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EMPIRICAL ANALYSIS OF THE FINANCIAL SUSTAINABILITY OF PUBLIC SERVICES THROUGH THE INFLUENTIAL FACTORS IN THE MANAGEMENT OF LOCAL GOVERNMENTS

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UNA PROPUESTA METODOLÓGICA PARA LA EVALUACIÓN Y GESTIÓN DE LA SOSTENIBILIDAD FINANCIERA DE LOS GOBIERNOS LOCALES

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Granada, 29 de Mayo de 2017

Directores de la Tesis

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SI…

Si puedes conservar la cabeza cuando a tu alrededor,
Todos la pierden y te echan la culpa;
Si puedes confiar en ti mismo cuando los demás dudan de ti
Pero al mismo tiempo tienes en cuenta su duda;

Si puedes esperar y no cansarte de la espera,
O siendo engañado por quienes te rodean, no pagar con mentiras,
O siendo odiado, no dar cabida al odio,
Y no obstante, no ensalzas tu juicio ni ostentas tu bondad;

Si puedes soñar y no dejar que los sueños te dominen;
Si puedes pensar y no hacer de los pensamientos tu objetivo;
Si puedes con el Triunfo y la Derrota encontrarte
Y tratar a estos dos impostores por igual;

Si puedes soportar escuchar la verdad que has dicho,
Invertida por trúhanes para tender trampas a los necios,
O contemplar quebrantadas las cosas a las que consagraste tu vida,
Y pararte a reconstruirlas con las herramientas desgastadas;

Si puedes hacer una pila con todos tus triunfos
Y arriesgarlo todo en un golpe de azar,
Y perder, y volver a empezar desde el principio
Y no mencionar ni una palabra sobre tu pérdida;

Si puedes hacer que tu corazón, tus nervios y tus músculos
Te respondan después de haber perdido su fuerza,
Y perduren firmes cuando nada haya en ti
Excepto la voluntad que les dice ¡Resiste!

Si puedes hablar con la multitud y perseverar tu virtud,
O caminar junto a soberanos sin perder tu sentido común.
Si ni enemigos ni buenos amigos pueden dañarte;
Si todos los hombres cuentan contigo, pero ninguno demasiado;

Si puedes llenar el preciso minuto
Con sesenta segundos de un esfuerzo supremo,
Tuya es la Tierra y todo lo que hay en ella,
Y, lo que es más, ¡hijo mío!, serás un Hombre.

"If…" de Rudyard Kipling

Traducción: María Subires Palomo

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Resumen

1. Evolución en la Gestión de las Finanzas Públicas

El Sector Público desempeña un papel clave en la economía de un país, por lo que podría considerarse uno de los principales motores de su desarrollo socioeconómico (WB, 1988). De hecho, las entidades gubernamentales son las responsables de gestionar las limitaciones financieras de un país y establecer las políticas necesarias para apoyar a los sectores más débiles, llevando a las administraciones públicas a fomentar el crecimiento económico a través del suministro de las infraestructuras técnicas y tecnológicas necesarias (WB, 1988) y de la inversión en los diferentes sectores económicos (Gupta, 2013).

Así, el Sector Público se encarga de proporcionar una amplia gama de servicios. No sólo tiene que proporcionar un gran número de servicios públicos básicos, sino que también, debe hacerse cargo de los servicios que el sector privado no puede proporcionar debido a su alto coste. Por tanto, las entidades gubernamentales tienen la responsabilidad de hacer que los servicios públicos sean accesibles para todos los ciudadanos.

Estas funciones del Sector Público se han visto seriamente comprometidas por la crisis financiera y económica de los últimos años. Esta situación de crisis provocó una disminución de los ingresos públicos al mismo tiempo que se produjo un incremento en los gastos públicos, dando lugar a un alto volumen de deuda y déficit en las entidades públicas (Aldasoro & Seiferling, 2014; Bailey, Valkama, & Salonen, 2014).

Esta negativa evolución ha fortalecido la importancia de la rendición de cuentas en las administraciones públicas. La rendición de cuentas puede definirse con un objetivo multipropósito y tiene diferentes perspectivas (Bovens, Goodin, & Schillemans, 2014). Sin embargo, los problemas financieros para mantener el funcionamiento de los servicios públicos han hecho que los investigadores (Dollery & Crase, 2006; Navarro-Galera et al.,

2016; Rodríguez, Navarro, & Alcaide, 2014) y las Organizaciones Internacionales (EU, 2012a; G-20, 2013; IFAC, 2012b; NAO, 2014) se centren en el vínculo entre la sostenibilidad financiera y la rendición de cuentas. De hecho, diferentes *stakeholders*, tales como las Organizaciones Internacionales y la ciudadanía, cada vez demandan mayor transparencia con el objetivo de controlar la situación financiera de las entidades públicas (Pina, Torres, & Royo, 2010), lo que ha dado lugar a nuevas líneas de investigación sobre cómo la información financiera puede ser útil para evaluar y controlar el equilibrio económico sostenible en el Sector Público.

Para alcanzar un equilibrio económico sostenible el concepto clave a considerar en la gestión de las entidades públicas es la equidad inter-periodo y la equidad intergeneracional (GASB, 2013). Según el GASB (2011), la equidad inter-periodo se ha convertido en un elemento esencial de las finanzas públicas porque evalúa el grado en que un gobierno recauda recursos suficientes para cubrir los costes de ese período, sin utilizar recursos acumulados de años anteriores, o sin comprometer recursos de años futuros. Por otro lado, la equidad intergeneracional es un concepto que extiende la equidad inter-periodo a largo plazo, es decir, considera el grado en que cada generación genera recursos suficientes para financiar los servicios que recibe, sin transferir esos costes a generaciones futuras y sin consumir recursos adquiridos de generaciones anteriores.

En este contexto, la investigación previa se ha centrado en varios aspectos fundamentales de las administraciones públicas, tales como la *financial condition* y el *fiscal distress*, entre otros. La *financial condition* ha sido una de las fuentes de información utilizadas para analizar la capacidad financiera de las administraciones públicas para cumplir con sus obligaciones financieras (Cabaleiro, Buch, & Vaamonde, 2013; Groves, Godsey, & Shulman, 1981; Groves & Valente, 1994; Wang, Dennis, & Tu,

2007), tratando de representar el nivel de sostenibilidad, flexibilidad y vulnerabilidad de una entidad pública (CICA, 1997, 2009), mediante el análisis de la solvencia y el uso de indicadores financieros.

