}{L_0}$$

$$V(L^*) < U\left[y(L_1)\right]\frac{L_1}{L_0} + U(w)\frac{L_0 - L_1}{L_0} + \left\{U\left[y(L^*)\right] - U(w)\right\}\frac{L^* - L_1}{L_0}$$

$$V(L^*) < U\left[y(L_1)\right]\frac{L_1}{L_0} + U(w)\frac{L_0 - L_1}{L_0} + \left\{U\left[y(L^*)\right] - U(w)\right\}\frac{L^* - L_1}{L_0} < U\left[y(L_1)\right]\frac{L_1}{L_0} + U(w)\frac{L_0 - L_1}{L_0} = V(L_1)$$

ya que $L^* < L_1$

$V(L^*) < V(L_1)$ (absurdo)

Supongamos ahora que $L^* \in \left[\overline{L}(K_0), L_0\right]$. En este caso L* debe satisfacer la condición de primer orden:

$$\frac{dV}{dL} = \frac{d\left\{U\left[y(L)\right](1-\pi) + U(w)\pi\right\}}{dL}$$

$$\frac{dV}{dL} = \frac{d\left\{U\left[y(L)\right]\left(L/L_0\right) + U(w)\left[(L_0 - L)/L_0\right]\right\}}{dL}$$

$$\frac{dV}{dL} = \frac{d\left\{U\left[y(L)\right]\left(L/L_0\right)\right\}}{dL} + \frac{d\left\{U(w)\left[(L_0 - L)/L_0\right]\right\}}{dL}$$

$$\frac{dV}{dL} = \frac{dU\left[y(L)\right]}{dL}\frac{L}{L_0} + \frac{U\left[y(L)\right]}{L_0} - \frac{U(w)}{L_0}$$

$$\frac{dV}{dL} = \frac{d\left\{\left[pF(K_0, L) - rK\right]/L\right\}}{dL}\frac{U'\left[y(L)\right]L}{L_0} + \frac{U\left[y(L)\right] - U(w)}{L_0}$$

$$\frac{dV}{dL} = \frac{pF'(K_0, L)L - pF(K_0, L) + rK}{L^2}\frac{U'\left[y(L)\right]L}{L_0} + \frac{U\left[y(L)\right] - U(w)}{L_0}$$

$$\frac{dV}{dL} = \frac{pF'(K_0, L)L - pF(K_0, L) + rK}{L}\frac{U'\left[y(L)\right]}{L_0} + \frac{U\left[y(L)\right] - U(w)}{L_0}$$

$$\frac{dV}{dL} = \frac{pF'(K_0, L)L}{L} - \frac{pF(K_0, L) + rK}{L} \frac{U'[y(L)]}{L_0} + \frac{U[y(L)] - U(w)}{L_0}$$

$$\frac{dV}{dL} = [pF'(K_0, L) - y(L)] \frac{U'[y(L)]}{L_0} + \frac{U[y(L)] - U(w)}{L_0}$$

$$[pF'(K_0, L^*) - y(L^*)] \frac{U'[y(L^*)]}{L_0} + \frac{U[y(L^*)] - U(w)}{L_0} = 0$$

Ahora como $L^* < L_0$ y $F'_L(K_0, L)$ es decreciente en $[\overline{L}(K_0), L_0]$ entonces $p_1 F'_L(K_0, L^*) > p_0 F'_L(K_0, L_0) = w$.

Por lo tanto, si $[pF'(K_0, L^*) - y(L^*)]U'[y(L^*)] + U[y(L^*)] - U(w) = 0$, entonces $[w - y(L^*)]U'[y(L^*)] + U[y(L^*)] - U(w) < 0$ lo que contradice los supuestos de partida, ya que como $w < y(L^*)$ esto implicaría que la función de utilidad U no sea cóncava.

Para verlo alcanza con plantearse un punto $c = [(b-c) / (b-a)]a + [1- (b-c)/(b-a)]b$ ubicado entre dos puntos a y b de modo que $a<c<b$ los tres pertenecientes al recorrido de una función U. Para que U sea cóncava debe cumplirse que:

$\frac{U(b) - U(a)}{(b-a)} \geq \frac{U(b) - U(c)}{(b-c)}$ de modo que $U(b) - U(a) \geq (b-a)\frac{U(b) - U(c)}{(b-c)}$

y si $c \rightarrow b$ esto implica que $U(b) - U(a) \geq (b-a)U'(b)$. Ahora, sustituyendo b por w y a por $y(L^*)$ podemos ver que no se cumplen las condiciones de concavidad.

Supongamos ahora en tercer lugar que $L^* \in [L_0, \infty]$. Ahora como $F'_L(K_0, L)$ es decreciente en este intervalo y $y(L)$ también lo es, entonces, como $L_1<L_0<L^*$ tenemos que V(L*) < $V(L_0)$ lo que también es otra contradicción.

En último lugar, como L* existe se llega necesariamente que $L^*=L_0$.

<u>*Demostración (2)*</u>

Siguiendo un razonamiento similar al de la demostración anterior se muestra que L**, el valor de L que maximiza V(L), debe pertenecer al entorno $[\overline{L}(K_0), L_0]$ y por lo tanto de verificar las condiciones de primer orden.

$$\frac{dV}{dL} = \frac{d\left\{ y(L) - \left[y(L_0) - w \right] \frac{(L_0 - L)}{L} \right\}}{dL}$$

$$\frac{dV}{dL} = \frac{d\left[y(L) \right]}{dL} - \frac{d\left\{ \left[y(L_0) - w \right] \frac{(L_0 - L)}{L} \right\}}{dL} = \frac{d\left[y(L) \right]}{dL} + \frac{\left[y(L_0) - w \right] L_0}{L^2}$$

$$\frac{dV}{dL} = \frac{d\left\{ \left[pF(K_0, L) - rK \right] / L \right\}}{dL} + \frac{\left[y(L_0) - w \right] L_0}{L^2}$$

$$\frac{dV}{dL} = \frac{pF'(K_0, L)L - pF(K_0, L) + rK}{L^2} + \frac{\left[y(L_0) - w \right] L_0}{L^2}$$

$$\frac{dV}{dL} = \frac{pF'(K_0, L)}{L} - \frac{pF(K_0, L) - rK}{L^2} + \frac{\left[y(L_0) - w \right] L_0}{L^2}$$

$$\frac{dV}{dL} = \frac{1}{L}\left\{ pF'(K_0, L) - \frac{pF(K_0, L) - rK}{L} + \frac{\left[y(L_0) - w \right] L_0}{L} \right\}$$

$$\frac{dV}{dL} = \frac{1}{L}\left\{ pF'(K_0, L) - y(L) + \frac{\left[y(L_0) - w \right] L_0}{L} \right\}$$

$$\frac{1}{L^{**}}\left\{ pF'(K_0, L^{**}) - y(L^{**}) + \frac{\left[y(L_0) - w \right] L_0}{L^{**}} \right\} = 0$$

Repitiendo el procedimiento de la demostración anterior se llega a que $p_1 F'_L(K_0, L^{**}) > w$

$$\frac{1}{L^{**}}\left\{ w - y(L) + \frac{\left[y(L_0) - w \right] L_0}{L^{**}} \right\} < 0$$

$$L^{**}w - L^{**}y(L) + \left[y(L_0) - w \right] L_0 < 0$$

$$L^{**}w - L^{**}y(L) + L_0 y(L_0) - L_0 w < 0$$

$$L_0 y(L_0) - L_0 w + L_0 w - L^{**}y(L) + L^{**}w - L_0 w < 0$$

$$L_0 y(L_0) + (L_0 - L_0)w - L^{**}y(L) - (L_0 - L^{**})w < 0$$

Si se define $Y(L) = Ly(L) + (L_0 - L)\, w$ se llega a que,

$Y(L_0) - Y(L^{**}) < 0$ y por lo tanto $Y(L_0) < Y(L^{**})$

Considerando el maximizando de $Y(L)$ en $[0, L_0]$, $\hat{L}$. Si $\hat{L} \in [0, L_0]$ se tendrá que $p_1 F'_L(K_0, \hat{L}) = w$, ya que $dY(L)/dL = y(L) + p_1 F'_L(K_0, L) - y(L) - w$.

Como $p_1F'_L(K_0,L)>p_0F'_L(K_0,L)$ para todo L se llega a que $\hat{L} \geq L_0$, y dado que $p_0F'_L(K_0,L_0)=w=p_1F'_L(K_0,\hat{L})>p_0F'_L(K_0,\hat{L})$ y que $\hat{L} \in [0, L_0]$ entonces $\hat{L} = L_0$.

Sabiendo que Y(L) es estrictamente cóncava en $[L(K_0), L_0]$, $\hat{L} = L_0$ será su nivel óptimo de modo que $Y(L^{**}) < Y(L_0) = Y(\hat{L})$ lo que contradice el desarrollo anterior, completándose la demostración.

Bonin (1981)

Proposición 1

Formalmente, la proposición implica que si $y^*(p_0) = y(p_0, L_0) = y_0$, se tiene que $Y(p_1, L_0, L_0) > Y(p_1, L', L_0)$ con $p_1 > p_0$, donde $L_0 > L' = \max_L y(p_1, L)$.

Demostración

Se considera $Y(p, L, L_0)$ para cualquier nivel de L, admitiendo incluso $L > L_0$. Se define $\hat{L}$ como la solución del problema $\max_l Y(p_1, L, L_0)$.

Sabiendo que $Y = L.y(p_1, L) + (L_0 - L)y_0$, tenemos que la condición de primer orden supone que:

$$\frac{\partial Y}{\partial L} = y + L.\frac{\partial y}{\partial L} - y_0 = 0 \Rightarrow$$

$$\Rightarrow \frac{(p_1.Q - R)}{L} + L\left[\frac{p_1.(\partial Q / \partial L).L - (p_1.Q - R)}{L^2}\right] = y_0 \Rightarrow \frac{(p_1.Q - R)}{L} + \left[p_1.Q_L - \frac{(p_1.Q - R)}{L}\right] = y_0 \Rightarrow$$

$$\Rightarrow p_1.Q_{\hat{L}} = y_o$$

La condición de segundo orden supone, bajo el supuesto de productividad marginal del trabajo decreciente, que:

$$\frac{\partial^2 Y}{\partial L^2} = p_1.Q_{LL} < 0,$$

por lo que la solución $\hat{L}$ es única y Y es estrictamente cóncava en L.

Puede verse que $p_1.Q_L > p_0 Q_L$ para todo L y sabiendo que $p_{0.}Q_{L_0} = y_0$, dado $y_0 = y*(p_0)$, tenemos que $p_{1.}Q_L > y_o$ para $L \leq L_0$ y $Y(p_1, L_0, L_0) > Y(p_1, L', L_0)$, ya que $\frac{\partial Y(.)}{\partial L} = Y_L(p_1, L, L_0) = p_1 Q_L - y_0 > 0$ para $L \leq L_0$ y $L' < L_0$. En definitiva, como la función Y es creciente en L hasta la solución $\hat{L}$ donde alcanza un máximo y $L' < L_0$, se comprueba la Proposición 1. De esta forma, la cooperativa encuentra racional no reducir el empleo frente a un incremento del precio del output ya que en el caso de hacerlo, si esta opción fuera institucionalmente factible, el ingreso total de los miembros sería menor.

Punto de cierre

El punto de cierre será el mismo para ambos tipos de empresa. Aunque todos los miembros decidan disolver la cooperativa y procurarse una actividad alternativa para obtener y_0, serán responsables de todas formas de una proporción idéntica de los costos fijos. Por lo tanto, cuando la firma cooperativa es disuelta el ingreso neto por trabajador a corto plazo es igual a $y_0 - \frac{R}{L_0}$.

La cooperativa no se disolverá mientras se cumpla que:

$$\frac{Y(p, \breve{L}, L_0)}{L_0} \geq y_0 - \frac{R}{L_0}$$

El precio de cierre p_m será aquel que iguala la ecuación anterior. Considerando $Y(p, \breve{L}, L_0) = \breve{L}.y(p, \breve{L}) + (L_0 - \breve{L})y_0$ y que $y = (p.Q - R)/L$, tenemos que:

$$\frac{\breve{L}.y(p, \breve{L}) + (L_0 - \breve{L})y_0}{L_0} = y_0 - \frac{R}{L_0} \Rightarrow$$

$$\Rightarrow \frac{\breve{L}.\left[\frac{p_m.Q(\breve{L}) - R}{\breve{L}}\right] + (L_0 - \breve{L})y_0}{L_0} = y_0 - \frac{R}{L_0} \Rightarrow \frac{p_{m.}Q(\breve{L}) - R + L_0.y_0 - \breve{L}y_0}{L_0} = \frac{L_0.y_0 - R}{L_0} \Rightarrow$$

En una economía conformada por empresas capitalistas, existe un ingreso alternativo w-

asimilable al salario de mercado vigente- análogo a y_0 en una economía perfectamente competitiva conformada por empresas cooperativas. Por tanto, sustituyendo $y_0 = w$ se obtiene que:

$$p_m.Q(\bar{L}) - R - w.\bar{L} = \pi = -R$$

La cooperativa seguirá funcionando, incluso incurriendo en pérdidas, hasta el momento en que ya no pueda cubrir los costos fijos, condición equivalente a la de una empresa capitalista de competencia perfecta maximizadora de beneficios.

Anexo 2: Construcción del Indicador de Sindicalización

El grado de sindicalización de las distintas ramas de actividad se definió como el cociente entre el número de trabajadores afiliados y el número de asalariados ocupados totales en las rarmas estudiadas. Las series se construyeron siguiendo los criterios habituales utilizados en Cassoni et al (2003) y recientemente tomados en Casacuberta et al (2005) para el caso de la industria manufacturera.

Los datos de afiliación corresponden a los reportes de los congresos del PITCNT. Por otro lado, los datos de ocupación se obtienen corrigiendo los datos del BPS con la Encuesta Continua de Hogares, en la medida que los datos del BPS reportan solamente el número de asalariados formales. Se entiende que la existencia de un subsector informal dentro de cada rama afecta negativamente la capacidad del sindicato para lograr que los acuerdos negociados sean vinculantes para todas las empresas y trabajadores de la rama y, además, debilita la efectividad de las propias medidas de lucha. Debe tenerse en cuenta que el procedimiento de matching afiliados-ramas a este nivel de desagregación es particularmente complejo en la medida que varios sindicatos operan en distintas ramas de actividad simultáneamente, mientras hay ramas donde opera más de un sindicato.

También se construyó un indicador de sindicalización a partir de la Encuesta Nacional Ampliada de Hogares 2006, dado que uno de sus módulos incorpora una pregunta específica. Sin embargo, se descartó su utilización ya que en dicho año las características de la incidencia de los sindicatos en las ramas fueron muy distintas a las del período considerado en este trabajo. En particular, la reinstauración de los Consejo de Salarios y otros cambios institucionales en el mercado de trabajo a partir del año 2005 llevaron a un crecimiento de la cantidad de afiliados al PIT-CNT en el sector privado.

A partir del indicador elegido se clasificó a las ramas en 4 grupos (baja, medio baja, medio alta y alta sindicalización), a partir de tramos conformados en el entorno de la tasa de sindicalización media para las ramas de la base. La clasificación de las ramas se detalla a continuación

rama	tasa de sindicalización
311	medio alta
312	medio baja
313	alta
321	medio baja
322	baja
324	medio baja
342	medio baja
355	alta

369	medio alta
371	alta
384	alta
390	alta
520	alta
571	alta
621	medio baja
628	medio baja
629	medio baja
631	baja
711	medio baja
712	baja
721	medio alta
832	baja
921	baja
929	baja
931	medio baja
932	baja
933	alta
934	baja
935	baja
951	baja
959	baja

Anexo 3: Construcción del Índice de Precios Relativos

Para estimar como reaccionan las empresas a los cambios de coyuntura se incluyó como variable explicativa al precio del output. Para elaborar una serie de precios para cada una de las 31 ramas a considerar se utilizaron en general los componentes del IPC asociados a la rama correspondiente y los componentes del IPPN cuando no se disponía del primero, particularmente en el caso de empresas industriales que producen bienes intermedios. Una vez asociada una serie de índice de precios para cada rama, estos se dividieron respecto al nivel general del IPC para obtener un indicador de precios relativos.

En el caso del IPPN, se empalmaron las series con el IPM (base = enero 1988) ya que el primero no abarcaba todo el período considerado, comenzando en agosto de 2001. Esto implicó algunas dificultades con el matcheo de las series ya que algunas de las ramas consideradas en esta investigación tienen diferentes niveles de desagregación en cada uno de los dos índices mencionados. En algunos casos, el IPPN desagrega algunas ramas que estaban unificadas en el IPM, mientras agrega otras que estaban desagregadas.

En el caso del IPC, hubo que empalmar dos grupos de series, una elaborada por el INE con base 97 y la otra con base 83, ya que la primera no abarcaba todo el período considerado. Sin embargo, en este caso las consecuencias sobre la calidad de la información son menores debido a que el índice con base 97 solo excluye 10 meses del período considerado.

Anexo 4: Cuadros descriptivos de la distribución de las empresas de la base de datos

cantidad de ec según tamaño										
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1a5	9978	10348	10303	10160	9952	9641	9115	8612	8726	9022
6a19	3384	3508	3465	3502	3440	3353	3148	3049	3191	3469
20a100	1145	1211	1271	1261	1219	1261	1195	1105	1206	1373
mas de 100	277	289	298	290	317	309	314	352	273	307
Total	14784	15356	15337	15213	14928	14564	13772	13118	13396	14171

cantidad de cta según tamaño										
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1a5	1	2	1	2	2	2	6	9	6	10
6a19	132	132	143	142	139	140	137	139	141	149
20a100	10	11	10	10	11	12	15	15	22	22
mas de 100	8	9	7	7	7	11	11	11	11	12
Total	151	154	161	161	159	165	169	174	180	193

cantidad de ocp según tamaño										
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1a5	53	46	47	49	61	59	52	52	59	58
6a19	36	40	38	45	37	41	38	38	31	33
20a100	43	52	51	41	40	30	23	26	31	36
mas de 100	19	18	23	24	22	25	18	18	18	13
Total	151	156	159	159	160	155	131	134	139	140

cantidad de ec según rama ciiu 1 dig										
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
3	4026	4097	4028	3881	3662	3489	3255	3077	3087	3155
5	234	262	267	274	276	285	278	256	247	245
6	4340	4509	4317	4162	3964	3783	3462	3125	3150	3326
7	2316	2448	2600	2689	2760	2741	2704	2754	2908	3170
8	1418	1501	1569	1624	1653	1667	1602	1550	1612	1747
9	2450	2539	2556	2583	2613	2599	2471	2356	2392	2528
Total	14784	15356	15337	15213	14928	14564	13772	13118	13396	14171

cantidad de cta según rama ciiu 1 dig										
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1	4	5	3	2	1	1				
3	29	31	30	28	28	28	30	29	33	35
5	2	1	2	4	4	5	5	3	3	5
6	2	2	3	3	4	3	3	4	5	5
7	98	98	100	99	95	95	95	95	89	87
8	2	2	2	2	2	3	4	4	4	8
9	14	15	21	23	25	30	32	39	46	53
Total	151	154	161	161	159	165	169	174	180	193

cantidad de ocp según rama ciiu 1 dig										
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
0								1	1	1
1	11	18	17	12	7	5	3	1	1	1
3	23	25	23	22	22	22	19	22	23	24
5	1							1	1	1
6	15	14	11	11	12	11	8	4	5	5
7	23	20	18	19	20	21	20	19	18	16
8	10	8	8	9	8	10	7	8	8	10
9	68	71	82	86	91	86	74	78	82	82
Total	151	156	159	159	160	155	131	134	139	140

Anexo 5: Cuadros descriptivos de la distribución del empleo de la base de datos

cantidad de ocupados en ec según tamaño										
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1a5	24165	25311	25227	24941	24478	23727	22325	20985	21624	22803
6a19	34387	35937	35558	35846	35227	34103	32026	31113	32977	35934
20a100	44299	47058	49170	49065	47492	49603	47084	43497	47583	53562
mas de 100	68240	72413	74741	73449	75043	72250	70146	64168	69948	83618
Total	171091	180719	184696	183301	182241	179682	171582	159762	172133	195916

cantidad de ocupados en cta según tamaño										
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1a5	4	10	2	10	10	9	31	39	25	44
6a19	1293	1279	1365	1376	1355	1325	1251	1248	1264	1350
20a100	409	386	399	449	439	515	644	698	855	939
mas de 100	2835	2931	2630	2472	2458	2710	2518	2641	2637	2846
Total	4541	4606	4395	4307	4262	4559	4443	4626	4781	5178

cantidad de ocupados en ocp según tamaño										
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1a5	147	133	146	151	191	185	155	159	172	184
6a19	355	444	406	496	420	474	419	420	336	362
20a100	1666	2129	2086	1603	1768	1153	842	1003	1202	1371
mas de 100	5696	6796	7891	7867	8160	7101	5653	4943	5517	5514
Total	7864	9502	10528	10117	10539	8913	7070	6526	7227	7431

cantidad de ocupados en ec según rama ciiu 1 dig										
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
3	71652	71885	70748	66270	63501	59841	54656	51773	56369	62839
5	1753	2005	2031	2113	2235	2286	2184	1972	2033	2405
6	30915	34344	35465	36212	36802	37178	35284	31813	34130	37861
7	21183	22294	22943	23641	24162	24760	26345	23702	26415	31684
8	17671	20215	23211	23606	23771	23204	21680	20484	21501	25598
9	27918	29975	30298	31460	31771	32413	31433	30019	31684	35530
Total	171091	180719	184696	183301	182241	179682	171582	159762	172133	195916

cantidad de ocupados en cta según rama ciiu 1 dig										
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1	235	274	59	17	11	11				
3	552	569	563	462	390	348	355	367	606	753
5	17	10	17	41	44	52	47	27	18	35
6	99	125	68	71	111	150	67	80	61	47
7	3396	3377	3396	3382	3345	3372	3283	3181	3126	3085
8	13	13	13	13	13	86	139	141	135	235
9	230	237	278	321	348	540	552	830	834	1022
Total	4541	4606	4395	4307	4262	4559	4443	4626	4781	5178

cantidad de ocupados en ocp según rama ciiu 1 dig										
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
0								1	1	1
1	347	531	494	387	231	42	15	3	4	3
3	975	991	995	1050	1128	967	928	962	904	1123
5	2							7	1	17
6	96	787	136	137	128	273	258	23	20	22
7	508	467	375	382	374	390	332	290	250	262
8	34	25	31	32	28	27	15	116	161	67
9	5903	6701	8499	8129	8651	7215	5521	5125	5886	5936
Total	7864	9502	10528	10117	10539	8913	7070	6526	7227	7431

Anexo 6: Cuadros descriptivos de los niveles salariales promedio de los trabajadores de la base de datos

remuneraciones por trabajador en ec a precios constantes de 12/2005 según rama ciiu 1 dig										
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
3	9946	10015	9897	9742	9644	8992	8225	8024	8017	8267
5	8304	8887	8402	8363	7906	7800	7088	6455	6152	6441
6	6798	6671	6781	6640	6529	6403	5689	4889	4761	5148
7	11296	11262	11009	10942	10971	10470	8379	7709	7247	7115
8	7776	7490	7388	7930	8185	7999	7664	6732	6333	6587
9	8620	8364	7886	7762	7486	7245	6265	5187	4858	5092
Total	9098	8999	8804	8720	8617	8216	7296	6655	6451	6678

remuneraciones por trabajador en cta a precios constantes de 12/2005 según rama ciiu 1 dig										
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1	8849	7085	12447	7741	7697	682				
3	3406	3153	2372	2376	2843	2836	2515	2458	2658	3103
5	13575	19134	14485	9572	8915	7642	6331	6183	7047	6249
6	5443	7277	6764	7175	7029	7263	6166	3572	2587	3055
7	17646	18017	18649	18711	18394	18034	15789	13440	13752	14948
8	2869	2603	1528	2414	3003	3102	2031	2072	2076	2696
9	4767	3537	3442	3616	3393	3643	3632	2963	3273	3543
Total	14758	14784	15408	15919	15639	15188	12851	10322	10349	10448

remuneraciones por trabajador en ocp a precios constantes de 12/2005 según rama ciiu 1 dig										
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1	17388	11803	12160	9253	10305	11181	3952	5194	3981	4606
3	7866	7815	6906	6707	6109	4669	3956	3456	3223	4255
5	3940							2683	457	3075
6	7508	8661	12766	8883	6125	7867	8169	1991	1790	1806
7	10195	9640	9083	8549	7995	7544	6415	5539	5898	6527
8	3660	3134	2913	3039	3347	4707	4008	3888	2496	2358
9	18392	17264	18298	17480	16024	14801	12568	10246	10919	12083
Total	16343	15090	16250	15385	14238	13140	11025	8951	9496	10615

remuneraciones por trabajador en ec a precios constantes de 12/2005 según tamaño de empresa										
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1a5	4778	4673	4682	4716	4724	4550	4171	3548	3420	3880
6a19	6028	5900	5837	5896	5827	5698	4968	4537	4443	4758
20a100	9291	9209	9130	9135	9017	8589	7791	7132	6744	6992
mas de 100	11798	11580	11129	10915	10700	10114	8811	8156	7937	7912
Total	9098	8999	8804	8720	8617	8216	7296	6655	6451	6678

remuneraciones por trabajador en cta a precios constantes de 12/2005 según tamaño de empresa										
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1a5	1644	2381	5479	5600	6631	3211	2056	3340	3331	2867
6a19	6561	6387	6283	6214	6254	5983	4830	3681	3424	3913
20a100	6085	5170	3765	2901	3207	3221	2970	2711	2545	3619
mas de 100	19202	19633	21175	22161	22070	21883	18285	14813	16006	15574
Total	14758	14784	15408	15919	15639	15188	12851	10322	10349	10448

remuneraciones por trabajador en ocp a precios constantes de 12/2005 según tamaño de empresa										
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1a5	4591	4538	4930	5070	4782	4600	3709	3042	2947	3490
6a19	6457	6348	5153	5070	4697	4685	3849	3511	3357	3557
20a100	11587	10981	11552	10337	10563	8397	6403	4782	4467	4900
mas de 100	18599	17419	18579	17444	15919	14775	12456	10417	11136	12605
Total	16343	15090	16250	15385	14238	13140	11025	8951	9496	10615