Sin embargo, la utilidad de la información que proporcionan estos indicadores es limitada, ya que no pueden captar la amplia gama de dimensiones financieras de las entidades gubernamentales y, además, no son capaces de evaluar la capacidad de las mismas para llevar a cabo servicios y actividades públicas (Rivenbark, Roenigk, & Allison, 2010). Por tanto, aunque la sostenibilidad sea un elemento incluido en la *financial condition*, los indicadores financieros utilizados para medirla no abarcan el nuevo concepto de sostenibilidad financiera, ya que este nuevo concepto intenta identificar proyecciones futuras para mejorar la gestión pública (GASB, 2011).

Así, la necesidad de encontrar indicadores que permitan evaluar las finanzas públicas y predecir cuándo una entidad pública podría tener dificultades financieras, ha llevado a desarrollar otros indicadores como el *fiscal distress*. Este concepto se centra principalmente en la información presupuestaria para examinar las dificultades a corto y largo plazo de las administraciones públicas (Bradbury, 1982; Groves & Valente, 1994). De hecho, Bradbury (1982) y Groves y Valente (1994) clasificaron el *fiscal distress* en "Budgetary fiscal distress", "Citizen fiscal distress", "Budgetary solvency" y "Service-level solvency", respectivamente.

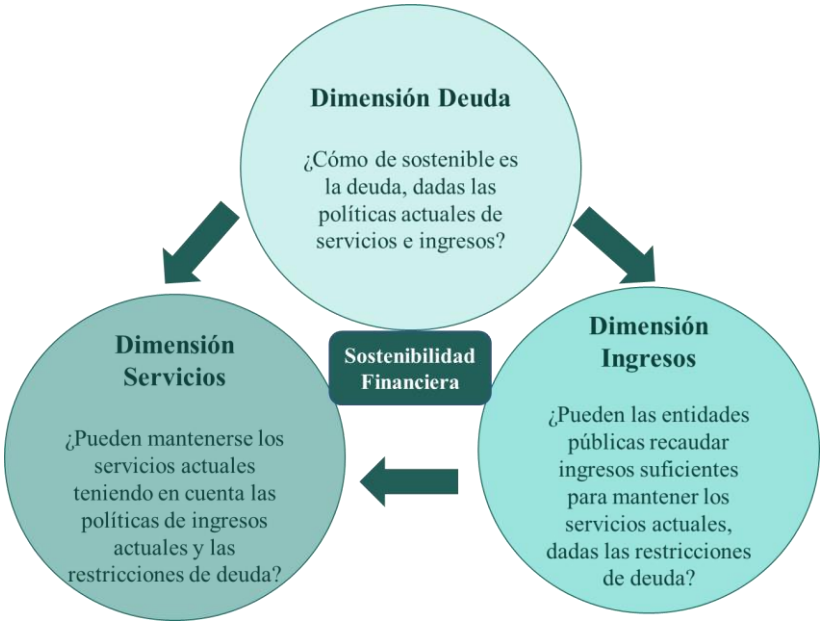
No obstante, algunos autores han encontrado diferentes limitaciones en los indicadores del *fiscal distress* (Dollery & Crase, 2006; Kloha, Weissert, & Kleine, 2005a, 2005b; Woodbury, Dollery, & Rao, 2003), tales como el uso de un gran número de variables, la exclusión de algunas variables clave o la interpretación ambigua de varios indicadores (Kloha, Weissert, & Kleine, 2005a, 2005b). De hecho, tal como indica la UE (Eurostat, 2015), la información externa proporcionada por las condiciones demográficas

y los factores socioeconómicos debe considerarse en el análisis de las finanzas públicas. La utilización de estas variables influyentes en el análisis de las finanzas públicas podría ayudar a los gestores públicos y otros *stakeholders* a alcanzar la sostenibilidad financiera considerando la equidad intergeneracional y pudiendo realizar proyecciones financieras futuras. Sin embargo, en el análisis del *fiscal distress* no se incluye este tipo de información externa. Por tanto, estos indicadores no son lo suficientemente adecuados para evaluar la capacidad de las entidades gubernamentales de prestar servicios públicos a lo largo del tiempo.

De hecho, la crisis financiera y económica ha revelado que la información proporcionada por los indicadores mencionados no ha sido suficiente para predecir los problemas financieros de las administraciones públicas (Rodríguez, Navarro, & Alcaide, 2014). La principal limitación de los indicadores utilizados para medir la *financial condition* y el *fiscal distress* es que están basados en información financiera histórica, por lo que podrían medir los acontecimientos pasados y describir la situación financiera actual de una entidad, pero son incapaces de predecir el futuro.

Las predicciones futuras están vinculadas a un nuevo concepto de sostenibilidad financiera mucho más complejo y multidimensional centrado en el futuro y no en el pasado. Así pues, la sostenibilidad financiera se considera un concepto más amplio que la *financial condition* o el *fiscal distress,* ya que, además de centrarse en las proyecciones futuras, abarca tres dimensiones principales de las finanzas públicas: deuda, ingresos y servicios (IFAC, 2013; Navarro-Galera et al., 2016; Rodríguez et al., 2016) (**Figura 1.** Dimensiones de la Sostenibilidad FinancieraFigura 1).

Figura 1. Dimensiones de la Sostenibilidad Financiera



Fuente: IFAC (2013)

En este contexto, el concepto de sostenibilidad financiera emerge con fuerza y se convierte en la dimensión más importante de la sostenibilidad (por encima de la vertiente ambiental o social) e, incluso, de la gestión del sector público (Afonso & Jalles, 2015; Rodríguez, Navarro, & Alcaide, 2014). La sostenibilidad financiera puede definirse como la capacidad de continuar con las políticas actuales sin que se produzcan cambios en la cantidad y calidad de la prestación de los servicios públicos y en la tributación, evitando un endeudamiento continuo y sin comprometer las generaciones futuras (GASB, 2011; LGA, 2012; WB, 1988).

La importancia de esta nueva visión deriva de su vinculación con el concepto de equidad inter-periodo o de equidad intergeneracional (Padilla, 2002; Pezzy & Toman, 2002). Así, la sostenibilidad financiera debe proporcionar a los gestores públicos y a los políticos información financiera útil que les permita hacer proyecciones futuras, para anticiparse y resolver los riesgos potenciales y poder beneficiarse de las oportunidades con el objetivo de mantener a las generaciones futuras con la misma calidad y cantidad de servicios públicos.

En consecuencia, los indicadores de sostenibilidad financiera tienen una doble función. Por un lado, permiten evaluar la capacidad de una entidad pública de continuar proporcionando a los ciudadanos al menos el mismo volumen y calidad de bienes y servicios. De esta forma, los gestores públicos y los responsables políticos pueden obtener información útil sobre los servicios que se necesitarán teniendo en cuenta el bienestar de las generaciones futuras.

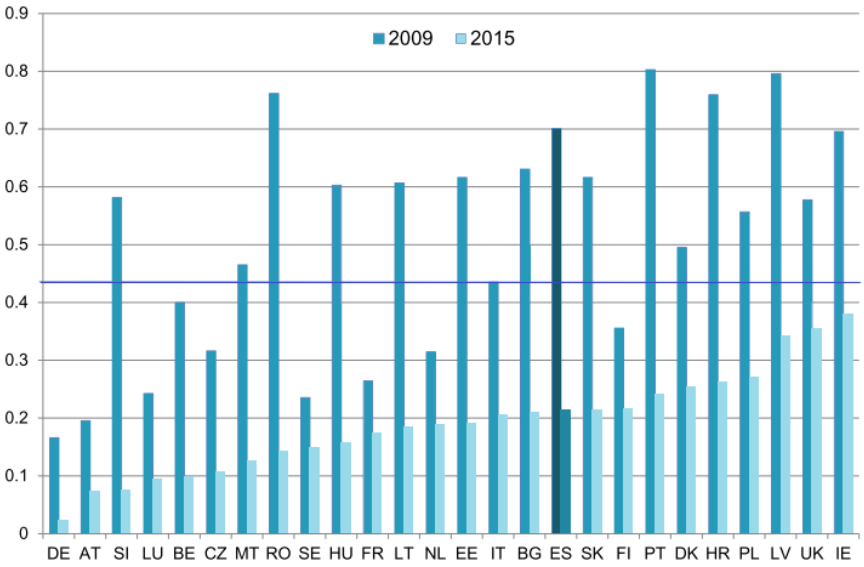
Por otro lado, un indicador de la sostenibilidad financiera debe revelar el nivel de recursos que se necesitará en el futuro para seguir cumpliendo con sus obligaciones en la prestación de servicios públicos (GASB, 1987; IFAC, 2014). De esta manera, los gestores públicos y políticos podrán hacer proyecciones financieras y tendrán la capacidad de identificar posibles shocks y riesgos futuros para responder rápidamente a las amenazas y aprovechar las oportunidades.

Sin embargo, aunque existen estudios sobre la sostenibilidad financiera, se trata de un nuevo concepto que requiere de la atención de los investigadores. A este respecto, aunque su definición es clara, la forma en la que debe medirse sigue sin consensuarse.

Por ello, el estudio de la medición contable de la sostenibilidad financiera considerando la equidad intergeneracional y sus tres dimensiones conjuntamente se ha vuelto particularmente oportuno y relevante. De hecho, es especialmente interesante en los países en los que la crisis golpeó con más fuerza como es el caso de España (ver Figura 1, Tabla 1 y Figura 2).

En este sentido, considerando los Informes de Sostenibilidad Fiscal de la Comisión Europea (2012-2016), si bien España muestra una recuperación en 2015, fue uno de los países con un indicador S0 de corto plazo más alto en 2009 (EU, 2016) (Figura 1). De hecho, en 2012 fue uno de los dos únicos países europeos que afrontaron riesgos a corto plazo en el *fiscal stress* (EU, 2012a).

Figura 2. Indicador S0 para los Países de la UE, 2009 y 2015



Fuente: EU (2016)

Además, en el mediano plazo, España fue uno de los países con mayor indicador S1 (Tabla 1), lo que significa que requirió un ajuste adicional del saldo primario para llevar la relación deuda pública/PIB al 60% del PIB (EU, 2012a).

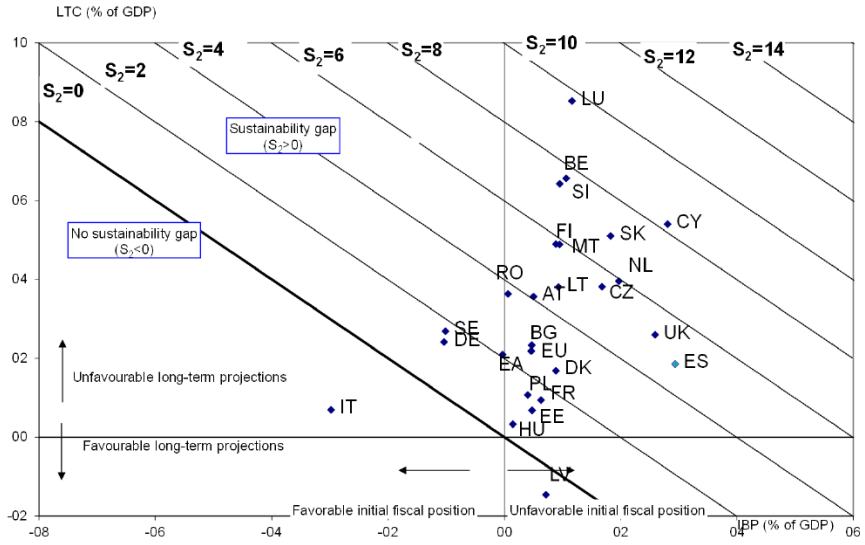
Tabla 1. Resultados Cuantitativos del Indicador S1 de Sostenibilidad a Medio Plazo

Country	S1	Country	S1	Country	S1
BE	6,2	IT	0,6	AT	2,6
BG	-1,5	CY	82	PL	0,1
CZ	1,3	LV	-2	RO	-1,4
DK	-2	LT	0,3	SI	3,2
DE	-0,3	LU	0,3	SK	2,2
EE	-3,4	HU	-0,4	FI	2
ES	5,3	MT	2	SE	-3,6
FR	1,9	NL	2,2	UK	5

Nota: Sólo incluidos los países con datos disponibles
Fuente: EU (2016)

Por último, en relación con el indicador a largo plazo S2, España mostró en 2009 una brecha de sostenibilidad por encima del promedio de la UE. España partía de una situación fiscal desfavorable y, además, las proyecciones eran desfavorables a largo plazo (Figura 3).

Figura 3. Descomposición del indicador S2



Fuente: EU (2016)

Por tanto, los posibles motores y factores de riesgo que podrían influir en la sostenibilidad financiera deben ser estudiados con el fin de proporcionar a los gestores públicos y a los responsables políticos información relevante para gestionar la sostenibilidad financiera de los gobiernos.

2. El Contexto del Sector Público Español

En España, como en otros países europeos, el período anterior a la crisis internacional tuvo una de las mayores tasas de crecimiento de la historia (4,077% de variación del PIB en 2006) (Carballo-Cruz, 2011) (ver Tabla 2). De hecho, España se había convertido en una de las economías más expansivas de la UE y su posición fiscal parecía privilegiada, incluso comparada con Alemania (Royo, 2013, 2014), presentado superávit hasta 2007 (Tabla 2). Además, la tasa de desempleo cayó hasta el 8,26% en 2007, convirtiéndose España en uno de los mayores creadores de empleos en la UE (600.000 nuevos puestos de trabajo por año) (Cabasés, Ezcurra, & Pascual, 2011). Dadas estas oportunidades, la población extranjera aumentó, favoreciendo el crecimiento de más del 50% del empleo y del 78,6% de la población (El País, 2006; Royo, 2014).