Anexo 7: Salidas de Stata para el modelo de determinación del nivel de salarios

```
. xtreg w12 w12_1 lnp12 lnp12coo cta, fe robust

Fixed-effects (within) regression               Number of obs      =    862414
Group variable (i): i                           Number of groups   =     16841

R-sq:  within  = 0.4431                         Obs per group: min =         1
       between = 0.6468                                        avg =      51.2
       overall = 0.4811                                        max =       104

                                                F(3,845570)        =  24441.49
corr(u_i, Xb)  = 0.2155                         Prob > F           =    0.0000

------------------------------------------------------------------------------
             |               Robust
         w12 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       w12_1 |     .67065    .002496   268.69   0.000     .6657579    .6755421
       lnp12 |   .0683169   .0043392    15.74   0.000     .0598121    .0768216
    lnp12coo |   .0361578   .0372871     0.97   0.332    -.0369237    .1092393
         cta |  (dropped)
       _cons |  -.0141529   .0003223   -43.91   0.000    -.0147847   -.0135211
-------------+----------------------------------------------------------------
     sigma_u |  .16109656
     sigma_e |  .28817207
         rho |  .23810306   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. est store fijo

. lincom lnp12 + lnp12coo

 ( 1)  lnp12 + lnp12coo = 0

------------------------------------------------------------------------------
         w12 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |   .1044747   .0370332     2.82   0.005     .0318908    .1770585
------------------------------------------------------------------------------
```

```
. xtreg w12 w12_1 tramo2 tramo3 tramo4 r3 r5 r6 r7 r9 lnp12 lnp12coo cta, re
robust

Random-effects GLS regression                   Number of obs      =    862414
Group variable (i): i                           Number of groups   =     16841

R-sq:  within  = 0.4431                         Obs per group: min =         1
       between = 0.6461                                        avg =      51.2
       overall = 0.4810                                        max =       104

Random effects u_i ~ Gaussian                   Wald chi2(12)      =  76792.65
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
             |               Robust
         w12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       w12_1 |   .6759202   .0024606   274.70   0.000     .6710976    .6807429
      tramo2 |  -.0109148   .0014341    -7.61   0.000    -.0137257   -.0081039
      tramo3 |   -.014783   .0024851    -5.95   0.000    -.0196536   -.0099123
      tramo4 |  -.0308806   .0062755    -4.92   0.000    -.0431805   -.0185808
          r3 |  -.0004591   .0054624    -0.08   0.933    -.0111651     .010247
          r5 |  -.0020708    .021523    -0.10   0.923    -.0442552    .0401136
          r6 |  -.0099909   .0048479    -2.06   0.039    -.0194925   -.0004892
          r7 |   -.003414    .005136    -0.66   0.506    -.0134804    .0066524
          r9 |     .00187   .0049727     0.38   0.707    -.0078763    .0116164
       lnp12 |   .0687597   .0043068    15.97   0.000     .0603186    .0772009
    lnp12coo |   .0214826   .0368513     0.58   0.560    -.0507446    .0937099
         cta |   .0104819    .010779     0.97   0.331    -.0106444    .0316083
       _cons |  -.0125762   .0042735    -2.94   0.003    -.0209522   -.0042002
-------------+----------------------------------------------------------------
     sigma_u |   .1369003
     sigma_e |  .28815021
         rho |  .18415329   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. hausman fijo
                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |      fijo           .          Difference          S.E.
-------------+----------------------------------------------------------------
       w12_1 |      .67065     .6759202       -.0052702        .0004189
       lnp12 |    .0683169     .0687597       -.0004429        .0005294
    lnp12coo |    .0361578     .0214826        .0146752        .0056842
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg
    Test:  Ho:  difference in coefficients not systematic

                  chi2(3) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =      166.56
                Prob>chi2 =      0.0000

. lincom lnp12 + lnp12coo
 ( 1)  lnp12 + lnp12coo = 0

------------------------------------------------------------------------------
         w12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |   .0902424   .0366021     2.47   0.014     .0185035    .1619812
------------------------------------------------------------------------------
```

```
. reg w12 w12_1 tramo2 tramo3 tramo4 r312 r313 r321 r322 r324 r342 r355 r369
r371 r384 r390 r520 r571 r621 r628 r629 r631 r711 r712 r721 r832 r921 r929
r931 r932 r933 r934 r935 r951 r959 lnp12 lnp12coo cta, cluster(i) robust

Linear regression                                       Number of obs =  862414
                                                        F( 37, 16840) = 1022.05
                                                        Prob > F      =  0.0000
                                                        R-squared     =  0.4812
Number of clusters (i) = 16841                          Root MSE      =  .29012

------------------------------------------------------------------------------
             |               Robust
         w12 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       w12_1 |   .6995362   .0037562   186.23   0.000     .6921736    .7068988
      tramo2 |  -.0032329   .0007705    -4.20   0.000    -.0047431   -.0017227
      tramo3 |  -.0033104   .0010983    -3.01   0.003    -.0054631   -.0011576
      tramo4 |  -.0127183   .0025642    -4.96   0.000    -.0177444   -.0076922
        r312 |  -.0034684   .0031903    -1.09   0.277    -.0097216    .0027849
        r313 |   .0064471   .0027597     2.34   0.019     .0010379    .0118563
        r321 |  -.0087013   .0030613    -2.84   0.004    -.0147018   -.0027008
        r322 |  -.0054162   .0027209    -1.99   0.047    -.0107495   -.0000829
        r324 |  -.0136253   .0042643    -3.20   0.001    -.0219837   -.0052669
        r342 |  -.0092867   .0023891    -3.89   0.000    -.0139696   -.0046038
        r355 |  -.0173111   .0072647    -2.38   0.017    -.0315507   -.0030715
        r369 |  -.0070558   .0035647    -1.98   0.048    -.0140431   -.0000685
        r371 |  -.0161078    .003213    -5.01   0.000    -.0224057   -.0098099
        r384 |  -.0051783   .0064585    -0.80   0.423    -.0178376     .007481
        r390 |  -.0008096    .003329    -0.24   0.808    -.0073347    .0057154
        r520 |  -.0069254   .0065248    -1.06   0.289    -.0197147    .0058639
        r571 |  -.0080943   .0058271    -1.39   0.165    -.0195161    .0033274
        r621 |  -.0097764   .0022137    -4.42   0.000    -.0141155   -.0054372
        r628 |  -.0051924   .0023705    -2.19   0.029    -.0098388    -.000546
        r629 |  -.0052111   .0022582    -2.31   0.021    -.0096374   -.0007849
        r631 |  -.0133447   .0022131    -6.03   0.000    -.0176827   -.0090067
        r711 |   -.006521   .0021046    -3.10   0.002    -.0106462   -.0023957
        r712 |  -.0171399   .0066213    -2.59   0.010    -.0301184   -.0041615
        r721 |  -.0079604     .00358    -2.22   0.026    -.0149777   -.0009431
        r832 |  -.0026275   .0022671    -1.16   0.246    -.0070712    .0018162
        r921 |  -.0131159   .0031586    -4.15   0.000    -.0193072   -.0069247
        r929 |  -.0206363     .01466    -1.41   0.159    -.0493715    .0080989
        r931 |  -.0041102   .0025456    -1.61   0.106    -.0090999    .0008794
        r932 |   -.003757   .0080149    -0.47   0.639     -.019467     .011953
        r933 |  -.0039492   .0023496    -1.68   0.093    -.0085546    .0006562
        r934 |  -.0041652   .0030696    -1.36   0.175     -.010182    .0018516
        r935 |   .0051553   .0175311     0.29   0.769    -.0292074    .0395181
        r951 |  -.0014802   .0022995    -0.64   0.520    -.0059874    .0030269
        r959 |  -.0002429   .0027873    -0.09   0.931    -.0057063    .0052205
       lnp12 |   .0668747   .0056172    11.91   0.000     .0558644     .077885
    lnp12coo |  -.0156622   .0317687    -0.49   0.622    -.0779322    .0466079
         cta |   .0028232   .0025978     1.09   0.277    -.0022687    .0079152
       _cons |  -.0053982   .0020688    -2.61   0.009    -.0094532   -.0013432
------------------------------------------------------------------------------

. lincom lnp12 + lnp12coo

 ( 1)  lnp12 + lnp12coo = 0

------------------------------------------------------------------------------
         w12 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |   .0512125   .0313257     1.63   0.102    -.0101892    .1126142
------------------------------------------------------------------------------
```

```
. xtreg w12 w12_1 lnp12 lnp12coo cta if ciiu1==3, fe robust

Fixed-effects (within) regression               Number of obs      =    159976
Group variable (i): i                           Number of groups   =      2932

R-sq:  within  = 0.4500                         Obs per group: min =         1
       between = 0.7547                                        avg =      54.6
       overall = 0.4830                                        max =       104

                                                F(3,157041)        =   5685.18
corr(u_i, Xb)  = 0.2137                         Prob > F           =    0.0000

------------------------------------------------------------------------------
             |               Robust
         w12 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       w12_1 |   .6792178   .0053224   127.61   0.000     .6687859    .6896496
       lnp12 |   -.040275   .0096138    -4.19   0.000    -.0591179   -.0214322
    lnp12coo |   .1223189   .0680886     1.80   0.072    -.0111334    .2557712
         cta |  (dropped)
       _cons |  -.0152949   .0008353   -18.31   0.000    -.0169322   -.0136577
-------------+----------------------------------------------------------------
     sigma_u |  .14457991
     sigma_e |  .32335051
         rho |  .16661513   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. test lnp12 + lnp12coo = 0
 ( 1)  lnp12 + lnp12coo = 0

       F(  1,157041) =    1.48
            Prob > F =    0.2236
```

```
. xtreg w12 w12_1 tramo2 tramo3 tramo4 r312 r313 r321 r322 r324 r342 r355 r369
r371 r384 r390 lnp12 lnp12coo cta if ciiu1==3, re robust

Random-effects GLS regression                   Number of obs      =    159976
Group variable (i): i                           Number of groups   =      2932

R-sq:  within  = 0.4502                         Obs per group: min =         1
       between = 0.7517                                        avg =      54.6
       overall = 0.4830                                        max =       104

Random effects u_i ~ Gaussian                   Wald chi2(18)      =  18159.65
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
             |               Robust
         w12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       w12_1 |   .6867047   .0052681   130.35   0.000     .6763795      .69703
      tramo2 |  -.0194674   .0034123    -5.71   0.000    -.0261553   -.0127796
      tramo3 |  -.0216341   .0048708    -4.44   0.000    -.0311807   -.0120874
      tramo4 |  -.0320843   .0093846    -3.42   0.001    -.0504777   -.0136908
        r312 |  -.0157389   .0108988    -1.44   0.149    -.0371002    .0056223
        r313 |   .0041853   .0102339     0.41   0.683    -.0158727    .0242433
        r321 |  -.0173395    .011305    -1.53   0.125     -.039497     .004818
        r322 |  -.0163921   .0107523    -1.52   0.127    -.0374662    .0046819
        r324 |  -.0299088   .0176216    -1.70   0.090    -.0644465     .004629
        r342 |   -.019816   .0091599    -2.16   0.031    -.0377691   -.0018629
        r355 |  -.0204978   .0210526    -0.97   0.330    -.0617601    .0207645
        r369 |  -.0033683   .0165131    -0.20   0.838    -.0357334    .0289967
        r371 |  -.0229145   .0118435    -1.93   0.053    -.0461273    .0002982
        r384 |  -.0020833    .027336    -0.08   0.939    -.0556609    .0514943
        r390 |   .0014077   .0131993     0.11   0.915    -.0244625    .0272778
       lnp12 |  -.0362435   .0095648    -3.79   0.000    -.0549902   -.0174969
    lnp12coo |   .1152474   .0669735     1.72   0.085    -.0160184    .2465131
         cta |   .0271313   .0236163     1.15   0.251    -.0191557    .0734184
       _cons |    .004788   .0084557     0.57   0.571    -.0117849    .0213608
-------------+----------------------------------------------------------------
     sigma_u |   .1071807
     sigma_e |  .32327721
         rho |  .09903545   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. test lnp12 + lnp12coo = 0
 ( 1)  lnp12 + lnp12coo = 0

           chi2(  1) =    1.42
         Prob > chi2 =    0.2335
```

```
. xtreg w12 w12_1 lnp12 lnp12coo cta if ciiu1==7, fe robust

Fixed-effects (within) regression               Number of obs      =    207902
Group variable (i): i                           Number of groups   =      3704

R-sq:  within  = 0.4205                         Obs per group: min =         1
       between = 0.7027                                        avg =      56.1
       overall = 0.4550                                        max =       104

                                                F(3,204195)        =   7387.30
corr(u_i, Xb)  = 0.2119                         Prob > F           =    0.0000

------------------------------------------------------------------------------
             |               Robust
         w12 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       w12_1 |   .6482302   .0045438   142.66   0.000     .6393244     .657136
       lnp12 |  -.2594683   .0172038   -15.08   0.000    -.2931874   -.2257492
    lnp12coo |   .2640047   .0492188     5.36   0.000     .1675371    .3604724
         cta |  (dropped)
       _cons |  -.0083897    .000755   -11.11   0.000    -.0098694     -.00691
-------------+----------------------------------------------------------------
     sigma_u |  .15672759
     sigma_e |  .30482198
         rho |    .209087   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. test lnp12 + lnp12coo = 0
 ( 1)  lnp12 + lnp12coo = 0

       F(  1,204195) =    0.01
            Prob > F =    0.9219
```

```
. xtreg w12 w12_1 tramo2 tramo3 tramo4 r712 r721 lnp12 lnp12coo cta if
ciiu1==7, re robust

Random-effects GLS regression                   Number of obs      =    207902
Group variable (i): i                           Number of groups   =      3704

R-sq:  within  = 0.4208                         Obs per group: min =         1
       between = 0.6990                                        avg =      56.1
       overall = 0.4542                                        max =       104

Random effects u_i ~ Gaussian                   Wald chi2(9)       =  23358.26
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
             |               Robust
         w12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       w12_1 |   .6538926   .0044789   145.99   0.000     .6451141     .662671
      tramo2 |  -.0094968    .003093    -3.07   0.002     -.015559   -.0034347
      tramo3 |  -.0312946   .0064177    -4.88   0.000    -.0438731   -.0187161
      tramo4 |  -.1119776   .0261747    -4.28   0.000     -.163279   -.0606762
        r712 |   .0005121   .0229498     0.02   0.982    -.0444687    .0454928
        r721 |   -.005812   .0096583    -0.60   0.547    -.0247419    .0131179
       lnp12 |   -.270298   .0170661   -15.84   0.000     -.303747    -.236849
    lnp12coo |   .2646744   .0492131     5.38   0.000     .1682184    .3611303
         cta |   .0033116   .0116225     0.28   0.776     -.019468    .0260912
       _cons |  -.0077466   .0028398    -2.73   0.006    -.0133125   -.0021806
-------------+----------------------------------------------------------------
     sigma_u |  .12535607
     sigma_e |  .30473586
         rho |  .14472667   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. test lnp12 + lnp12coo = 0
 ( 1)  lnp12 + lnp12coo = 0

           chi2(  1) =    0.01
         Prob > chi2 =    0.9034
```

```
. xtreg w12 w12_1 lnp12 lnp12coo cta if ciiu1==9, fe robust

Fixed-effects (within) regression               Number of obs      =    170563
Group variable (i): i                           Number of groups   =      3224

R-sq:  within  = 0.4999                         Obs per group: min =         1
       between = 0.6745                                        avg =      52.9
       overall = 0.5400                                        max =       104

                                                F(3,167336)        =  10795.03
corr(u_i, Xb)  = 0.2058                         Prob > F           =    0.0000

------------------------------------------------------------------------------
             |               Robust
         w12 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       w12_1 |    .692289   .0050129   138.10   0.000     .6824639    .7021142
       lnp12 |   .3173024    .009263    34.25   0.000     .2991472    .3354577
    lnp12coo |  -.0419323    .065836    -0.64   0.524    -.1709694    .0871049
         cta |  (dropped)
       _cons |  -.0042491   .0006311    -6.73   0.000     -.005486   -.0030122
-------------+----------------------------------------------------------------
     sigma_u |  .14754018
     sigma_e |   .2488528
         rho |  .26008592   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. test lnp12 + lnp12coo = 0
 ( 1)  lnp12 + lnp12coo = 0

       F(  1,167336) =   17.69
            Prob > F =    0.0000
```

```
. xtreg w12 w12_1 tramo2 tramo3 tramo4 r929 r931 r932 r933 r934 r935 r951 r959
lnp12 lnp12coo cta if ciiu1==9, re robust

Random-effects GLS regression                   Number of obs      =    170563
Group variable (i): i                           Number of groups   =      3224

R-sq:  within  = 0.5001                         Obs per group: min =         1
       between = 0.6787                                        avg =      52.9
       overall = 0.5404                                        max =       104

Random effects u_i ~ Gaussian                   Wald chi2(15)      =  32811.23
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
             |               Robust
         w12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       w12_1 |   .6970999   .0049759   140.10   0.000     .6873474    .7068524
      tramo2 |  -.0163577   .0028485    -5.74   0.000    -.0219406   -.0107747
      tramo3 |  -.0126667   .0048214    -2.63   0.009    -.0221165    -.003217
      tramo4 |  -.0200398   .0100334    -2.00   0.046    -.0397049   -.0003748
        r929 |   .0368483   .0669183     0.55   0.582    -.0943091    .1680057
        r931 |   .0219284   .0140583     1.56   0.119    -.0056253    .0494822
        r932 |   .0336503   .0605916     0.56   0.579    -.0851071    .1524077
        r933 |   .0337612   .0128296     2.63   0.009     .0086156    .0589068
        r934 |   .0403068   .0162622     2.48   0.013     .0084334    .0721801
        r935 |   .0529127   .0555438     0.95   0.341    -.0559512    .1617766
        r951 |    .040291   .0129917     3.10   0.002     .0148277    .0657544
        r959 |   .0204285   .0143636     1.42   0.155    -.0077237    .0485807
       lnp12 |   .3134516   .0091729    34.17   0.000      .295473    .3314301
    lnp12coo |  -.1032244   .0702878    -1.47   0.142    -.2409859     .034537
         cta |   .0093993   .0261441     0.36   0.719    -.0418421    .0606407
       _cons |  -.0346806   .0121248    -2.86   0.004    -.0584449   -.0109163
-------------+----------------------------------------------------------------
     sigma_u |  .12920263
     sigma_e |  .24881331
         rho |  .21237947   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. test lnp12 + lnp12coo = 0
 ( 1)  lnp12 + lnp12coo = 0

           chi2(  1) =    9.04
         Prob > chi2 =    0.0026
```

```
. xtreg w12 w12_1 lnp12 lnp12coo cta if sindicato==4, fe robust

Fixed-effects (within) regression               Number of obs      =     90542
Group variable (i): i                           Number of groups   =      1615

R-sq:  within  = 0.5021                         Obs per group: min =         1
       between = 0.7334                                        avg =      56.1
       overall = 0.5407                                        max =       104

                                                F(3,88924)         =   3014.04
corr(u_i, Xb)  = 0.2324                         Prob > F           =    0.0000

------------------------------------------------------------------------------
             |               Robust
         w12 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       w12_1 |   .7137385    .007557    94.45   0.000     .6989268    .7285503
       lnp12 |   .0715553   .0114255     6.26   0.000     .0491615    .0939492
    lnp12coo |   .0211979   .0583574     0.36   0.716     -.093182    .1355778
         cta |  (dropped)
       _cons |  -.0107817   .0009392   -11.48   0.000    -.0126225   -.0089408
-------------+----------------------------------------------------------------
     sigma_u |  .14164828
     sigma_e |  .27478525
         rho |  .20994025   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. lincom lnp12 + lnp12coo

 ( 1)  lnp12 + lnp12coo = 0

------------------------------------------------------------------------------
         w12 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |   .0927532   .0572412     1.62   0.105     -.019439    .2049454
------------------------------------------------------------------------------
```

```
. xtreg w12 w12_1 lnp12 lnp12coo cta if sindicato==1, fe robust

Fixed-effects (within) regression               Number of obs      =    279285
Group variable (i): i                           Number of groups   =      6002

R-sq:  within  = 0.4415                         Obs per group: min =         1
       between = 0.6662                                        avg =      46.5
       overall = 0.4842                                        max =       104

                                                F(3,273280)        =  11387.23
corr(u_i, Xb)  = 0.2143                         Prob > F           =    0.0000

------------------------------------------------------------------------------
             |               Robust
         w12 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       w12_1 |   .6603138   .0043368   152.26   0.000     .6518138    .6688139
       lnp12 |   .3364667   .0096515    34.86   0.000     .3175501    .3553834
    lnp12coo |   .0759527   .1107821     0.69   0.493    -.1411772    .2930826
         cta |  (dropped)
       _cons |  -.0085868   .0005837   -14.71   0.000    -.0097308   -.0074428
-------------+----------------------------------------------------------------
     sigma_u |  .16296595
     sigma_e |  .29404352
         rho |  .23498513   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. lincom lnp12 + lnp12coo

 ( 1)  lnp12 + lnp12coo = 0

------------------------------------------------------------------------------
         w12 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |   .4124194   .1104796     3.73   0.000     .1958824    .6289564
------------------------------------------------------------------------------
```

```
. xtreg w12 w12_1 lnp12 lnp12coo cta tramo2 tramo3 tramo4 r3 r5 r6 r7 r9 if
sindicato==4, re robust

Random-effects GLS regression                   Number of obs      =     90542
Group variable (i): i                           Number of groups   =      1615

R-sq:  within  = 0.5023                         Obs per group: min =         1
       between = 0.7311                                        avg =      56.1
       overall = 0.5404                                        max =       104

Random effects u_i ~ Gaussian                   Wald chi2(9)       =   9481.17
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
             |               Robust
         w12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       w12_1 |   .7191114   .0075093    95.76   0.000     .7043934    .7338294
       lnp12 |   .0723163   .0113932     6.35   0.000     .0499861    .0946465
    lnp12coo |    .029768   .0556631     0.53   0.593    -.0793297    .1388657
         cta |   .0121909   .0267254     0.46   0.648    -.0401898    .0645717
      tramo2 |  -.0122687   .0043222    -2.84   0.005      -.02074   -.0037974
      tramo3 |  -.0106933   .0067292    -1.59   0.112    -.0238823    .0024956
      tramo4 |   .0313716   .0184443     1.70   0.089    -.0047785    .0675217
          r3 |   .0056288   .0204262     0.28   0.783    -.0344057    .0456633
          r5 |  (dropped)
          r6 |  (dropped)
          r7 |  (dropped)
          r9 |   .0056532   .0198813     0.28   0.776    -.0333135    .0446199
       _cons |  -.0130931   .0194982    -0.67   0.502     -.051309    .0251227
-------------+----------------------------------------------------------------
     sigma_u |  .11816002
     sigma_e |  .27474414
         rho |  .15609161   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. lincom lnp12 + lnp12coo

 ( 1)  lnp12 + lnp12coo = 0

------------------------------------------------------------------------------
         w12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |   .1020843    .054501     1.87   0.061    -.0047357    .2089043
------------------------------------------------------------------------------
```

```
. xtreg w12 w12_1 lnp12 lnp12coo cta tramo2 tramo3 tramo4 r3 r5 r6 r7 r9 if
sindicato==1, re robust

Random-effects GLS regression                   Number of obs      =    279285
Group variable (i): i                           Number of groups   =      6002

R-sq:  within  = 0.4416                         Obs per group: min =         1
       between = 0.6692                                        avg =      46.5
       overall = 0.4848                                        max =       104

Random effects u_i ~ Gaussian                   Wald chi2(11)      =  35733.12
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
             |               Robust
         w12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       w12_1 |   .6670474   .0042616   156.52   0.000     .6586948    .6754001
       lnp12 |    .330655   .0094975    34.81   0.000     .3120401    .3492698
    lnp12coo |  -.1383949   .1108081    -1.25   0.212    -.3555748     .078785
         cta |  -.0131995   .0384822    -0.34   0.732    -.0886232    .0622241
      tramo2 |  -.0114234   .0024494    -4.66   0.000    -.0162241   -.0066226
      tramo3 |  -.0187028   .0041767    -4.48   0.000    -.0268891   -.0105166
      tramo4 |  -.0546282   .0101165    -5.40   0.000    -.0744562   -.0348001
          r3 |   .0120299   .0105167     1.14   0.253    -.0085825    .0326422
          r5 |  (dropped)
          r6 |  -.0224831   .0060784    -3.70   0.000    -.0343966   -.0105695
          r7 |  -.0186382   .0258442    -0.72   0.471    -.0692919    .0320154
          r9 |   .0018642   .0053387     0.35   0.727    -.0085995    .0123278
       _cons |  -.0058969   .0042832    -1.38   0.169    -.0142918    .0024981
-------------+----------------------------------------------------------------
     sigma_u |  .13528778
     sigma_e |  .29399962
         rho |  .17474734   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. lincom lnp12 + lnp12coo

 ( 1)  lnp12 + lnp12coo = 0

------------------------------------------------------------------------------
         w12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |   .1922601   .1104818     1.74   0.082    -.0242804    .4088005
------------------------------------------------------------------------------
```

```
. xtreg w12_asal w12_asal_1 lnp12 lnp12coo cta, fe robust

Fixed-effects (within) regression               Number of obs      =    852512
Group variable (i): i                           Number of groups   =     16766

R-sq:  within  = 0.4408                         Obs per group: min =         1
       between = 0.6437                                        avg =      50.8
       overall = 0.4786                                        max =       104

                                                F(3,835743)        =  24044.42
corr(u_i, Xb)  = 0.2140                         Prob > F           =    0.0000

------------------------------------------------------------------------------
             |               Robust
   w12_asal |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  w12_asal_1 |   .6692554   .0025117   266.45   0.000     .6643325    .6741783
       lnp12 |   .0685232   .0043404    15.79   0.000     .0600163    .0770302
    lnp12coo |   .0022057   .0747743     0.03   0.976    -.1443496    .1487609
         cta |  (dropped)
       _cons |   -.014161   .0003249   -43.59   0.000    -.0147977   -.0135243
-------------+----------------------------------------------------------------
     sigma_u |  .16144999
     sigma_e |  .28896408
         rho |  .23790243   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. lincom lnp12 + lnp12coo

 ( 1)  lnp12 + lnp12coo = 0

------------------------------------------------------------------------------
   w12_asal |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |   .0707289   .0746514     0.95   0.343    -.0755853    .2170432
------------------------------------------------------------------------------
```

```
. xtreg w12_asal w12_asal_1 tramo2 tramo3 tramo4 r3 r5 r6 r7 r9 lnp12 lnp12coo
cta, re robust

Random-effects GLS regression                   Number of obs      =    852512
Group variable (i): i                           Number of groups   =     16766

R-sq:  within  = 0.4409                         Obs per group: min =         1
       between = 0.6431                                        avg =      50.8
       overall = 0.4785                                        max =       104

Random effects u_i ~ Gaussian                   Wald chi2(12)      =  75515.84
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
             |               Robust
    w12_asal |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  w12_asal_1 |   .6745361   .0024765   272.37   0.000     .6696822    .6793899
      tramo2 |  -.0105764   .0014347    -7.37   0.000    -.0133883   -.0077645
      tramo3 |  -.0140679   .0024763    -5.68   0.000    -.0189213   -.0092145
      tramo4 |   -.030428    .006281    -4.84   0.000    -.0427385   -.0181174
          r3 |  -.0005831   .0054709    -0.11   0.915     -.011306    .0101397
          r5 |  -.0031441   .0218349    -0.14   0.886    -.0459397    .0396516
          r6 |   -.010031   .0048465    -2.07   0.038    -.0195301    -.000532
          r7 |  -.0033616   .0051487    -0.65   0.514     -.013453    .0067297
          r9 |   .0018492   .0049768     0.37   0.710    -.0079051    .0116035
       lnp12 |   .0689689   .0043076    16.01   0.000     .0605261    .0774117
    lnp12coo |  -.0541198   .0826213    -0.66   0.512    -.2160546     .107815
         cta |   .0261186   .0190584     1.37   0.171    -.0112351    .0634723
       _cons |   -.012712   .0042742    -2.97   0.003    -.0210892   -.0043348
-------------+----------------------------------------------------------------
     sigma_u |  .13701418
     sigma_e |  .28894331
         rho |  .18357793   (fraction of variance due to u_i)
------------------------------------------------------------------------------

lincom lnp12 + lnp12coo

 ( 1)  lnp12 + lnp12coo = 0

------------------------------------------------------------------------------
    w12_asal |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |   .0148491    .082513     0.18   0.857    -.1468734    .1765716
------------------------------------------------------------------------------
```

```
. xtreg wo12 wo12_1 lnp12 lnp12coo cta, fe robust

Fixed-effects (within) regression               Number of obs      =    862191
Group variable (i): i                           Number of groups   =     16841

R-sq:  within  = 0.4432                         Obs per group: min =         1
       between = 0.6461                                        avg =      51.2
       overall = 0.4812                                        max =       104

                                                F(3,845347)        =  24449.43
corr(u_i, Xb)  = 0.2153                         Prob > F           =    0.0000

------------------------------------------------------------------------------
             |               Robust
        wo12 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      wo12_1 |   .6707651    .002496   268.74   0.000     .6658731    .6756572
       lnp12 |   .0682998   .0043392    15.74   0.000     .0597952    .0768045
    lnp12coo |   .0360123    .038079     0.95   0.344    -.0386213    .1106459
         cta |  (dropped)
       _cons |  -.0141584   .0003224   -43.91   0.000    -.0147904   -.0135265
-------------+----------------------------------------------------------------
     sigma_u |  .16106727
     sigma_e |  .28815983
         rho |  .23805251   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. lincom lnp12 + lnp12coo

 ( 1)  lnp12 + lnp12coo = 0

------------------------------------------------------------------------------
        wo12 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |   .1043121   .0378298     2.76   0.006      .030167    .1784573
------------------------------------------------------------------------------
```

```
. xtreg wo12 wo12_1 tramo2 tramo3 tramo4 r3 r5 r6 r7 r9 lnp12 lnp12coo cta, re
robust

Random-effects GLS regression                   Number of obs      =    862191
Group variable (i): i                           Number of groups   =     16841

R-sq:  within  = 0.4433                         Obs per group: min =         1
       between = 0.6454                                        avg =      51.2
       overall = 0.4811                                        max =       104

Random effects u_i ~ Gaussian                   Wald chi2(12)      =  76791.44
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
             |               Robust
        wo12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      wo12_1 |   .6760142   .0024609   274.70   0.000      .671191    .6808375
      tramo2 |  -.0107293    .001432    -7.49   0.000     -.013536   -.0079226
      tramo3 |  -.0144705   .0024786    -5.84   0.000    -.0193284   -.0096126
      tramo4 |  -.0303457   .0062635    -4.84   0.000     -.042622   -.0180694
          r3 |  -.0005569   .0054625    -0.10   0.919    -.0112632    .0101493
          r5 |  -.0020182   .0215193    -0.09   0.925    -.0441952    .0401587
          r6 |  -.0099516   .0048477    -2.05   0.040    -.0194529   -.0004503
          r7 |   -.003409   .0051359    -0.66   0.507    -.0134752    .0066572
          r9 |   .0019773   .0049743     0.40   0.691    -.0077721    .0117267
       lnp12 |   .0687465   .0043067    15.96   0.000     .0603054    .0771876
    lnp12coo |   .0230404   .0375465     0.61   0.539    -.0505494    .0966302
         cta |   .0091118   .0106181     0.86   0.391    -.0116993    .0299228
       _cons |  -.0126703   .0042737    -2.96   0.003    -.0210465    -.004294
-------------+----------------------------------------------------------------
     sigma_u |     .13691
     sigma_e |  .28813882
         rho |  .18418647   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. lincom lnp12 + lnp12coo

 ( 1)  lnp12 + lnp12coo = 0

------------------------------------------------------------------------------
        wo12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |   .0917869   .0373014     2.46   0.014     .0186775    .1648964
------------------------------------------------------------------------------
```

```
. xtreg w12 w12_1 lnp12 lnp12coo crisis crisis1, fe robust

Fixed-effects (within) regression               Number of obs      =    862414
Group variable (i): i                           Number of groups   =     16841

R-sq:  within  = 0.4484                         Obs per group: min =         1
       between = 0.6455                                        avg =      51.2
       overall = 0.4852                                        max =       104

                                                F(5,845568)        =  23508.56
corr(u_i, Xb)  = 0.2075                         Prob > F           =    0.0000

------------------------------------------------------------------------------
             |               Robust
         w12 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       w12_1 |    .657655   .0025587   257.03   0.000     .6526401      .66267
       lnp12 |   .0151878   .0043513     3.49   0.000     .0066595    .0237162
    lnp12coo |   .0783131   .0376169     2.08   0.037     .0045852    .1520409
      crisis |   -.080114   .0010394   -77.08   0.000    -.0821511   -.0780769
     crisis1 |  -.0129152   .0063554    -2.03   0.042    -.0253717   -.0004588
       _cons |  -.0014992   .0003324    -4.51   0.000    -.0021507   -.0008476
-------------+----------------------------------------------------------------
     sigma_u |  .16153411
     sigma_e |  .28679041
         rho |  .24084167   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. lincom lnp12 + lnp12coo

 ( 1)  lnp12 + lnp12coo = 0

------------------------------------------------------------------------------
         w12 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |   .0935009   .0373642     2.50   0.012     .0202683    .1667335
------------------------------------------------------------------------------

. lincom crisis + crisis1

 ( 1)  crisis + crisis1 = 0

------------------------------------------------------------------------------
         w12 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |  -.0930293   .0063159   -14.73   0.000    -.1054083   -.0806502
------------------------------------------------------------------------------
```