Tabla 2. La Evolución del Contexto Español

Variable	Unidad	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
PIB[1]	**% de cambio**	3.25	3.58	4.07	3.47	0.88	-3.74	-0.07	0.71	-1.82	0.12	1.15	1.64	1.76
Inversión Total	**% del PIB**	28.30	29.53	30.94	30.97	29.11	24.40	23.30	22.14	20.66	20.25	19.94	19.61	19.47
Ratio de Desempleo	**% población activa**	10.97	9.16	8.51	8.26	11.3	18.01	20.06	21.63	24.20	23.90	22.80	21,9	20,6
Empleo	**Personas (millones)**	18.51	19.26	20.02	20.62	20.54	19.18	18.74	18.39	17.80	17.81	n/a	n/a	n/a
Población Extranjera	**% de cambio**	13.89	22.95	11.09	9.06	16.58	7.21	1.75	0.07	-0.26	-3.31	-9.43	-11.33	-0.81
Ingreso Público	**% del PIB**	38.51	39.38	40.35	41.09	37.14	34.87	36.09	35.13	36.01	36.13	36.09	36.34	36.71
Gasto Público	**% del PIB**	38.85	38.42	38.34	39.19	41.30	46.06	45.43	43.58	42.03	41.82	41.32	41.09	41.1
Deuda Neta Pública	**% del PIB**	38.62	34.85	30.65	26.7	30.80	42.50	49.68	56.94	67.02	71.77	75.08	76.91	78.28
Saldo de la Cuenta Corriente	**% del PIB**	-5.25	-7.35	-8.96	-9.99	-9.62	-5.20	-4.60	-3.70	-2.14	-1.72	-1.29	-0,83	-0,39

Nota: 1.- PIB, precios constates
Fuente: Fondo Monetario Internacional, World Economic Outlook Database, April 2017

Esta situación favoreció el desarrollo urbano local. Los gobiernos se beneficiaron de los ingresos públicos asociados con el desarrollo urbano como el Impuesto de Transmisiones Patrimoniales y Actos Jurídicos Documentados, Impuesto sobre Construcciones, Instalaciones y Obras, las tasas por licencias urbanísticas y los fondos recibidos por las concesiones municipales (Benito, Vicente, & Bastida, 2015; Cabasés, Ezcurra, & Pascual, 2011). Las entidades locales españolas no sólo utilizaron estos ingresos para la promoción de la vivienda social y la construcción de instalaciones públicas (centros deportivos, teatros, parques, etc.), sino también como fuente de financiación alternativa a la deuda (Benito, Vicente, & Bastida, 2015; Cabasés, Ezcurra, & Pascual, 2011).

No obstante, los problemas financieros no tardaron en aparecer. Los primeros signos de la crisis española comenzaron en el verano de 2007, cuando empezó la fase decreciente de la economía (Tabla 2). Aunque el PIB siguió aumentando, fue la primera vez que su crecimiento disminuyó, pasando de 4,08% en 2006 a 3,48% en 2007. De hecho, aunque España continuó teniendo un superávit, fue el primer año después del ciclo de expansión en el que el crecimiento de los ingresos públicos fue por debajo de su tendencia y el gasto público aumentó. Además, la desaceleración del desarrollo urbano provocó una disminución de los ingresos de los gobiernos locales (Benito et al., 2015).

A pesar de ello, no fue hasta la primavera de 2008 cuando se reconoció oficialmente la crisis (Carballo-Cruz, 2011; Royo, 2013). El mercado inmobiliario se desplomó y el estallido de la burbuja inmobiliaria provocó un deterioro de la situación fiscal y enormes déficits. El crecimiento de PIB se paralizó (sólo creció un 0,88%) (Tabla 2). La tasa de desempleo aumentó y fue el primer año en el que, en lugar de crear empleos, hubo una pérdida de aproximadamente 100.000 puestos de trabajo. Además, los ingresos públicos no cubrieron los gastos públicos (Tabla 2).

La etapa más dura de la crisis fue en 2009 cuando la economía entró en recesión (Carballo-Cruz, 2011; Royo, 2014). El PIB cayó más del 3% y el desempleo aumentó alrededor del 7%. En este año, los ingresos por el desarrollo urbano se desplomaron, provocando que el gasto público experimentara el mayor crecimiento de este periodo, mientras que los ingresos públicos continuaron disminuyendo. Esto provocó que en 2009 se alcanzaran las mayores cifras de déficit (11,1%) y de crecimiento de la deuda (-11,19% del PIB).

Los gobiernos locales fueron el nivel público más afectado (Benito, Vicente, & Bastida, 2015) por la burbuja inmobiliaria, ya que una de sus principales fuentes de financiación provenía del desarrollo urbano que entonces estaba paralizado. Además, estas entidades sufrieron los recortes del gobierno central (NAO, 2012). Por consiguiente, se detectaron altos niveles de déficit presupuestario y deuda en las entidades locales (Muñoz-Cañavate & Hípola, 2011), comprometiendo su capacidad para proveer la misma variedad, cantidad y calidad de servicios públicos (Sáiz, 2011).

La economía española comenzó a recuperarse en 2010, con sólo una ligera disminución del crecimiento negativo del PIB (de -3,74% en 2009 a -0,07% en 2010) (Carballo-Cruz, 2011). Sin embargo, se mantuvo el crecimiento de la tasa de desempleo (aproximadamente el 3%) y la destrucción de puestos de trabajo (alrededor de 400.0000).

Debido a esta situación, el crecimiento de la población extranjera disminuyó aproximadamente un 15% desde 2008 (16,58%) hasta 2010 (1,75%), lo que hizo que la economía y la estructura de la población sufrieran un cambio. La demanda interna en España sufrió una caída de un 7,6% entre 2008 y 2010, mientras que en la Eurozona sólo fue de 1,6% (Carballo-Cruz, 2011; Royo, 2013). La inversión en vivienda fue el componente más afectado (disminuyó en un 41%) (Carballo-Cruz, 2011), por lo que tuvo mayor impacto en las finanzas del gobierno local.

Las cuentas públicas, tratando de soportar la crítica situación del sector privado provocada por el auge de la vivienda, pasaron de tener un superávit del 1,9% en 2007 a un déficit del 9,2% en 2010 (Carballo-Cruz, 2011). De hecho, se estableció el *Programa de Estabilidad* en febrero de 2010 con el objetivo de reducir gradualmente el déficit al 3% del PIB para 2013. En 2010, la consolidación fiscal se logró gracias al aumento de los ingresos tributarios y a una disminución del gasto público (Tabla 2).