Anexo 8: Salidas de Stata para el modelo de determinación del nivel de empleo

```
. xtivreg E12 E12_1 w12 w12coo lnp12 lnp12coo (w12 w12coo = w12_2 w12coo_2),
fe

Fixed-effects (within) IV regression         Number of obs      =       842145
Group variable: i                            Number of groups   =        16539

R-sq:  within  = 0.6988                      Obs per group: min =            1
       between = 0.9305                                     avg =         50.9
       overall = 0.7457                                     max =          103

                                             Wald chi2(5)       =  1.92e+06
corr(u_i, Xb)  = 0.3014                      Prob > chi2        =    0.0000

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         w12 |  -.0440409   .0006003   -73.36   0.000    -.0452175   -.0428642
      w12coo |   .0354918   .0046392     7.65   0.000     .0263991    .0445845
       E12_1 |   .8322189   .0006051  1375.24   0.000     .8310328    .8334049
         w12 |  (dropped)
      w12coo |  (dropped)
       lnp12 |   .0214774   .0031214     6.88   0.000     .0153595    .0275953
    lnp12coo |  -.0157965   .0247476    -0.64   0.523    -.0643009     .032708
       _cons |  -.0037269   .0002267   -16.44   0.000    -.0041712   -.0032826
-------------+----------------------------------------------------------------
     sigma_u |   .0888616
     sigma_e |  .20688664
         rho |  .15575194   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F  test that all u_i=0:     F(16538,825601) =     1.57    Prob > F    = 0.0000
------------------------------------------------------------------------------
Instrumented:   w12 w12coo
Instruments:    E12_1 w12 w12coo lnp12 lnp12coo w12_2 w12coo_2

. est store fijo

. lincom lnp12+lnp12coo
 ( 1)  lnp12 + lnp12coo = 0

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |    .005681   .0245499     0.23   0.817     -.042436    .0537979
------------------------------------------------------------------------------

. lincom w12+w12coo
 ( 1)  w12 + w12coo = 0

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |  -.0085491   .0046001    -1.86   0.063     -.017565    .0004669
------------------------------------------------------------------------------
```

```
. xtivreg E12 E12_1 tramo2 tramo3 tramo4 r3 r5 r6 r7 r9 w12 w12coo lnp12
lnp12coo (w12 w12coo = w12_2 w12coo_2), re

G2SLS random-effects IV regression              Number of obs      =    842145
Group variable: i                               Number of groups   =     16539
R-sq:  within  = 0.7000                         Obs per group: min =         1
       between = 0.9299                                        avg =      50.9
       overall = 0.7463                                        max =       103
                                                Wald chi2(13)      =  2.48e+06
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000
------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         w12 |  -.0353382   .0005721   -61.77   0.000    -.0364594    -.034217
      w12coo |   .0353036   .0042843     8.24   0.000     .0269065    .0437006
       E12_1 |   .8577771   .0005539  1548.54   0.000     .8566915    .8588628
      tramo2 |   .0198487    .000532    37.31   0.000      .018806    .0208913
      tramo3 |   .0220895   .0007846    28.15   0.000     .0205517    .0236272
      tramo4 |   .0236755   .0015709    15.07   0.000     .0205965    .0267544
          r3 |  -.0047198   .0009288    -5.08   0.000    -.0065401   -.0028995
          r5 |  -.0011098   .0030758    -0.36   0.718    -.0071383    .0049186
          r6 |   .0006899   .0008823     0.78   0.434    -.0010393    .0024191
          r7 |   .0074282   .0009048     8.21   0.000     .0056547    .0092016
          r9 |   .0029106   .0009174     3.17   0.002     .0011126    .0047087
         w12 |  (dropped)
      w12coo |  (dropped)
       lnp12 |   .0197778   .0028928     6.84   0.000      .014108    .0254476
    lnp12coo |  -.0454336   .0221516    -2.05   0.040    -.0888499   -.0020173
       _cons |  -.0135673   .0007959   -17.05   0.000    -.0151272   -.0120074
-------------+----------------------------------------------------------------
     sigma_u |          0
     sigma_e |  .20502544
         rho |          0   (fraction of variance due to u_i)
------------------------------------------------------------------------------
Instrumented:   w12 w12coo
Instruments:    E12_1 tramo2 tramo3 tramo4 r3 r5 r6 r7 r9 w12 w12coo lnp12
lnp12coo w12_2 w12coo_2

. hausman fijo

                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |      fijo           .          Difference          S.E.
-------------+------------------------------------------------------------
         w12 |   -.0440409    -.0353382       -.0087027        .0001821
      w12coo |    .0354918     .0353036        .0001882        .0017797
       E12_1 |    .8322189     .8577771       -.0255583        .0002436
       lnp12 |    .0214774     .0197778        .0016996        .0011726
    lnp12coo |   -.0157965    -.0454336        .0296371        .0110342
------------------------------------------------------------------------------
                        b = consistent under Ho and Ha; obtained from xtivreg
         B = inconsistent under Ha, efficient under Ho; obtained from xtivreg
    Test:  Ho:  difference in coefficients not systematic

                chi2(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                        =    11772.19
              Prob>chi2 =      0.0000

. lincom lnp12+lnp12coo

 ( 1)  lnp12 + lnp12coo = 0

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |  -.0256558   .0219797    -1.17   0.243    -.0687351    .0174236
------------------------------------------------------------------------------
```

```
. lincom w12 + w12coo

 ( 1)  w12 + w12coo = 0

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |  -.0000346   .0042465    -0.01   0.993    -.0083576    .0082884
------------------------------------------------------------------------------
```

Test de endogeneidad de todas las empresas

```
. xtreg E12 E12_1 w12 w12coo lnp12 lnp12coo, fe robust

Fixed-effects (within) regression               Number of obs      =    862414
Group variable (i): i                           Number of groups   =     16841

R-sq:  within  = 0.6969                         Obs per group: min =         1
       between = 0.8940                                        avg =      51.2
       overall = 0.7433                                        max =       104

                                                F(5,845568)        =  63679.89
corr(u_i, Xb)  = 0.2856                         Prob > F           =    0.0000

------------------------------------------------------------------------------
             |               Robust
         E12 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       E12_1 |   .8272691   .0015103   547.74   0.000     .8243089    .8302293
         w12 |  -.0440485    .001048   -42.03   0.000    -.0461026   -.0419944
      w12coo |   .0359515   .0091997     3.91   0.000     .0179204    .0539826
       lnp12 |   .0232794   .0031123     7.48   0.000     .0171793    .0293794
    lnp12coo |  -.0155125   .0138282    -1.12   0.262    -.0426154    .0115904
       _cons |  -.0041849   .0002269   -18.44   0.000    -.0046296   -.0037401
-------------+----------------------------------------------------------------
     sigma_u |  .10567778
     sigma_e |  .20982948
         rho |    .202329   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. hausman endo

                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |      endo           .          Difference          S.E.
-------------+----------------------------------------------------------------
         w12 |   -.0440409    -.0440485        7.63e-06               .
      w12coo |    .0354918     .0359515       -.0004597               .
       E12_1 |    .8322189     .8272691        .0049498               .
       lnp12 |    .0214774     .0232794        -.001802        .0002382
    lnp12coo |   -.0157965    -.0155125        -.000284        .0205238
------------------------------------------------------------------------------
                        b = consistent under Ho and Ha; obtained from xtivreg
             B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =        4.59
                Prob>chi2 =      0.4677
                (V_b-V_B is not positive definite)
```