En 2011, los signos de recuperación se hicieron ligeramente visibles. El PIB se volvió positivo y, aunque la tasa de desempleo y la destrucción del empleo continuaron, su aumento fue menor que en los últimos años (Tabla 2). En abril de 2011, el gobierno presentó una nueva versión del *Programa de Estabilidad*, para el período 2011-2014 con el objetivo de reducir el déficit público al 3% del PIB a finales de 2013 y estabilizar el ratio de deuda pública por debajo del 70% del PIB, en el bienio 2012-2013. Las medidas establecidas para alcanzar estos objetivos se basaron en recortes del gasto, incluyendo una notable reducción de la inversión pública (35% del total) (Carballo-Cruz, 2011).

A pesar de las medidas tomadas en 2010, en 2012 el PIB volvió a ser negativo y la tasa de desempleo y la destrucción de empleos alcanzaron sus cifras más altas. Por otro lado, la crisis del sector financiero obligó a la UE a elaborar un plan de rescate de emergencia para el sector bancario español (Royo, 2014).

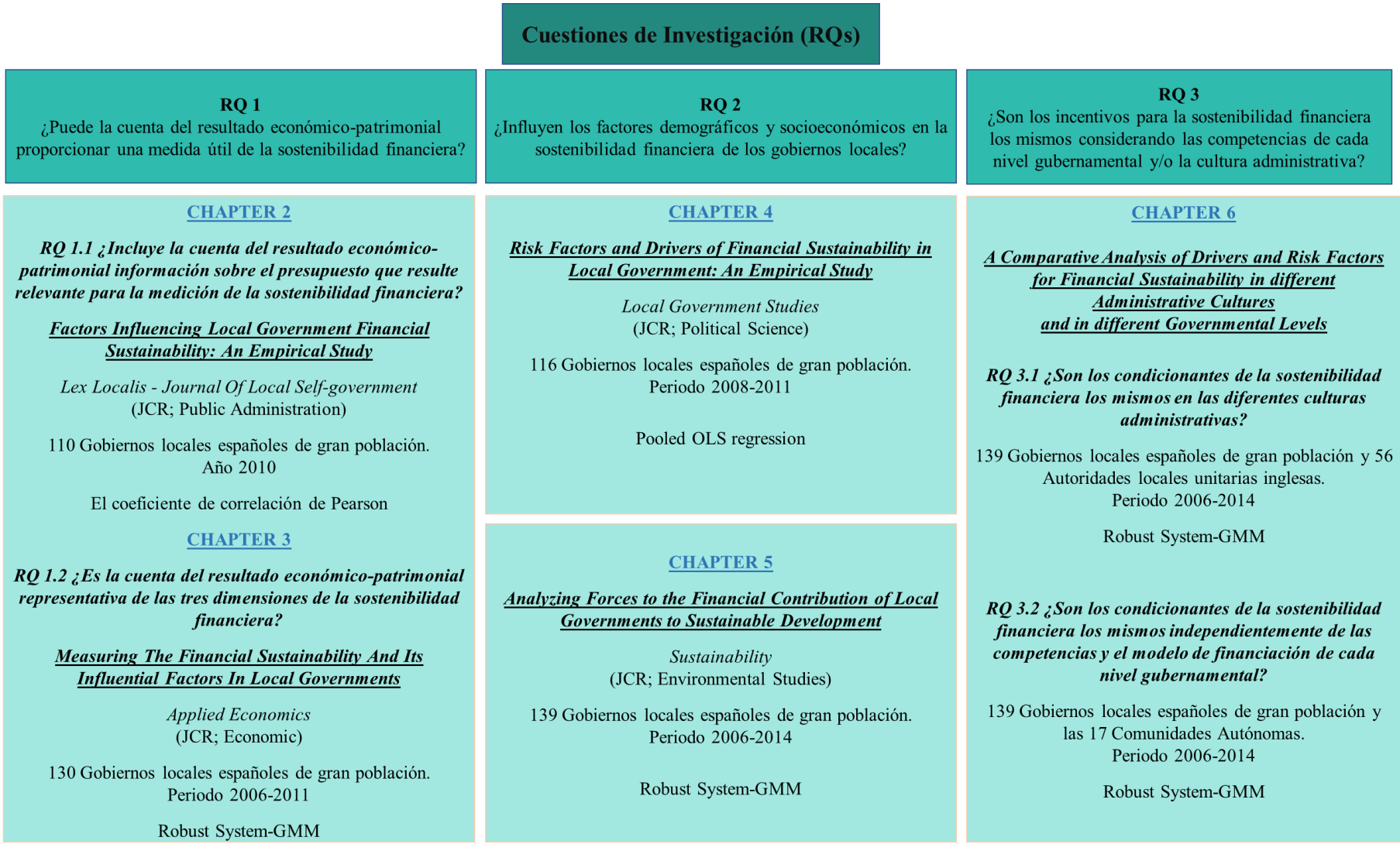
En 2013 comenzó una nueva recuperación que parece haberse mantenido hasta ahora. El crecimiento del PIB volvió a ser positivo y en 2014 creció aproximadamente un 1%. Por consiguiente, fue el primer año después del período de crisis en el que se produjo una disminución de la tasa de desempleo y se crearon nuevos puestos de trabajo. Sin embargo, la recuperación se ha convertido en un desafío lento ya que los gastos públicos siguen siendo superiores a los ingresos públicos. De hecho, España tiene un indicador de sostenibilidad inferior a la media de la Unión Europea a corto, medio y largo plazo (EU, 2016) que ha llevado a reformas legislativas como la *Ley de Estabilidad Presupuestaria y Sostenibilidad Financiera (2012)* y la *Ley de Economía Sostenible* (2012).

Así pues, siguiendo los pronunciamientos recientes de las Organizaciones Internacionales (EU, 2012a, 2012b; G-20, 2013; GASB, 2011; IFAC, 2013; IMF, 2014a), el análisis de la sostenibilidad financiera con el objetivo de controlar las finanzas públicas y evitar problemas futuros, se ha convertido en un tema oportuno y de gran transcendencia especialmente en los gobiernos locales españoles.

3. Cuestiones de Investigación

Considerado el contexto financiero de los gobiernos locales españoles y la preocupación de las Organizaciones Internacionales (EU, 2012b, 2016; FASAB, 2009; IFAC, 2013, 2016; NAO, 2014) y estudios previos (Andrews, 2015; Bailey, Valkama, & Salonen, 2014; Dollery & Grant, 2011; Rodríguez, Navarro, & Alcaide, 2014) sobre la sostenibilidad financiera, esta investigación pretende profundizar en el análisis de la misma con la intención de avanzar en los hallazgos de la investigación previa. La Figura 4 muestra una breve revisión de las cuestiones de investigación y su correspondencia con cada uno de los capítulos de esta tesis.