Test de endogeneidad Coops

```
. xtivreg E12 E12_1 w12 lnp12 (w12 = w12_2) if cta==1, fe

Fixed-effects (within) IV regression         Number of obs      =        14092
Group variable: i                            Number of groups   =          207

R-sq:  within  = 0.5651                      Obs per group: min =            1
       between = 0.9195                                     avg =         68.1
       overall = 0.6119                                     max =          103

                                             Wald chi2(3)       =  18216.12
corr(u_i, Xb)  = 0.2741                      Prob > chi2        =    0.0000

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         w12 |  -.0053709   .0037437    -1.43   0.151    -.0127084    .0019666
       E12_1 |    .744062   .0055456   134.17   0.000     .7331928    .7549312
         w12 |  (dropped)
       lnp12 |   .0009871   .0199535     0.05   0.961    -.0381211    .0400953
       _cons |  -.0058313   .0014452    -4.03   0.000    -.0086639   -.0029986
-------------+----------------------------------------------------------------
     sigma_u |  .07102217
     sigma_e |  .16813378
         rho |   .1514163   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F  test that all u_i=0:     F(206,13882) =     2.08       Prob > F    = 0.0000
------------------------------------------------------------------------------
Instrumented:   w12
Instruments:    E12_1 w12 lnp12 w12_2

. est store endo

. xtreg E12 E12_1 w12 lnp12  if cta==1, fe

Fixed-effects (within) regression               Number of obs      =     14338
Group variable (i): i                           Number of groups   =       208

R-sq:  within  = 0.5840                         Obs per group: min =         1
       between = 0.9419                                        avg =      68.9
       overall = 0.6322                                        max =       104

                                                F(3,14127)         =   6609.87
corr(u_i, Xb)  = 0.2711                         Prob > F           =    0.0000

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       E12_1 |    .759562   .0053963   140.76   0.000     .7489846    .7701394
         w12 |  -.0063943   .0036408    -1.76   0.079    -.0135307     .000742
       lnp12 |   .0034162    .019813     0.17   0.863    -.0354198    .0422523
       _cons |  -.0057499   .0014359    -4.00   0.000    -.0085645   -.0029353
-------------+----------------------------------------------------------------
     sigma_u |  .06220165
     sigma_e |  .16849112
         rho |  .11993953   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(207, 14127) =     1.82          Prob > F = 0.0000
```

```
. hausman endo

                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |      endo          .          Difference          S.E.
-------------+------------------------------------------------------------------
         w12 |   -.0053709    -.0063943        .0010234        .0008718
       E12_1 |     .744062      .759562          -.0155        .0012782
       lnp12 |    .0009871     .0034162       -.0024291        .0023642
------------------------------------------------------------------------------
                        b = consistent under Ho and Ha; obtained from xtivreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(3) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =      159.41
                Prob>chi2 =      0.0000
```

```
. ivreg E12 E12_1 tramo2 tramo3 tramo4 r312 r313 r321 r322 r324 r342 r355 r369
r371 r384 r390 r520 r571 r621 r628 r629 r631 r711 r712 r721 r832 r921 r929
r931 r932 r933 r934 r935 r951 r959 w12 w12coo lnp12 lnp12coo (w12 w12coo =
w12_2 w12coo_2), cluster (i) robust

Instrumental variables (2SLS) regression              Number of obs =  842145
                                                      F( 38, 16538) = 8689.55
                                                      Prob > F      =  0.0000
                                                      R-squared     =  0.7465
Number of clusters (i) = 16539                        Root MSE      =  .20777

------------------------------------------------------------------------------
             |               Robust
         E12 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         w12 |   -.035459   .0017868   -19.84   0.000    -.0389613   -.0319567
      w12coo |    .035878    .009064     3.96   0.000     .0181115    .0536444
       E12_1 |   .8573689   .0019775   433.57   0.000     .8534928    .8612449
      tramo2 |   .0211377    .000654    32.32   0.000     .0198558    .0224197
      tramo3 |   .0244468   .0011174    21.88   0.000     .0222565    .0266371
      tramo4 |   .0268903   .0021809    12.33   0.000     .0226156     .031165
        r312 |   .0055382   .0028324     1.96   0.051    -.0000136      .01109
        r313 |   .0119161    .002708     4.40   0.000     .0066081    .0172241
        r321 |  -.0068739   .0028835    -2.38   0.017    -.0125258    -.001222
        r322 |  -.0031631   .0027148    -1.17   0.244    -.0084845    .0021582
        r324 |  -.0097814   .0035609    -2.75   0.006     -.016761   -.0028017
        r342 |   .0073914   .0023597     3.13   0.002     .0027662    .0120166
        r355 |   .0008289   .0053078     0.16   0.876    -.0095749    .0112327
        r369 |   .0020428   .0034358     0.59   0.552    -.0046917    .0087774
        r371 |   .0022109   .0028639     0.77   0.440    -.0034027    .0078245
        r384 |   .0088111   .0048841     1.80   0.071    -.0007623    .0183844
        r390 |   .0069974   .0034655     2.02   0.043     .0002047    .0137901
        r520 |   .0073631   .0049492     1.49   0.137    -.0023379     .017064
        r571 |   .0039578   .0055369     0.71   0.475    -.0068951    .0148107
        r621 |   .0119537   .0022566     5.30   0.000     .0075306    .0163769
        r628 |   .0048008   .0024444     1.96   0.050     9.43e-06    .0095921
        r629 |   .0124195   .0022769     5.45   0.000     .0079566    .0168824
        r631 |   .0023872   .0022452     1.06   0.288    -.0020135     .006788
        r711 |   .0160175   .0021991     7.28   0.000      .011707    .0203281
        r712 |   .0118652   .0043025     2.76   0.006     .0034318    .0202985
        r721 |   .0021317   .0032504     0.66   0.512    -.0042394    .0085028
        r832 |   .0072016   .0023494     3.07   0.002     .0025964    .0118068
        r921 |  -.0018527   .0035936    -0.52   0.606    -.0088965    .0051911
        r929 |  -.0065883   .0214327    -0.31   0.759    -.0485986     .035422
        r931 |    .010038   .0024727     4.06   0.000     .0051913    .0148848
        r932 |   .0214776   .0064177     3.35   0.001     .0088981    .0340571
        r933 |   .0140163   .0023326     6.01   0.000     .0094442    .0185884
        r934 |   .0100292   .0029991     3.34   0.001     .0041507    .0159077
        r935 |   .0179817   .0044547     4.04   0.000     .0092501    .0267134
        r951 |   .0099991   .0023011     4.35   0.000     .0054887    .0145094
        r959 |   .0097299   .0026511     3.67   0.000     .0045334    .0149264
         w12 |  (dropped)
      w12coo |  (dropped)
       lnp12 |   .0175779   .0037923     4.64   0.000     .0101446    .0250111
    lnp12coo |  -.0426125   .0199361    -2.14   0.033    -.0816893   -.0035356
       _cons |  -.0216332   .0021875    -9.89   0.000     -.025921   -.0173453
------------------------------------------------------------------------------
Instrumented:  w12 w12coo
Instruments:   E12_1 tramo2 tramo3 tramo4 r312
               r313 r321 r322 r324 r342 r355 r369
               r371 r384 r390 r520 r571 r621 r628
               r629 r631 r711 r712 r721 r832 r921
               r929 r931 r932 r933 r934 r935 r951
               r959 w12 w12coo lnp12 lnp12coo
               w12_2 w12coo_2
------------------------------------------------------------------------------

. lincom lnp12 + lnp12coo
```

```
 ( 1)  lnp12 + lnp12coo = 0

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |  -.0250346    .019618    -1.28   0.202     -.063488    .0134188
------------------------------------------------------------------------------

. lincom w12 + w12coo

 ( 1)  w12 + w12coo = 0

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |   .0004189   .0088756     0.05   0.962    -.0169782     .017816
------------------------------------------------------------------------------
```

```
. xtivreg E12 E12_1 w12 w12coo lnp12 lnp12coo (w12 w12coo = w12_2 w12coo_2) if
ciiu1==3, fe

Fixed-effects (within) IV regression         Number of obs      =       156109
Group variable: i                            Number of groups   =         2893

R-sq:  within  = 0.7292                      Obs per group: min =            1
       between = 0.9497                                     avg =         54.0
       overall = 0.7821                                     max =          103

                                             Wald chi2(5)       = 412991.28
corr(u_i, Xb)  = 0.3447                      Prob > chi2        =    0.0000

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         w12 |  -.0198192   .0011344   -17.47   0.000    -.0220426   -.0175959
      w12coo |   .0080238   .0083231     0.96   0.335    -.0082891    .0243367
       E12_1 |    .856315   .0013384   639.80   0.000     .8536917    .8589382
         w12 |  (dropped)
      w12coo |  (dropped)
       lnp12 |  -.0128799   .0056554    -2.28   0.023    -.0239642   -.0017956
    lnp12coo |  -.0131228   .0333098    -0.39   0.694    -.0784088    .0521631
       _cons |  -.0061425   .0004866   -12.62   0.000    -.0070961   -.0051888
-------------+----------------------------------------------------------------
     sigma_u |  .08420132
     sigma_e |  .19045679
         rho |  .16349783   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F  test that all u_i=0:     F(2892,153211) =     1.67     Prob > F    = 0.0000
------------------------------------------------------------------------------
Instrumented:   w12 w12coo
Instruments:    E12_1 w12 w12coo lnp12 lnp12coo w12_2 w12coo_2

. test lnp12 + lnp12coo = 0
 ( 1)  lnp12 + lnp12coo = 0

           chi2(  1) =    0.63
         Prob > chi2 =    0.4283

. test w12 + w12coo = 0
 ( 1)  w12 + w12coo = 0

           chi2(  1) =    2.05
         Prob > chi2 =    0.1526
```

```
. xtivreg E12 E12_1 tramo2 tramo3 tramo4 r312 r313 r321 r322 r324 r342 r355
r369 r371 r384 r390 w12 w12coo lnp12 lnp12coo (w12 w12coo = w12_2 w12coo_2) if
ciiu1==3, re

G2SLS random-effects IV regression              Number of obs      =    156109
Group variable: i                               Number of groups   =      2893

R-sq:  within  = 0.7306                         Obs per group: min =         1
       between = 0.9490                                        avg =      54.0
       overall = 0.7828                                        max =       103

                                                Wald chi2(19)      = 561161.39
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         w12 |  (dropped)
      w12coo |   .0061088   .0080624     0.76   0.449    -.0096933    .0219109
       E12_1 |   .8832766   .0011966   738.13   0.000     .8809312     .885622
      tramo2 |   .0196627   .0011141    17.65   0.000     .0174792    .0218463
      tramo3 |   .0205528   .0014203    14.47   0.000      .017769    .0233367
      tramo4 |   .0222056   .0025276     8.79   0.000     .0172517    .0271596
        r312 |   .0040669   .0022924     1.77   0.076    -.0004262      .00856
        r313 |   .0097259   .0022402     4.34   0.000     .0053352    .0141165
        r321 |  -.0054387    .002138    -2.54   0.011    -.0096292   -.0012482
        r322 |   -.003627    .002022    -1.79   0.073    -.0075901    .0003361
        r324 |  -.0085911   .0028281    -3.04   0.002    -.0141342   -.0030481
        r342 |    .006706   .0019044     3.52   0.000     .0029735    .0104385
        r355 |   .0009709    .004604     0.21   0.833    -.0080527    .0099945
        r369 |     .00247   .0033875     0.73   0.466    -.0041693    .0091094
        r371 |   .0028963    .002361     1.23   0.220    -.0017313    .0075238
        r384 |   .0082986   .0037003     2.24   0.025     .0010461    .0155511
        r390 |   .0059427    .002851     2.08   0.037     .0003548    .0115306
         w12 |  -.0140522   .0010905   -12.89   0.000    -.0161895   -.0119149
      w12coo |  (dropped)
       lnp12 |  -.0012193   .0054312    -0.22   0.822    -.0118644    .0094257
    lnp12coo |  -.0090533   .0323749    -0.28   0.780     -.072507    .0544004
       _cons |  -.0190482   .0017437   -10.92   0.000    -.0224658   -.0156305
-------------+----------------------------------------------------------------
     sigma_u |          0
     sigma_e |  .18843233
         rho |          0   (fraction of variance due to u_i)
------------------------------------------------------------------------------
Instrumented:   w12 w12coo
Instruments:    E12_1 tramo2 tramo3 tramo4 r312 r313 r321 r322 r324 r342 r355
r369 r371 r384 r390 w12 w12coo lnp12 lnp12coo w12_2 w12coo_2

. test lnp12 + lnp12coo = 0
 ( 1)  lnp12 + lnp12coo = 0

           chi2(  1) =    0.10
         Prob > chi2 =    0.7476

. test w12 + w12coo = 0
 ( 1)  w12 + w12coo = 0
           chi2(  1) =    0.57
         Prob > chi2 =    0.4486
```

```
. xtivreg E12 E12_1 w12 w12coo lnp12 lnp12coo (w12 w12coo = w12_2 w12coo_2) if
ciiu1==7, fe

Fixed-effects (within) IV regression         Number of obs      =       203271
Group variable: i                            Number of groups   =         3645

R-sq:  within  = 0.6792                      Obs per group: min =            1
       between = 0.9365                                     avg =         55.8
       overall = 0.7167                                     max =          103

                                             Wald chi2(5)       = 424558.37
corr(u_i, Xb)  = 0.2739                      Prob > chi2        =    0.0000

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         w12 |  -.0629298   .0012529   -50.23   0.000    -.0653855   -.0604741
      w12coo |   .0518518    .007044     7.36   0.000     .0380458    .0656578
       E12_1 |   .8158477   .0012716   641.58   0.000     .8133554      .81834
         w12 |  (dropped)
      w12coo |  (dropped)
       lnp12 |   -.048721   .0110706    -4.40   0.000     -.070419    -.027023
    lnp12coo |   .0398136   .0486446     0.82   0.413     -.055528    .1351552
       _cons |   .0007907   .0005326     1.48   0.138    -.0002531    .0018345
-------------+----------------------------------------------------------------
     sigma_u |  .07767769
     sigma_e |  .21733064
         rho |   .1132763   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F  test that all u_i=0:     F(3644,199621) =     1.28     Prob > F    = 0.0000
------------------------------------------------------------------------------
Instrumented:   w12 w12coo
Instruments:    E12_1 w12 w12coo lnp12 lnp12coo w12_2 w12coo_2

. test lnp12 + lnp12coo = 0
 ( 1)  lnp12 + lnp12coo = 0

           chi2(  1) =    0.04
         Prob > chi2 =    0.8508

. test w12 + w12coo = 0
 ( 1)  w12 + w12coo = 0

           chi2(  1) =    2.55
         Prob > chi2 =    0.1100
```

```
. xtivreg E12 E12_1 tramo2 tramo3 tramo4 r712 r721 w12 w12coo lnp12 lnp12coo
(w12 w12coo = w12_2 w12coo_2) if ciiu1==7, re

G2SLS random-effects IV regression              Number of obs      =    203271
Group variable: i                               Number of groups   =      3645

R-sq:  within  = 0.6799                         Obs per group: min =         1
       between = 0.9373                                        avg =      55.8
       overall = 0.7172                                        max =       103

                                                Wald chi2(10)      = 515577.65
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         w12 |  -.0547164   .0012024   -45.50   0.000    -.0570732   -.0523597
      w12coo |   .0539695   .0063933     8.44   0.000     .0414389       .0665
       E12_1 |    .838215   .0011876   705.79   0.000     .8358873    .8405427
      tramo2 |    .017106   .0012487    13.70   0.000     .0146586    .0195533
      tramo3 |   .0188644   .0021903     8.61   0.000     .0145715    .0231574
      tramo4 |   .0304642   .0040905     7.45   0.000     .0224469    .0384815
        r712 |  -.0011593   .0030794    -0.38   0.707    -.0071948    .0048762
        r721 |  -.0139328   .0021328    -6.53   0.000    -.0181129   -.0097527
         w12 |  (dropped)
      w12coo |  (dropped)
       lnp12 |  -.0625007   .0105459    -5.93   0.000    -.0831703   -.0418311
    lnp12coo |  -.0695984   .0456213    -1.53   0.127    -.1590145    .0198178
       _cons |  -.0031339   .0006148    -5.10   0.000    -.0043389   -.0019288
-------------+----------------------------------------------------------------
     sigma_u |          0
     sigma_e |  .21620672
         rho |          0   (fraction of variance due to u_i)
------------------------------------------------------------------------------
Instrumented:   w12 w12coo
Instruments:    E12_1 tramo2 tramo3 tramo4 r712 r721 w12 w12coo lnp12 lnp12coo
w12_2 w12coo_2

. test lnp12 + lnp12coo = 0
 ( 1)  lnp12 + lnp12coo = 0

           chi2(  1) =    8.74
         Prob > chi2 =    0.0031

. test w12 + w12coo = 0
 ( 1)  w12 + w12coo = 0

           chi2(  1) =    0.01
         Prob > chi2 =    0.9053
```

```
. xtivreg E12 E12_1 w12 w12coo lnp12 lnp12coo (w12 w12coo = w12_2 w12coo_2) if
ciiu1==9, fe

Fixed-effects (within) IV regression         Number of obs      =       166794
Group variable: i                            Number of groups   =         3172

R-sq:  within  = 0.7354                      Obs per group: min =            1
       between = 0.9223                                     avg =         52.6
       overall = 0.7782                                     max =          103

                                             Wald chi2(5)       = 457190.39
corr(u_i, Xb)  = 0.2768                      Prob > chi2        =    0.0000

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         w12 |  -.0458381   .0013678   -33.51   0.000    -.0485189   -.0431573
      w12coo |   .0207254   .0099511     2.08   0.037     .0012217    .0402292
       E12_1 |   .8521486   .0012785   666.50   0.000     .8496427    .8546545
         w12 |  (dropped)
      w12coo |  (dropped)
       lnp12 |   .0828618   .0061486    13.48   0.000     .0708108    .0949128
    lnp12coo |   .0354739   .0513258     0.69   0.489    -.0651227    .1360706
       _cons |   .0001712   .0004837     0.35   0.723    -.0007768    .0011192
-------------+----------------------------------------------------------------
     sigma_u |  .08975608
     sigma_e |  .18591234
         rho |  .18902483   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F  test that all u_i=0:     F(3171,163617) =     1.78     Prob > F    = 0.0000
------------------------------------------------------------------------------
Instrumented:   w12 w12coo
Instruments:    E12_1 w12 w12coo lnp12 lnp12coo w12_2 w12coo_2

. test lnp12 + lnp12coo = 0
 ( 1)  lnp12 + lnp12coo = 0

           chi2(  1) =    5.39
         Prob > chi2 =    0.0202

. test w12 + w12coo = 0
 ( 1)  w12 + w12coo = 0

           chi2(  1) =    6.49
         Prob > chi2 =    0.0108
```

```
. xtivreg E12 E12_1 tramo2 tramo3 tramo4 r929 r931 r932 r933 r934 r935 r951
r959 w12 w12coo lnp12 lnp12coo (w12 w12coo = w12_2 w12coo_2) if ciiu1==9, re

G2SLS random-effects IV regression              Number of obs      =    166794
Group variable: i                               Number of groups   =      3172

R-sq:  within  = 0.7367                         Obs per group: min =         1
       between = 0.9224                                        avg =      52.6
       overall = 0.7788                                        max =       103

                                                Wald chi2(16)      = 565823.53
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         w12 |  -.0366296   .0012983   -28.21   0.000    -.0391743   -.0340849
      w12coo |   .0280686   .0090416     3.10   0.002     .0103473    .0457898
       E12_1 |   .8709918    .001186   734.38   0.000     .8686673    .8733164
      tramo2 |   .0218374    .001175    18.59   0.000     .0195346    .0241403
      tramo3 |   .0253315   .0017564    14.42   0.000      .021889    .0287739
      tramo4 |   .0291967   .0037252     7.84   0.000     .0218954     .036498
        r929 |  -.0033502   .0107551    -0.31   0.755    -.0244299    .0177296
        r931 |   .0153061   .0024321     6.29   0.000     .0105393    .0200728
        r932 |   .0238932   .0102324     2.34   0.020     .0038381    .0439482
        r933 |   .0204456   .0022783     8.97   0.000     .0159803    .0249109
        r934 |   .0168625   .0030112     5.60   0.000     .0109607    .0227644
        r935 |   .0241929   .0146814     1.65   0.099    -.0045821    .0529678
        r951 |   .0179956   .0023193     7.76   0.000       .01345    .0225413
        r959 |   .0148726   .0025423     5.85   0.000     .0098897    .0198554
         w12 |  (dropped)
      w12coo |  (dropped)
       lnp12 |   .0571682   .0057178    10.00   0.000     .0459616    .0683748
    lnp12coo |   .0006827   .0383137     0.02   0.986    -.0744108    .0757761
       _cons |  -.0277084   .0021403   -12.95   0.000    -.0319032   -.0235136
-------------+----------------------------------------------------------------
     sigma_u |  .01333515
     sigma_e |  .18453872
         rho |  .00519468   (fraction of variance due to u_i)
------------------------------------------------------------------------------
Instrumented:   w12 w12coo
Instruments:    E12_1 tramo2 tramo3 tramo4 r929 r931 r932 r933 r934 r935 r951
r959 w12 w12coo lnp12 lnp12coo w12_2 w12coo_2

. test lnp12 + lnp12coo = 0
 ( 1)  lnp12 + lnp12coo = 0

           chi2(  1) =    2.32
         Prob > chi2 =    0.1275

. test w12 + w12coo = 0
 ( 1)  w12 + w12coo = 0

           chi2(  1) =    0.92
         Prob > chi2 =    0.3387
```

```
. xtivreg E12 E12_1 w12 w12coo lnp12 lnp12coo (w12 w12coo = w12_2 w12coo_2) if
sindicato==4, fe

Fixed-effects (within) IV regression         Number of obs      =        88650
Group variable: i                            Number of groups   =         1583

R-sq:  within  = 0.7382                      Obs per group: min =            1
       between = 0.9126                                     avg =         56.0
       overall = 0.7794                                     max =          103

                                             Wald chi2(5)       = 246716.03
corr(u_i, Xb)  = 0.2990                      Prob > chi2        =    0.0000

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         w12 |   -.036156   .0016318   -22.16   0.000    -.0393544   -.0329577
      w12coo |   .0214448   .0121121     1.77   0.077    -.0022944     .045184
       E12_1 |   .8537878   .0017352   492.05   0.000      .850387    .8571887
         w12 |  (dropped)
      w12coo |  (dropped)
       lnp12 |   .0200686   .0070564     2.84   0.004     .0062384    .0338989
    lnp12coo |   .0432788   .0539535     0.80   0.422    -.0624682    .1490257
       _cons |  -.0003733   .0006232    -0.60   0.549    -.0015947    .0008482
-------------+----------------------------------------------------------------
     sigma_u |  .08642488
     sigma_e |  .18414265
         rho |   .1805138   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F  test that all u_i=0:     F(1582,87062) =     1.74      Prob > F    = 0.0000
------------------------------------------------------------------------------
Instrumented:   w12 w12coo
Instruments:    E12_1 w12 w12coo lnp12 lnp12coo w12_2 w12coo_2

. lincom lnp12 + lnp12coo
 ( 1)  lnp12 + lnp12coo = 0

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |   .0633474   .0534901     1.18   0.236    -.0414912     .168186
------------------------------------------------------------------------------

. lincom w12 + w12coo
 ( 1)  w12 + w12coo = 0

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |  -.0147113   .0120021    -1.23   0.220    -.0382349    .0088124
------------------------------------------------------------------------------
```

```
. xtivreg E12 E12_1 w12 w12coo lnp12 lnp12coo (w12 w12coo = w12_2 w12coo_2) if
sindicato==1, fe

Fixed-effects (within) IV regression         Number of obs      =       272270
Group variable: i                            Number of groups   =         5895

R-sq:  within  = 0.6971                      Obs per group: min =            1
       between = 0.9220                                     avg =         46.2
       overall = 0.7508                                     max =          103

                                             Wald chi2(5)       = 612902.67
corr(u_i, Xb)  = 0.3016                      Prob > chi2        =    0.0000

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         w12 |  -.0421344   .0011225   -37.54   0.000    -.0443345   -.0399344
      w12coo |   .0173453   .0110235     1.57   0.116    -.0042603    .0389509
       E12_1 |   .8313096   .0010696   777.21   0.000     .8292132     .833406
         w12 |  (dropped)
      w12coo |  (dropped)
       lnp12 |   .0929532   .0069782    13.32   0.000     .0792761    .1066302
    lnp12coo |    .036736   .0952704     0.39   0.700    -.1499906    .2234626
       _cons |  -.0042756   .0004531    -9.44   0.000    -.0051635   -.0033876
-------------+----------------------------------------------------------------
     sigma_u |  .10504076
     sigma_e |  .22167556
         rho |   .1833621   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F  test that all u_i=0:     F(5894,266370) =     1.74     Prob > F    = 0.0000
------------------------------------------------------------------------------
Instrumented:   w12 w12coo
Instruments:    E12_1 w12 w12coo lnp12 lnp12coo w12_2 w12coo_2

. lincom lnp12 + lnp12coo
 ( 1)  lnp12 + lnp12coo = 0

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |   .1296892   .0950164     1.36   0.172    -.0565396    .3159179
------------------------------------------------------------------------------

. lincom w12 + w12coo
 ( 1)  w12 + w12coo = 0

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |  -.0247891   .0109659    -2.26   0.024    -.0462819   -.0032962
------------------------------------------------------------------------------
```

```
. xtivreg E12 E12_1 w12 w12coo lnp12 lnp12coo tramo2 tramo3 tramo4 r3 r5 r6 r7
r9 (w12 w12coo = w12_2 w12coo_2) if sindicato==1, re

G2SLS random-effects IV regression              Number of obs      =    272270
Group variable: i                               Number of groups   =      5895

R-sq:  within  = 0.6991                         Obs per group: min =         1
       between = 0.9200                                        avg =      46.2
       overall = 0.7516                                        max =       103

                                                Wald chi2(12)      = 802969.05
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         w12 |  -.0326692   .0010662   -30.64   0.000    -.0347589   -.0305796
      w12coo |   .0235927   .0100148     2.36   0.018     .0039639    .0432214
       E12_1 |   .8546967   .0009791   872.91   0.000     .8527776    .8566158
         w12 |  (dropped)
      w12coo |  (dropped)
       lnp12 |   .0542122   .0062958     8.61   0.000     .0418726    .0665517
    lnp12coo |  -.0821689   .0587158    -1.40   0.162    -.1972497    .0329119
      tramo2 |   .0264175    .001042    25.35   0.000     .0243753    .0284598
      tramo3 |   .0335592   .0015302    21.93   0.000     .0305601    .0365582
      tramo4 |   .0427163   .0029283    14.59   0.000      .036977    .0484557
          r3 |  -.0097219   .0018357    -5.30   0.000    -.0133198    -.006124
          r5 |  (dropped)
          r6 |  -.0050054   .0013201    -3.79   0.000    -.0075928   -.0024181
          r7 |   .0013429   .0035503     0.38   0.705    -.0056156    .0083014
          r9 |    .002418   .0012139     1.99   0.046     .0000388    .0047972
       _cons |  -.0173253   .0010156   -17.06   0.000    -.0193159   -.0153348
-------------+----------------------------------------------------------------
     sigma_u |  .01272466
     sigma_e |  .21871781
         rho |  .00337331   (fraction of variance due to u_i)
------------------------------------------------------------------------------
Instrumented:   w12 w12coo
Instruments:    E12_1 w12 w12coo lnp12 lnp12coo tramo2 tramo3 tramo4 r3 r5 r6
r7 r9 w12_2 w12coo_2

. lincom lnp12 + lnp12coo

 ( 1)  lnp12 + lnp12coo = 0

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |  -.0279568   .0583819    -0.48   0.632    -.1423832    .0864697
------------------------------------------------------------------------------

. lincom w12 + w12coo

 ( 1)  w12 + w12coo = 0

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |  -.0090766   .0099583    -0.91   0.362    -.0285944    .0104413
------------------------------------------------------------------------------
```

```
. xtivreg E12 E12_1 w12 w12coo lnp12 lnp12coo tramo2 tramo3 tramo4 r3 r5 r6 r7
r9 (w12 w12coo = w12_2 w12coo_2) if sindicato==4, re

G2SLS random-effects IV regression              Number of obs      =     88650
Group variable: i                               Number of groups   =      1583

R-sq:  within  = 0.7393                         Obs per group: min =         1
       between = 0.9113                                        avg =      56.0
       overall = 0.7798                                        max =       103

                                                Wald chi2(10)      = 307235.50
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         w12 |  -.0299349   .0015579   -19.21   0.000    -.0329883   -.0268815
      w12coo |   .0216575   .0115417     1.88   0.061    -.0009639    .0442788
       E12_1 |   .8750655   .0016041   545.51   0.000     .8719214    .8782095
         w12 |  (dropped)
      w12coo |  (dropped)
       lnp12 |   .0242905   .0065627     3.70   0.000     .0114278    .0371531
    lnp12coo |   .0605252   .0482416     1.25   0.210    -.0340267     .155077
      tramo2 |   .0186754   .0014998    12.45   0.000     .0157358    .0216149
      tramo3 |    .017844   .0021058     8.47   0.000     .0137168    .0219713
      tramo4 |   .0213452   .0048668     4.39   0.000     .0118064    .0308839
          r3 |   .0013463   .0030886     0.44   0.663    -.0047072    .0073999
          r5 |  (dropped)
          r6 |  (dropped)
          r7 |  (dropped)
          r9 |   .0079718   .0030728     2.59   0.009     .0019492    .0139944
       _cons |  -.0139911   .0029821    -4.69   0.000    -.0198358   -.0081463
-------------+----------------------------------------------------------------
     sigma_u |  .00948798
     sigma_e |  .18276162
         rho |  .00268787   (fraction of variance due to u_i)
------------------------------------------------------------------------------
Instrumented:   w12 w12coo
Instruments:    E12_1 w12 w12coo lnp12 lnp12coo tramo2 tramo3 tramo4 r3 r5 r6
r7 r9 w12_2 w12coo_2

. lincom lnp12 + lnp12coo

 ( 1)  lnp12 + lnp12coo = 0

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |   .0848156    .047838     1.77   0.076    -.0089451    .1785764
------------------------------------------------------------------------------

. lincom w12 + w12coo

 ( 1)  w12 + w12coo = 0

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |  -.0082774   .0114367    -0.72   0.469    -.0306929     .014138
------------------------------------------------------------------------------
```

```
. xtreg E12_asal E12_asal_1 w12_asal w12_asalcoo lnp12 lnp12coo, fe robust

Fixed-effects (within) regression               Number of obs      =    852512
Group variable (i): i                           Number of groups   =     16766

R-sq:  within  = 0.6970                         Obs per group: min =         1
       between = 0.8943                                        avg =      50.8
       overall = 0.7434                                        max =       104

                                                F(5,835741)        =  65828.15
corr(u_i, Xb)  = 0.2861                         Prob > F           =    0.0000

------------------------------------------------------------------------------
             |               Robust
    E12_asal |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  E12_asal_1 |   .8274667    .001485   557.20   0.000     .8245561    .8303774
    w12_asal |  -.0440375   .0010479   -42.02   0.000    -.0460914   -.0419836
 w12_asalcoo |  -.0028743   .0170326    -0.17   0.866    -.0362576    .0305089
       lnp12 |   .0232639   .0031124     7.47   0.000     .0171637    .0293641
    lnp12coo |   .0492037   .0741485     0.66   0.507    -.0961249    .1945324
       _cons |  -.0041316   .0002298   -17.98   0.000     -.004582   -.0036813
-------------+----------------------------------------------------------------
     sigma_u |   .1061409
     sigma_e |  .21112585
         rho |    .201753   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. lincom lnp12+lnp12coo
 ( 1)  lnp12 + lnp12coo = 0

------------------------------------------------------------------------------
    E12_asal |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |   .0724677    .074084     0.98   0.328    -.0727346    .2176699
------------------------------------------------------------------------------

. lincom w12_asal + w12_asalcoo
 ( 1)  w12_asal + w12_asalcoo = 0

------------------------------------------------------------------------------
    E12_asal |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |  -.0469118   .0169987    -2.76   0.006    -.0802287   -.0135949
------------------------------------------------------------------------------
```

```
. xtreg E12_asal E12_asal_1 tramo2 tramo3 tramo4 r3 r5 r6 r7 r9 w12_asal
w12_asalcoo lnp12 lnp12coo, re robust

Random-effects GLS regression                   Number of obs      =    852512
Group variable (i): i                           Number of groups   =     16766

R-sq:  within  = 0.7015                         Obs per group: min =         1
       between = 0.8706                                        avg =      50.8
       overall = 0.7364                                        max =       104

Random effects u_i ~ Gaussian                   Wald chi2(13)      = 378628.30
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
             |               Robust
    E12_asal |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  E12_asal_1 |   .8224622   .0014805   555.53   0.000     .8195605    .8253639
      tramo2 |   .0756513   .0011885    63.65   0.000     .0733218    .0779808
      tramo3 |   .1186725   .0021928    54.12   0.000     .1143747    .1229703
      tramo4 |    .159775   .0054188    29.49   0.000     .1491543    .1703958
          r3 |  -.0094189   .0034153    -2.76   0.006    -.0161128    -.002725
          r5 |   .0101331   .0127489     0.79   0.427    -.0148543    .0351205
          r6 |   .0103758   .0032817     3.16   0.002     .0039438    .0168077
          r7 |   .0286756   .0033671     8.52   0.000     .0220763    .0352749
          r9 |   .0084744   .0033596     2.52   0.012     .0018898    .0150591
    w12_asal |  -.0417518   .0010214   -40.88   0.000    -.0437537   -.0397498
 w12_asalcoo |   .0002493   .0164305     0.02   0.988    -.0319538    .0324525
       lnp12 |   .0226045   .0030548     7.40   0.000     .0166172    .0285918
    lnp12coo |  -.0201629    .073816    -0.27   0.785    -.1648396    .1245137
       _cons |  -.0485941   .0029573   -16.43   0.000    -.0543902    -.042798
-------------+----------------------------------------------------------------
     sigma_u |  .08125708
     sigma_e |  .20927141
         rho |  .13101339   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. lincom lnp12+lnp12coo
 ( 1)  lnp12 + lnp12coo = 0

------------------------------------------------------------------------------
    E12_asal |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |   .0024416   .0737529     0.03   0.974    -.1421114    .1469946
------------------------------------------------------------------------------

. lincom w12_asal + w12_asalcoo
 ( 1)  w12_asal + w12_asalcoo = 0

------------------------------------------------------------------------------
    E12_asal |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |  -.0415024   .0163971    -2.53   0.011    -.0736403   -.0093646
------------------------------------------------------------------------------
```

```
. xtivreg Eo12 Eo12_1 wo12 wo12coo lnp12 lnp12coo (wo12 wo12coo = wo12_2
wo12coo_2), fe

Fixed-effects (within) IV regression         Number of obs      =       841899
Group variable: i                            Number of groups   =        16539

R-sq:  within  = 0.6996                      Obs per group: min =            1
       between = 0.9306                                     avg =         50.9
       overall = 0.7464                                     max =          103

                                             Wald chi2(5)       =  1.92e+06
corr(u_i, Xb)  = 0.3013                      Prob > chi2        =    0.0000

------------------------------------------------------------------------------
        Eo12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        wo12 |  -.0439995   .0005989   -73.47   0.000    -.0451732   -.0428257
     wo12coo |   .0395185   .0046446     8.51   0.000     .0304153    .0486217
      Eo12_1 |   .8329467   .0006046  1377.69   0.000     .8317617    .8341317
        wo12 |  (dropped)
     wo12coo |  (dropped)
       lnp12 |   .0214194   .0031138     6.88   0.000     .0153164    .0275224
    lnp12coo |  -.0296064   .0248433    -1.19   0.233    -.0782985    .0190857
       _cons |  -.0037455   .0002262   -16.56   0.000    -.0041888   -.0033022
-------------+----------------------------------------------------------------
     sigma_u |  .08871328
     sigma_e |  .20638251
         rho |  .15595433   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F  test that all u_i=0:     F(16538,825355) =     1.57    Prob > F    = 0.0000
------------------------------------------------------------------------------
Instrumented:   wo12 wo12coo
Instruments:    Eo12_1 wo12 wo12coo lnp12 lnp12coo wo12_2 wo12coo_2

. lincom lnp12 + lnp12coo
 ( 1)  lnp12 + lnp12coo = 0

------------------------------------------------------------------------------
        Eo12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |   -.008187   .0246474    -0.33   0.740    -.0564951     .040121
------------------------------------------------------------------------------

. lincom wo12 + wo12coo
 ( 1)  wo12 + wo12coo = 0

------------------------------------------------------------------------------
        Eo12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |   -.004481   .0046058    -0.97   0.331    -.0135081    .0045461
------------------------------------------------------------------------------
```

```
. xtivreg Eo12 Eo12_1 tramo2 tramo3 tramo4  r3 r5 r6 r7 r9 wo12 wo12coo lnp12
lnp12coo (wo12 wo12coo = wo12_2 wo12coo_2), re

G2SLS random-effects IV regression              Number of obs      =    841899
Group variable: i                               Number of groups   =     16539

R-sq:  within  = 0.7008                         Obs per group: min =         1
       between = 0.9301                                        avg =      50.9
       overall = 0.7471                                        max =       103

                                                Wald chi2(13)      =  2.49e+06
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
        Eo12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        wo12 |  -.0353145   .0005707   -61.88   0.000     -.036433    -.034196
     wo12coo |   .0403711   .0042988     9.39   0.000     .0319456    .0487967
      Eo12_1 |   .8584982   .0005533  1551.71   0.000     .8574138    .8595826
      tramo2 |   .0196394   .0005308    37.00   0.000     .0185991    .0206796
      tramo3 |   .0217536   .0007827    27.79   0.000     .0202194    .0232877
      tramo4 |   .0231176   .0015681    14.74   0.000     .0200442     .026191
          r3 |  -.0046867   .0009265    -5.06   0.000    -.0065027   -.0028707
          r5 |  -.0012217   .0030683    -0.40   0.691    -.0072355    .0047921
          r6 |   .0006662   .0008801     0.76   0.449    -.0010589    .0023912
          r7 |   .0073622   .0009027     8.16   0.000      .005593    .0091315
          r9 |   .0029326   .0009152     3.20   0.001     .0011387    .0047264
        wo12 |  (dropped)
     wo12coo |  (dropped)
       lnp12 |    .019761   .0028858     6.85   0.000     .0141049     .025417
    lnp12coo |  -.0568504   .0222627    -2.55   0.011    -.1004845   -.0132164
       _cons |  -.0134654    .000794   -16.96   0.000    -.0150215   -.0119093
-------------+----------------------------------------------------------------
     sigma_u |          0
     sigma_e |  .20455564
         rho |          0   (fraction of variance due to u_i)
------------------------------------------------------------------------------
Instrumented:   wo12 wo12coo
Instruments:    Eo12_1 tramo2 tramo3 tramo4 r3 r5 r6 r7 r9 wo12 wo12coo lnp12
lnp12coo wo12_2 wo12coo_2

. lincom lnp12 + lnp12coo
 ( 1)  lnp12 + lnp12coo = 0

------------------------------------------------------------------------------
        Eo12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |  -.0370895   .0220919    -1.68   0.093    -.0803888    .0062099
------------------------------------------------------------------------------

. lincom wo12 + wo12coo
 ( 1)  wo12 + wo12coo = 0

------------------------------------------------------------------------------
        Eo12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |   .0050566   .0042615     1.19   0.235    -.0032957    .0134089
------------------------------------------------------------------------------
```

```
. xtivreg E12 E12_1 w12 w12coo lnp12 lnp12coo crisis crisis1 (w12 w12coo =
w12_2 w12coo_2), fe

Fixed-effects (within) IV regression         Number of obs      =       842145
Group variable: i                            Number of groups   =        16539

R-sq:  within  = 0.6994                      Obs per group: min =            1
       between = 0.9295                                     avg =         50.9
       overall = 0.7459                                     max =          103

                                             Wald chi2(7)       =  1.92e+06
corr(u_i, Xb)  = 0.3003                      Prob > chi2        =    0.0000
------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         w12 |  -.0491034   .0006112   -80.33   0.000    -.0503014   -.0479054
      w12coo |    .036412   .0047818     7.61   0.000     .0270399    .0457841
       E12_1 |   .8299012   .0006069  1367.49   0.000     .8287118    .8310907
         w12 |  (dropped)
      w12coo |  (dropped)
       lnp12 |    .003171   .0031472     1.01   0.314    -.0029974    .0093395
    lnp12coo |   .0006456   .0247285     0.03   0.979    -.0478214    .0491125
      crisis |  -.0280506   .0006561   -42.75   0.000    -.0293365   -.0267647
     crisis1 |   .0106384   .0048795     2.18   0.029     .0010747    .0202021
       _cons |   .0007065   .0002489     2.84   0.005     .0002186    .0011944
-------------+----------------------------------------------------------------
     sigma_u |  .08951853
     sigma_e |  .20665664
         rho |  .15799453   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F  test that all u_i=0:     F(16538,825599) =     1.63    Prob > F    = 0.0000
------------------------------------------------------------------------------
Instrumented:   w12 w12coo
Instruments:    E12_1 w12 w12coo lnp12 lnp12coo crisis crisis1 w12_2 w12coo_2

. lincom lnp12 + lnp12coo
 ( 1)  lnp12 + lnp12coo = 0

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |   .0038166   .0245274     0.16   0.876    -.0442563    .0518894
------------------------------------------------------------------------------

. lincom w12 + w12coo
 ( 1)  w12 + w12coo = 0

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |  -.0126914   .0047424    -2.68   0.007    -.0219863   -.0033964
------------------------------------------------------------------------------

. lincom crisis + crisis1
 ( 1)  crisis + crisis1 = 0

------------------------------------------------------------------------------
         E12 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         (1) |  -.0174122   .0048356    -3.60   0.000    -.0268897   -.0079346
------------------------------------------------------------------------------
```