Figura 4. Cuestiones de Investigación



Como se ha mencionado anteriormente, existen varios indicadores para evaluar las finanzas públicas. A este respecto, la IFAC ha señalado que, aunque la información presupuestaria tiene sus limitaciones con respecto a las proyecciones futuras, es el punto de partida para evaluar la situación financiera de una entidad pública y, por ende, la sostenibilidad financiera (IFAC, 2012b). Sin embargo, los indicadores mencionados en el primer apartado sólo pueden describir la situación financiera de una entidad gubernamental, ya que se basan en eventos pasados e información histórica que los hace incapaces de predecir el futuro. En consecuencia, estos indicadores tienen limitaciones para determinar la capacidad de las administraciones públicas de mantener la provisión de los servicios públicos (Kloha, Weissert, & Kleine, 2005b; Rivenbark, Roenigk, & Allison, 2010; Woodbury, Dollery, & Rao, 2003). Así pues, es necesario encontrar una nueva medida de la sostenibilidad financiera que, además de considerar la información presupuestaria, pueda ir más allá y proporcione información relevante sobre las proyecciones futuras. Además, un indicador apropiado para medir la sostenibilidad financiera debe considerar sus tres dimensiones conjuntamente: ingresos, servicios y deuda (IFAC, 2013).

Según la IFAC (2013), la cuenta de resultado económico-patrimonial, que incluye directamente dos dimensiones (ingresos y servicios) e indirectamente una dimensión (deuda) de la sostenibilidad financiera, podría ser un instrumento adecuado para hacer proyecciones futuras. Sobre esa base, la adecuación de la cuenta de resultado económico-patrimonial está asociada con su representación de la equidad intergeneracional (Rodríguez, Navarro, & Alcaide, 2014). De manera que, proponemos un nuevo indicador basado en la cuenta de resultado económico-patrimonial que sigue el criterio de devengo y éste está vinculado a la equidad intergeneracional (GASB, 1990; IFAC, 2012b, 2014).

Por tanto, esta investigación tratará de responder a la siguiente cuestión de investigación:

RQ 1) ¿Puede la cuenta del resultado económico-patrimonial proporcionar una medida útil de la sostenibilidad financiera?

Con el objetivo de responder a esta cuestión, se presenta en el segundo capítulo de esta tesis el artículo "*Factors Influencing Local Government Financial Sustainability: An Empirical Study*" publicado en *Lex Localis-Journal of Local Self-Government* (año 2014, Volumen 12, Número 1). Este estudio intenta identificar si diferentes indicadores basados en información presupuestaria podrían estar asociados con el nuevo indicador de sostenibilidad financiera que proponemos (la cuenta de resultado económico-patrimonial justada). Este nuevo indicador consideraría no sólo su relación con la equidad intergeneracional, sino también las tres dimensiones de la sostenibilidad financiera conjuntamente.

Como indican las Organizaciones Internacionales, los estados financieros, tales como la liquidación del presupuesto, deben ser la base para evaluar la sostenibilidad financiera, aunque ésta sea un concepto más amplio vinculado a la equidad intergeneracional. Para lograr este objetivo, se realiza un análisis empírico considerando 110 gobiernos locales españoles de gran población en el año 2010 (Figura 4). Tratamos de determinar si los indicadores anteriores de las finanzas públicas, como el resultado presupuestario, la solvencia a corto plazo, la independencia financiera y los pasivos corrientes, están vinculados a la sostenibilidad financiera medida a través de la cuenta de resultado económico-patrimonial.

Así, la siguiente ***RQ 1.1*** se deriva de la ***RQ 1***:

RQ 1.1) ¿Incluye la cuenta del resultado económico-patrimonial información sobre el presupuesto que resulte relevante para la medición de la sostenibilidad financiera?

Sobre la base de los hallazgos del estudio anterior, realizamos un trabajo empírico para validar la adecuación de la cuenta del resultado económico-patrimonial para representar la sostenibilidad financiera teniendo en cuenta sus tres dimensiones (IFAC, 2013).

En el capítulo tres, correspondiente al artículo "*Measuring the financial sustainability and its influential factors in local governments*", publicado en *Applied Economics* (Año 2016, Volumen 48 y Número 41), se realiza un análisis estadístico más complejo para verificar la utilidad de la cuenta de resultado económico-patrimonial como indicador de sostenibilidad financiera considerando sus dimensiones. Además, en concordancia con IFAC (2014), hemos tratado de analizar su efectividad como indicador para evaluar dos cuestiones clave de cada dimensión: la capacidad (capacidad de la entidad para cambiar o influir en la dimensión) y la vulnerabilidad (grado de dependencia de la entidad con respecto a los factores fuera de su control o influencia) (IFAC, 2013).

Así, hemos realizado un análisis empírico de 130 municipios españoles de gran población durante el período 2006-2011 (Figura 4) con el objetivo de responder a la siguiente pregunta de investigación:

RQ 1.2) ¿Es la cuenta del resultado económico-patrimonial representativa de las tres dimensiones de la sostenibilidad financiera?

Una vez realizados los estudios sobre el indicador de la sostenibilidad financiera, se debe considerar que las Organizaciones Internacionales y las investigaciones previas (Eurostat, 2015; GASB, 2011; IFAC, 2013; Masten & Gnip, 2016; Williams, Wilmshurst, & Clift, 2010) han puesto de manifiesto que la información necesaria para analizar la

sostenibilidad financiera debe ser más amplia que la derivada de los estados financieros. Así pues, el análisis de la sostenibilidad financiera debe tener en cuenta los factores demográficos y socioeconómicos (EU, 2012a; Eurostat, 2015; GASB, 2011; Masten & Gnip, 2016; Rodríguez, Navarro, & Alcaide, 2014) que están fuera del control de las administraciones públicas.

Por tanto, el capítulo cuarto de esta tesis, basado en el artículo " *Risk Factors and Drivers of Financial Sustainability in Local Government: An Empirical Study"* publicado en *Local Government Studies* (Año 2016, Volumen 42 y Número 1), y el capítulo cinco, correspondiente al artículo "*Analyzing Forces to the Financial Contribution of Local Governments to Sustainable Development*" publicado en *Sustainability Journal* (Año 2016, Volumen 8 y Número 9), tratan de identificar los principales factores que podrían influir en la sostenibilidad financiera. Estos estudios buscan ayudar a los políticos y a los gestores públicos a tomar las decisiones apropiadas para mejorar, prevenir y/o resolver los problemas manteniendo el bienestar de las generaciones futuras.