Anexo 9: Salidas de Stata para el modelo de determinación de una función objetivo para las CTA

```
. xtreg lnw lnw_1 p1 pE1 p2 pE2, fe robust

Fixed-effects (within) regression               Number of obs      =   1098997
Group variable (i): i                           Number of groups   =     21700

R-sq:  within  = 0.5527                         Obs per group: min =         1
       between = 0.9244                                        avg =      50.6
       overall = 0.8809                                        max =       116

                                                F(5,1077292)       =  28291.40
corr(u_i, Xb)  = 0.8190                         Prob > F           =    0.0000

------------------------------------------------------------------------------
             |               Robust
         lnw |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       lnw_1 |   .7505394   .0020315   369.45   0.000     .7465577    .7545211
          p1 |   -.247252   .0212151   -11.65   0.000    -.2888328   -.2056712
         pE1 |   .0009246   .0003038     3.04   0.002     .0003291      .00152
          p2 |   .0244311   .0023707    10.31   0.000     .0197846    .0290775
         pE2 |  -.0001925   .0000143   -13.42   0.000    -.0002206   -.0001644
       _cons |   2.038001   .0169583   120.18   0.000     2.004764    2.071239
-------------+----------------------------------------------------------------
     sigma_u |  .23814772
     sigma_e |  .23798266
         rho |  .50034669   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. testnl (_b[pE1]/(_b[pE1]-_b[pE2])) = (_b[p1]/(_b[p1]-_b[p2]))
  (1)  (_b[pE1]/(_b[pE1]-_b[pE2])) = (_b[p1]/(_b[p1]-_b[p2]))

         F(1, 1077292) =        3.13
              Prob > F =        0.0768

. nlcom (_b[p1]/(_b[p1]-_b[p2]))
       _nl_1:  _b[p1]/(_b[p1]-_b[p2])

------------------------------------------------------------------------------
         lnw |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .9100751   .0105822    86.00   0.000     .8893344    .9308157
------------------------------------------------------------------------------

. nlcom (_b[pE1]/(_b[pE1]-_b[pE2]))
       _nl_1:  _b[pE1]/(_b[pE1]-_b[pE2])

------------------------------------------------------------------------------
         lnw |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .8276997    .048022    17.24   0.000     .7335783    .9218211
------------------------------------------------------------------------------

. test p1 = p2
 ( 1)  p1 - p2 = 0

       F(  1,1077292) =  161.85
            Prob > F =    0.0000

. test pE1 = pE2
 ( 1)  pE1 - pE2 = 0

       F(  1,1077292) =   13.49
            Prob > F =    0.0002
```

```
. xtreg lnw tramo2 tramo3 tramo4 r312 r313 r321 r322 r324 r342 r355 r369 r371
r384 r390 r520 r571 r621 r628 r629 r631 r711 r712 r721 r832 r921 r929 r931
r932 r933 r934 r935 r951 r959 lnw_1 p1 pE1 p2 pE2, re robust

Random-effects GLS regression                   Number of obs      =   1098997
Group variable (i): i                           Number of groups   =     21700

R-sq:  within  = 0.5526                         Obs per group: min =         1
       between = 0.9237                                        avg =      50.6
       overall = 0.8825                                        max =       116
Random effects u_i ~ Gaussian                   Wald chi2(38)      = 191389.99
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
             |               Robust
         lnw |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      tramo2 |   .0032778   .0011356     2.89   0.004     .0010521    .0055035
      tramo3 |   .0212243   .0021638     9.81   0.000     .0169833    .0254653
      tramo4 |   .0252423   .0056656     4.46   0.000     .0141379    .0363466
        r312 |   -.028222   .0179338    -1.57   0.116    -.0633716    .0069276
        r313 |  -.0145255   .0180124    -0.81   0.420    -.0498292    .0207782
        r321 |   .0013425    .018342     0.07   0.942    -.0346071    .0372921
        r322 |  -.0423535    .017089    -2.48   0.013    -.0758472   -.0088597
        r324 |   -.063242   .0275503    -2.30   0.022    -.1172395   -.0092445
        r342 |    .009499   .0150617     0.63   0.528    -.0200213    .0390194
        r355 |   .0485145    .032741     1.48   0.138    -.0156567    .1126857
        r369 |   .0424315   .0245729     1.73   0.084    -.0057305    .0905935
        r371 |   .0230026   .0185736     1.24   0.216     -.013401    .0594062
        r384 |   .0388373   .0392011     0.99   0.322    -.0379955    .1156701
        r390 |  -.0198659   .0208077    -0.95   0.340    -.0606484    .0209165
        r520 |   .0319313    .029698     1.08   0.282    -.0262758    .0901383
        r571 |   .1337519   .0330265     4.05   0.000     .0690212    .1984826
        r621 |  -.0761855   .0142558    -5.34   0.000    -.1041263   -.0482446
        r628 |  -.0730337   .0152763    -4.78   0.000    -.1029747   -.0430926
        r629 |   -.083776   .0145242    -5.77   0.000    -.1122428   -.0553091
        r631 |  -.0503297   .0146073    -3.45   0.001    -.0789595      -.0217
        r711 |    .030023   .0138336     2.17   0.030     .0029096    .0571364
        r712 |  -.0222524   .0301498    -0.74   0.460    -.0813448    .0368401
        r721 |  -.0104938   .0178017    -0.59   0.556    -.0453845    .0243969
        r832 |  -.0115823   .0142956    -0.81   0.418    -.0396012    .0164365
        r921 |  -.1237477   .0180143    -6.87   0.000    -.1590552   -.0884403
        r929 |   .0197926   .0522502     0.38   0.705    -.0826159    .1222011
        r931 |  -.0969103   .0162458    -5.97   0.000    -.1287514   -.0650692
        r932 |   .1097451    .059345     1.85   0.064     -.006569    .2260592
        r933 |  -.0415056   .0146451    -2.83   0.005    -.0702094   -.0128017
        r934 |  -.0773111   .0187176    -4.13   0.000    -.1139968   -.0406253
        r935 |  -.0011448   .1028037    -0.01   0.991    -.2026364    .2003468
        r951 |  -.0287439   .0146959    -1.96   0.050    -.0575473    .0000594
        r959 |  -.0621527   .0167872    -3.70   0.000     -.095055   -.0292504
       lnw_1 |   .7748025   .0018824   411.59   0.000      .771113     .778492
          p1 |  -.0801648   .0141985    -5.65   0.000    -.1079933   -.0523363
         pE1 |   .0006121   .0001086     5.64   0.000     .0003994    .0008249
          p2 |   .0195794   .0023048     8.49   0.000      .015062    .0240967
         pE2 |  -.0001263   .0000159    -7.96   0.000    -.0001574   -.0000952
       _cons |   1.840014   .0209796    87.70   0.000     1.798895    1.881134
-------------+----------------------------------------------------------------
     sigma_u |  .17091785
     sigma_e |  .23797751
         rho |  .34029355   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