En el capítulo 4 se han considerado en el análisis los principales factores explicativos estudiados como factores influyentes en las finanzas públicas. Así, realizamos un análisis empírico de 116 gobiernos locales españoles de gran población durante el período 2008-2011 (Figura 4), la influencia de factores demográficos como el tamaño de la población, la tasa de dependencia, el desempleo, la población extranjera y el nivel educativo de la población. Además, hemos analizado el efecto sobre la sostenibilidad financiera de factores socioeconómicos como el resultado presupuestario, el nivel económico, la actividad turística y la concentración de empresas.

Además, en el capítulo 5, la investigación se centra en identificar factores influyentes que podrían considerarse como estimulantes para la contribución financiera del sector público al desarrollo sostenible. Este estudio pone énfasis en variables como el

capital humano, la concentración de empresas, la tasa de desempleo diferenciada por sectores económicos (agrícola, industrial, de construcción y servicios), el nivel económico y la estructura de la población.

Por ello, en el capítulo 5 vamos más allá en el análisis de los factores influyentes de la sostenibilidad financiera, ya que analizamos en detalle la influencia de los componentes de varios factores como el nivel educativo y la tasa de desempleo. Además, ampliamos nuestra muestra a 139 gobiernos locales españoles de gran población durante el período 2006-2014 (Figura 4).

El propósito de estos estudios es responder a la segunda cuestión de investigación:

RQ 2) ¿Influyen los factores demográficos y socioeconómicos en la sostenibilidad financiera de los gobiernos locales?

Una vez identificados los factores que podrían influir en la sostenibilidad financiera de municipios españoles, otra cuestión interesante en el estudio de la sostenibilidad financiera es analizar si la cultura administrativa es un factor influyente para la misma, es decir, si los factores influyentes para la sostenibilidad financiera en los entes locales españoles son los mismos que los factores influyentes en los gobiernos locales de otros países. Por tanto, un análisis comparativo de los factores influyentes de sostenibilidad financiera entre los gobiernos locales de diferentes países como España y Reino Unido podría proporcionar información útil para determinar si la cultura administrativa debe considerarse en el análisis de la sostenibilidad financiera, o bien si los factores influyentes de la sostenibilidad financiera son los mismos independientemente de la cultura administrativa.

Este análisis podría identificar la adecuación de las políticas adoptadas, ya que los gestores públicos y políticos pueden obtener información sobre la sostenibilidad financiera y sus factores influyentes considerando la cultura administrativa de su país. De

hecho, las políticas adoptadas pueden diferir entre los países con diferentes culturas administrativas, aunque tengan el objetivo común de alcanzar la sostenibilidad financiera.

Desde esta motivación, planteamos la siguiente cuestión de investigación:

RQ 3.1) ¿Son los condicionantes de la sostenibilidad financiera los mismos en las diferentes culturas administrativas?

Por otra parte, el estudio sobre la sostenibilidad financiera debe ir más allá de los estudios previos sobre su definición, medida o factores influyentes (Afonso & Jalles, 2015; Navarro-Galera et al., 2016; Rodríguez, Navarro, & Alcaide, 2014; Rodríguez et al., 2014, 2016; Williams, Wilmshurst, & Clift, 2010). La investigación sobre sostenibilidad financiera debería identificar si cada nivel de la administración pública, independientemente de sus las competencias y responsabilidades, podría verse influido por los mismos factores que el local. Por tanto, el estudio de la sostenibilidad financiera y sus factores influyentes es relevante en cualquier rango de la administración pública, como por ejemplo el regional, ya que éste podría ayudar a entender la situación financiera de un país y saber cómo cada categoría de gobierno debe afrontar diferentes desafíos para lograr la sostenibilidad financiera.

Por ello, es interesante responder a la siguiente cuestión de investigación:

RQ 3.2) ¿Son los condicionantes de la sostenibilidad financiera los mismos independientemente de las competencias y el modelo de financiación de cada nivel gubernamental?

Así, el capítulo 6 de esta tesis trata de llevar a cabo dos análisis comparativos sobre los factores influyentes de la sostenibilidad financiera. El primer análisis comparativo se centra en determinar si los factores influyentes de la sostenibilidad financiera son los mismos para los gobiernos locales de diferentes países (España y el Reino Unido). El segundo trata de identificar si los factores influyentes sobre la

sostenibilidad financiera son los mismos para los diferentes niveles de administración (gobiernos regionales y locales).

De acuerdo con esto, este capítulo intenta responder a la siguiente pregunta de investigación:

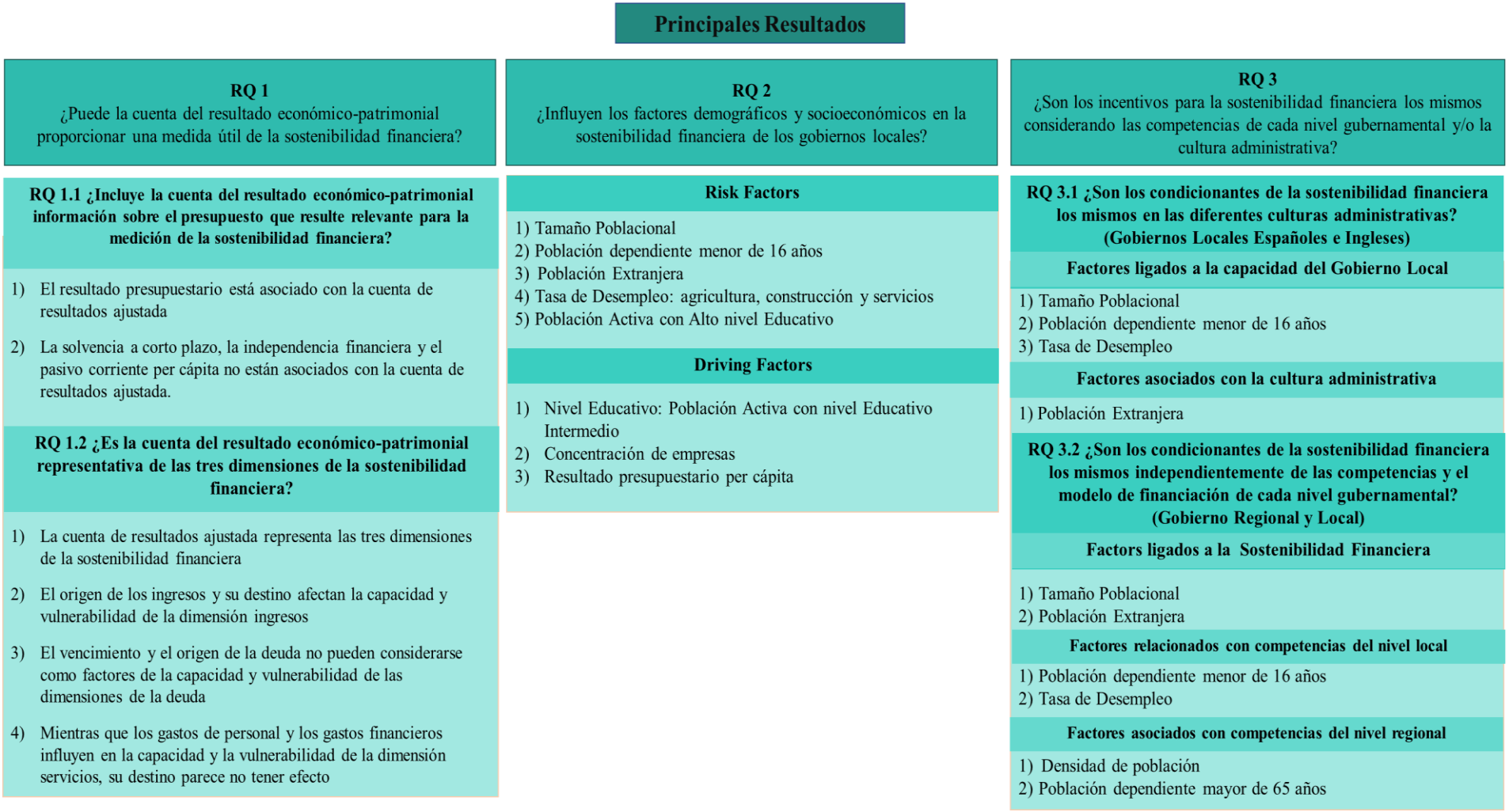
RQ 3) ¿Son los incentivos para la sostenibilidad financiera los mismos considerando las competencias de cada nivel gubernamental y/o la cultura administrativa?