```
. hausman fijo

                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |      fijo          .          Difference          S.E.
-------------+------------------------------------------------------------------
       lnw_1 |    .7505394     .7748025       -.0242631        .0007638
          p1 |    -.247252    -.0801648       -.1670872        .0157633
         pE1 |    .0009246     .0006121        .0003124        .0002837
          p2 |    .0244311     .0195794        .0048517        .0005549
         pE2 |   -.0001925    -.0001263       -.0000661              .
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =      996.41
                Prob>chi2 =      0.0000
                (V_b-V_B is not positive definite)

. testnl (_b[pE1]/(_b[pE1]-_b[pE2])) = (_b[p1]/(_b[p1]-_b[p2]))
  (1)  (_b[pE1]/(_b[pE1]-_b[pE2])) = (_b[p1]/(_b[p1]-_b[p2]))

               chi2(1) =        0.39
           Prob > chi2 =        0.5332

. nlcom (_b[p1]/(_b[p1]-_b[p2]))
       _nl_1:  _b[p1]/(_b[p1]-_b[p2])

------------------------------------------------------------------------------
         lnw |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .8037041   .0352734    22.79   0.000     .7345696    .8728386
------------------------------------------------------------------------------

. nlcom (_b[pE1]/(_b[pE1]-_b[pE2]))
       _nl_1:  _b[pE1]/(_b[pE1]-_b[pE2])

------------------------------------------------------------------------------
         lnw |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .8289444   .0309722    26.76   0.000       .76824    .8896487
------------------------------------------------------------------------------


. test p1 = p2
 ( 1)  p1 - p2 = 0

           chi2(  1) =   49.89
         Prob > chi2 =    0.0000

. test pE1 = pE2
 ( 1)  pE1 - pE2 = 0

           chi2(  1) =   45.45
         Prob > chi2 =    0.0000
```

```
. reg lnw tramo2 tramo3 tramo4 r312 r313 r321 r322 r324 r342 r355 r369 r371
r384 r390 r520 r571 r621 r628 r629 r631 r711 r712 r721 r832 r921 r929 r931
r932 r933 r934 r935 r951 r959 lnw_1 p1 pE1 p2 pE2, cluster (i) robust

Linear regression                                       Number of obs = 1098997
                                                        F( 38, 21699) =37745.22
                                                        Prob > F      =  0.0000
                                                        R-squared     =  0.8856
Number of clusters (i) = 21700                          Root MSE      =  .25019

------------------------------------------------------------------------------
             |               Robust
         lnw |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      tramo2 |   .0129958    .000859    15.13   0.000      .011312    .0146795
      tramo3 |   .0356554   .0015892    22.44   0.000     .0325404    .0387704
      tramo4 |   .0456073   .0040324    11.31   0.000     .0377035     .053511
        r312 |  -.0005548   .0042272    -0.13   0.896    -.0088404    .0077308
        r313 |     .00226   .0044766     0.50   0.614    -.0065146    .0110345
        r321 |  -.0068552   .0042071    -1.63   0.103    -.0151014    .0013909
        r322 |  -.0144558   .0034882    -4.14   0.000     -.021293   -.0076186
        r324 |  -.0241231    .004593    -5.25   0.000    -.0331258   -.0151204
        r342 |   .0070718   .0035742     1.98   0.048     .0000662    .0140774
        r355 |   .0068934   .0079962     0.86   0.389    -.0087798    .0225666
        r369 |   .0136971   .0054809     2.50   0.012     .0029541      .02444
        r371 |   .0092097    .003931     2.34   0.019     .0015046    .0169149
        r384 |   .0191821   .0066499     2.88   0.004     .0061477    .0322165
        r390 |   .0063487    .005101     1.24   0.213    -.0036496     .016347
        r520 |   .0166271   .0091888     1.81   0.070    -.0013835    .0346378
        r571 |   .0495547   .0099775     4.97   0.000     .0299981    .0691113
        r621 |  -.0168057   .0032106    -5.23   0.000    -.0230987   -.0105127
        r628 |  -.0228343   .0032919    -6.94   0.000    -.0292867   -.0163819
        r629 |   -.017154   .0032885    -5.22   0.000    -.0235998   -.0107082
        r631 |  -.0131781   .0031745    -4.15   0.000    -.0194004   -.0069559
        r711 |   .0201207   .0031884     6.31   0.000     .0138711    .0263702
        r712 |  -.0094085   .0077718    -1.21   0.226    -.0246418    .0058247
        r721 |   .0055013   .0051492     1.07   0.285    -.0045915    .0155941
        r832 |   .0015681   .0034381     0.46   0.648    -.0051708     .008307
        r921 |  -.0451926    .004168   -10.84   0.000    -.0533622    -.037023
        r929 |   .0071788   .0138066     0.52   0.603    -.0198831    .0342406
        r931 |  -.0294071   .0037214    -7.90   0.000    -.0367014   -.0221128
        r932 |   .0258355   .0150826     1.71   0.087    -.0037276    .0553986
        r933 |  -.0086976   .0036259    -2.40   0.016    -.0158045   -.0015906
        r934 |  -.0198585   .0039719    -5.00   0.000    -.0276438   -.0120733
        r935 |   .0104913   .0154301     0.68   0.497    -.0197528    .0407353
        r951 |  -.0024427   .0033398    -0.73   0.465     -.008989    .0041037
        r959 |  -.0114134   .0042156    -2.71   0.007    -.0196763   -.0031505
      lnw_1  |   .9322241   .0011649   800.28   0.000     .9299409    .9345073
         p1  |  -.0104557   .0040468    -2.58   0.010    -.0183878   -.0025236
        pE1  |   .0000936   .0000126     7.41   0.000     .0000688    .0001183
         p2  |   .0049321   .0021468     2.30   0.022     .0007242    .0091399
        pE2  |   3.44e-06   7.44e-06     0.46   0.644    -.0000111     .000018
      _cons  |   .5483419   .0103865    52.79   0.000     .5279835    .5687002
------------------------------------------------------------------------------

. testnl (_b[pE1]/(_b[pE1]-_b[pE2])) = (_b[p1]/(_b[p1]-_b[p2]))

  (1)  (_b[pE1]/(_b[pE1]-_b[pE2])) = (_b[p1]/(_b[p1]-_b[p2]))

           F(1, 21699) =        3.97
              Prob > F =        0.0463
```

```
. nlcom (_b[p1]/(_b[p1]-_b[p2]))
       _nl_1:  _b[p1]/(_b[p1]-_b[p2])

------------------------------------------------------------------------------
         lnw |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .6794804   .1564506     4.34   0.000     .3728258    .9861349
------------------------------------------------------------------------------

. nlcom (_b[pE1]/(_b[pE1]-_b[pE2]))
       _nl_1:  _b[pE1]/(_b[pE1]-_b[pE2])

------------------------------------------------------------------------------
         lnw |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   1.038122   .0846063    12.27   0.000     .8722878    1.203957
------------------------------------------------------------------------------

. test p1 = p2
 ( 1)  p1 - p2 = 0

       F(  1, 21699) =   19.95
            Prob > F =    0.0000

. test pE1 = pE2
 ( 1)  pE1 - pE2 = 0

       F(  1, 21699) =   47.34
            Prob > F =    0.0000
```

```
. xtreg lnw lnw_1 tt p1 pE1 p2 pE2, fe robust

Fixed-effects (within) regression               Number of obs      =   1098997
Group variable (i): i                           Number of groups   =     21700

R-sq:  within  = 0.5607                         Obs per group: min =         1
       between = 0.9141                                        avg =      50.6
       overall = 0.8784                                        max =       116

                                                F(6,1077291)       =  67687.45
corr(u_i, Xb)  = 0.8144                         Prob > F           =    0.0000

------------------------------------------------------------------------------
             |               Robust
         lnw |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       lnw_1 |    .719254   .0022235   323.48   0.000      .714896    .7236119
          tt |  -.0012569   .0000128   -98.46   0.000    -.0012819   -.0012319
          p1 |  -.0990903   .0209091    -4.74   0.000    -.1400714   -.0581093
         pE1 |   .0007858   .0003047     2.58   0.010     .0001886    .0013831
          p2 |    .035688   .0023372    15.27   0.000     .0311072    .0402687
         pE2 |  -.0001784   .0000151   -11.84   0.000     -.000208   -.0001489
       _cons |   2.356005   .0189974   124.02   0.000     2.318771    2.393239
-------------+----------------------------------------------------------------
     sigma_u |  .25538112
     sigma_e |  .23584324
         rho |  .53971102   (fraction of variance due to u_i)
------------------------------------------------------------------------------


. testnl (_b[pE1]/(_b[pE1]-_b[pE2])) = (_b[p1]/(_b[p1]-_b[p2]))
  (1)  (_b[pE1]/(_b[pE1]-_b[pE2])) = (_b[p1]/(_b[p1]-_b[p2]))

         F(1, 1077291) =        1.74
              Prob > F =        0.1866

. nlcom (_b[p1]/(_b[p1]-_b[p2]))
       _nl_1:  _b[p1]/(_b[p1]-_b[p2])

------------------------------------------------------------------------------
         lnw |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .7352099   .0429795    17.11   0.000     .6509715    .8194483
------------------------------------------------------------------------------

. nlcom (_b[pE1]/(_b[pE1]-_b[pE2]))
       _nl_1:  _b[pE1]/(_b[pE1]-_b[pE2])

------------------------------------------------------------------------------
         lnw |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .8149379   .0598276    13.62   0.000     .6976779    .9321979
------------------------------------------------------------------------------

. test p1 = p2
 ( 1)  p1 - p2 = 0

       F(  1,1077291) =   41.01
            Prob > F =    0.0000

. test pE1 = pE2
 ( 1)  pE1 - pE2 = 0

       F(  1,1077291) =    9.99
            Prob > F =    0.0016
```

```
. xtreg lnw lnw_1 lnwp1 p1 pE1 p2 pE2, fe robust

Fixed-effects (within) regression               Number of obs      =   1098997
Group variable (i): i                           Number of groups   =     21700

R-sq:  within  = 0.5530                         Obs per group: min =         1
       between = 0.7472                                        avg =      50.6
       overall = 0.6896                                        max =       116

                                                F(6,1077291)       =  25673.78
corr(u_i, Xb)  = -0.0540                        Prob > F           =    0.0000

------------------------------------------------------------------------------
             |               Robust
         lnw |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       lnw_1 |   .7496387   .0020369   368.03   0.000     .7456464    .7536309
       lnwp1 |   .2895456   .0116897    24.77   0.000     .2666341    .3124571
          p1 |  -.0920025    .023208    -3.96   0.000    -.1374894   -.0465155
         pE1 |   .0004545   .0002986     1.52   0.128    -.0001308    .0010398
          p2 |   .0244789   .0023712    10.32   0.000     .0198314    .0291264
         pE2 |  -.0001928   .0000143   -13.45   0.000    -.0002209   -.0001647
       _cons |   2.004287   .0167834   119.42   0.000     1.971392    2.037182
-------------+----------------------------------------------------------------
     sigma_u |  .34571747
     sigma_e |  .23791218
         rho |  .67862075   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. testnl (_b[pE1]/(_b[pE1]-_b[pE2])) = (_b[p1]/(_b[p1]-_b[p2]))
  (1)  (_b[pE1]/(_b[pE1]-_b[pE2])) = (_b[p1]/(_b[p1]-_b[p2]))

         F(1, 1077291) =        0.45
              Prob > F =        0.5005

. nlcom (_b[p1]/(_b[p1]-_b[p2]))
       _nl_1:  _b[p1]/(_b[p1]-_b[p2])

------------------------------------------------------------------------------
         lnw |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .7898471   .0448328    17.62   0.000     .7019762    .8777179
------------------------------------------------------------------------------

. nlcom (_b[pE1]/(_b[pE1]-_b[pE2]))
       _nl_1:  _b[pE1]/(_b[pE1]-_b[pE2])

------------------------------------------------------------------------------
         lnw |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       _nl_1 |   .7020996   .1382857     5.08   0.000     .4310643    .9731348
------------------------------------------------------------------------------

. test p1 = p2
 ( 1)  p1 - p2 = 0

       F(  1,1077291) =   24.92
            Prob > F =    0.0000

. test pE1 = pE2
 ( 1)  pE1 - pE2 = 0

       F(  1,1077291) =    4.69
            Prob > F =    0.0304
```

```
. xtreg lnw lnw_1 p1 pE1 p2 pE2 if ciiu1==3, fe robust

Fixed-effects (within) regression               Number of obs      =    200809
Group variable (i): i                           Number of groups   =      3564

R-sq:  within  = 0.5436                         Obs per group: min =         1
       between = 0.9598                                        avg =      56.3
       overall = 0.8673                                        max =       116

                                                F(5,197240)        =   5109.34
corr(u_i, Xb)  = 0.8441                         Prob > F           =    0.0000

------------------------------------------------------------------------------
             |               Robust
         lnw |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       lnw_1 |   .7480776   .0047496   157.50   0.000     .7387685    .7573866
          p1 |  -.0579212   .0474234    -1.22   0.222    -.1508699    .0350275
         pE1 |   .0004028   .0012261     0.33   0.743    -.0020004     .002806
          p2 |  -.0061335   .0055581    -1.10   0.270    -.0170272    .0047601
         pE2 |   .0001223   .0000316     3.87   0.000     .0000604    .0001842
       _cons |   2.104605   .0407925    51.59   0.000     2.024652    2.184557
-------------+----------------------------------------------------------------
     sigma_u |  .20469967
     sigma_e |  .26483621
         rho |  .37399045   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. testnl (_b[pE1]/(_b[pE1]-_b[pE2])) = (_b[p1]/(_b[p1]-_b[p2]))
  (1)  (_b[pE1]/(_b[pE1]-_b[pE2])) = (_b[p1]/(_b[p1]-_b[p2]))

           F(1, 197240) =        0.03
                Prob > F =        0.8652

. testnl (_b[p1]/(_b[p1]-_b[p2])) = 0
  (1)  (_b[p1]/(_b[p1]-_b[p2])) = 0

           F(1, 197240) =       48.01
                Prob > F =        0.0000

. testnl (_b[p1]/(_b[p1]-_b[p2])) = 1
  (1)  (_b[p1]/(_b[p1]-_b[p2])) = 1

           F(1, 197240) =        0.54
                Prob > F =        0.4631

. testnl (_b[pE1]/(_b[pE1]-_b[pE2])) = 0
  (1)  (_b[pE1]/(_b[pE1]-_b[pE2])) = 0

           F(1, 197240) =        0.56
                Prob > F =        0.4526

. testnl (_b[pE1]/(_b[pE1]-_b[pE2])) = 1
  (1)  (_b[pE1]/(_b[pE1]-_b[pE2])) = 1

           F(1, 197240) =        0.05
                Prob > F =        0.8197
```

```
. xtreg lnw lnw_1 p1 pE1 p2 pE2 if ciiu1==7, fe robust

Fixed-effects (within) regression               Number of obs      =    259061
Group variable (i): i                           Number of groups   =      4519

R-sq:  within  = 0.5737                         Obs per group: min =         1
       between = 0.9349                                        avg =      57.3
       overall = 0.8484                                        max =       116

                                                F(5,254537)        =  20666.21
corr(u_i, Xb)  = 0.6665                         Prob > F           =    0.0000

------------------------------------------------------------------------------
             |               Robust
         lnw |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       lnw_1 |   .7240683   .0039223   184.60   0.000     .7163806    .7317559
          p1 |  -.7138493   .0288871   -24.71   0.000    -.7704672   -.6572314
         pE1 |   .0013323   .0000911    14.63   0.000     .0011538    .0015109
          p2 |  -.4043177   .0086157   -46.93   0.000    -.4212043   -.3874312
         pE2 |  -.0003596   .0000332   -10.83   0.000    -.0004247   -.0002945
       _cons |    2.80355   .0406531    68.96   0.000     2.723871    2.883229
-------------+----------------------------------------------------------------
     sigma_u |  .23977794
     sigma_e |  .23954127
         rho |  .50049375   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. testnl (_b[pE1]/(_b[pE1]-_b[pE2])) = (_b[p1]/(_b[p1]-_b[p2]))
  (1)  (_b[pE1]/(_b[pE1]-_b[pE2])) = (_b[p1]/(_b[p1]-_b[p2]))

           F(1, 254537) =      142.18
               Prob > F =        0.0000

. testnl (_b[p1]/(_b[p1]-_b[p2])) = 0
  (1)  (_b[p1]/(_b[p1]-_b[p2])) = 0

           F(1, 254537) =      358.12
               Prob > F =        0.0000

. testnl (_b[p1]/(_b[p1]-_b[p2])) = 1
  (1)  (_b[p1]/(_b[p1]-_b[p2])) = 1

           F(1, 254537) =      114.89
               Prob > F =        0.0000

. testnl (_b[pE1]/(_b[pE1]-_b[pE2])) = 0
  (1)  (_b[pE1]/(_b[pE1]-_b[pE2])) = 0

           F(1, 254537) =     1737.53
               Prob > F =        0.0000

. testnl (_b[pE1]/(_b[pE1]-_b[pE2])) = 1
  (1)  (_b[pE1]/(_b[pE1]-_b[pE2])) = 1

           F(1, 254537) =      126.58
               Prob > F =        0.0000
```

```
. xtreg lnw lnw_1 p1 pE1 p2 pE2 if ciiu1==9, fe robust

Fixed-effects (within) regression               Number of obs      =    215189
Group variable (i): i                           Number of groups   =      4043

R-sq:  within  = 0.6233                         Obs per group: min =         1
       between = 0.9405                                        avg =      53.2
       overall = 0.9108                                        max =       116

                                                F(5,211141)        =  22929.62
corr(u_i, Xb)  = 0.8330                         Prob > F           =    0.0000

------------------------------------------------------------------------------
             |               Robust
         lnw |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       lnw_1 |   .7615954   .0044103   172.69   0.000     .7529513    .7702395
          p1 |   .0817106   .0452197     1.81   0.071    -.0069189    .1703401
         pE1 |    .001322   .0009871     1.34   0.180    -.0006127    .0032566
          p2 |   .2727411    .006206    43.95   0.000     .2605774    .2849047
         pE2 |  -.0000162   .0000304    -0.53   0.596    -.0000758    .0000435
       _cons |   1.676724   .0315679    53.11   0.000     1.614852    1.738597
-------------+----------------------------------------------------------------
     sigma_u |  .22827391
     sigma_e |  .20967685
         rho |  .54238739   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. testnl (_b[pE1]/(_b[pE1]-_b[pE2])) = (_b[p1]/(_b[p1]-_b[p2]))
  (1)  (_b[pE1]/(_b[pE1]-_b[pE2])) = (_b[p1]/(_b[p1]-_b[p2]))

           F(1, 211141) =       17.94
               Prob > F =        0.0000

. testnl (_b[p1]/(_b[p1]-_b[p2])) = 0
  (1)  (_b[p1]/(_b[p1]-_b[p2])) = 0

           F(1, 211141) =        1.60
               Prob > F =        0.2054

. testnl (_b[p1]/(_b[p1]-_b[p2])) = 1
  (1)  (_b[p1]/(_b[p1]-_b[p2])) = 1

           F(1, 211141) =       17.86
               Prob > F =        0.0000

. testnl (_b[pE1]/(_b[pE1]-_b[pE2])) = 0
  (1)  (_b[pE1]/(_b[pE1]-_b[pE2])) = 0

           F(1, 211141) =     1673.42
               Prob > F =        0.0000

. testnl (_b[pE1]/(_b[pE1]-_b[pE2])) = 1
  (1)  (_b[pE1]/(_b[pE1]-_b[pE2])) = 1

           F(1, 211141) =        0.25
               Prob > F =        0.6171
```

Anexo: Test de igualdad funciones de Sobrevivencia:

Incluye microempresas

```
. sts test cta

         failure _d:  mue
   analysis time _t:  temp
  enter on or after:  time entra
                id:  i


Log-rank test for equality of survivor functions
      |   Events         Events
cta   |  observed       expected
------+-------------------------
0     |      6078        6058.65
1     |        28          47.35
------+-------------------------
Total |      6106        6106.00

            chi2(1) =       8.09
            Pr>chi2 =     0.0044
```

Excluye microempresas

```
. sts test cta if tramo!=1

         failure _d:  mue
   analysis time _t:  temp
  enter on or after:  time entra
                id:  i

Log-rank test for equality of survivor functions
      |   Events         Events
cta   |  observed       expected
------+-------------------------
0     |       751         749.71
1     |        19          20.29
------+-------------------------
Total |       770         770.00

            chi2(1) =       0.09
            Pr>chi2 =     0.7703

. sts test cta if tramo!=1, wilcoxon

         failure _d:  mue
   analysis time _t:  añotemp
  enter on or after:  time entra1
                id:  i


Wilcoxon (Breslow) test for equality of survivor functions

      |   Events         Events        Sum of
cta   |  observed       expected        ranks
------+--------------------------------------
0     |       751         749.71         2104
1     |        19          20.29        -2104
------+--------------------------------------
Total |       770         770.00            0

            chi2(1) =       0.12
            Pr>chi2 =     0.7285
```