Finalmente, el último capítulo de esta tesis, el capítulo 7, presenta los hallazgos más significativos obtenidos en cada uno de estos estos estudios empíricos y resume las principales conclusiones junto con algunas líneas interesantes para futuras investigaciones.

4. Resultados y Conclusiones

Como se ha expuesto con anterioridad, la principal finalidad de esta tesis es, por una parte, analizar el concepto de sostenibilidad financiera buscando un indicador representativo de sus tres dimensiones que considera la equidad intergeneracional y, por otra, identificar factores influyentes de la sostenibilidad financiera en los entes locales de diferentes países y en distintos niveles gubernamentales. En la Figura 5 se puede observar un resumen de los principales hallazgos de cada uno de los capítulos de esta tesis.

Figura 5. Principales Resultados



4.1. *RQ 1*: ¿Puede la cuenta del resultado económico-patrimonial proporcionar una medida útil de la sostenibilidad financiera?

Nuestros resultados empíricos han revelado que la cuenta del resultado económico-patrimonial ajustada podría ser un indicador adecuado para medir la sostenibilidad financiera de los gobiernos.

A este respecto, los estudios anteriores han utilizado varios indicadores basados en la información obtenida del presupuesto para evaluar la situación financiera de las entidades públicas. Sin embargo, como esta información se basa en hechos históricos, aunque tiene la capacidad de describir la situación actual de una entidad pública, no puede proporcionar la información sobre las proyecciones futuras de la misma.

Las organizaciones internacionales han señalado que la información presupuestaria debe considerarse como el punto de partida para evaluar las finanzas públicas (EU, 2012b; IFAC, 2012b). No obstante, han destacado que la sostenibilidad financiera es un concepto más amplio que debe proporcionar información sobre proyecciones futuras considerando la equidad intergeneracional, así como sus tres dimensiones (ingresos, servicios y deuda) (IFAC, 2013). Por tanto, nuestro primer estudio (***RQ 1.1***) ha identificado un indicador que, además de estar asociado al resultado presupuestario, representa una medición de la sostenibilidad financiera vinculada a la equidad intergeneracional e incluye las tres dimensiones principales de la sostenibilidad financiera: servicios, ingresos y deuda (IFAC, 2013) (Figura 5).

El análisis de la investigación previa indica que la sostenibilidad financiera medida a través de la cuenta del resultado económico-patrimonial, además de considerar el resultado presupuestario, sigue el criterio de devengo, concepto fuertemente vinculado a la equidad intergeneracional.

Este análisis nos lleva a plantearnos si la cuenta del resultado económico-patrimonial puede ser un indicador adecuado para medir la sostenibilidad financiera considerando sus tres dimensiones (***RQ 1.2***).

Los hallazgos de los dos primeros estudios nos permiten corroborar que este indicador cumple con los requisitos de las Organizaciones Internacionales (Figura 5). En primer lugar, sigue los pronunciamientos que hacen referencia a la utilidad de la cuenta del resultado económico-patrimonial como un posible indicador de la sostenibilidad financiera, puesto que está fundamentado en el principio de devengo (GASB, 1990; IFAC, 2014) y, por consiguiente, está relacionado con la equidad intergeneracional (Brundtland, 1987).

Por otra parte, nuestros resultados muestran que este indicador representa la evolución de las tres dimensiones de la sostenibilidad financiera (IFAC, 2013) (ingresos, servicios y deuda) y, además, sigue la misma relación sugerida por la IFAC (2013) entre la sostenibilidad financiera y sus tres dimensiones.

Finalmente, según IFAC (2013, 2014), hemos analizado la adecuación de la cuenta del resultado económico-patrimonial para representar dos temas clave de cada dimensión: la capacidad y la vulnerabilidad. Así, hemos demostrado empíricamente que la cuenta del resultado económico-patrimonial proporciona información sobre la capacidad de las entidades para continuar con la provisión de bienes y servicios en el mismo volumen y calidad y sobre el nivel de recursos que serán necesarios para proporcionarlos en el futuro (aspecto de "capacidad" de las tres dimensiones de la sostenibilidad financiera) (Figura 5). Además, hemos encontrado que la cuenta del resultado económico-patrimonial proporciona información útil para evaluar la vulnerabilidad de las dimensiones de la sostenibilidad financiera, ya que es capaz de predecir los problemas de vulnerabilidad asociados a las tres dimensiones y también con

factores fuera de control de las administraciones públicas tales como las tendencias demográficas y los factores socioeconómicos.

Por tanto, con respecto al ***RQ 1***, hemos concluido (a través de las ***RQ 1.1*** y ***RQ 1.2***) que la cuenta del resultado económico-patrimonial (la cuenta del resultado económico-patrimonial ajustada) es un indicador adecuado para medir la sostenibilidad financiera.

4.2. *RQ 2:* ¿Influyen los factores demográficos y socioeconómicos en la sostenibilidad financiera de los gobiernos locales?

Además, el análisis del indicador que mida la sostenibilidad financiera debe incorporar información acerca de los factores de riesgo e impulsores que podrían influir en su evolución (Dumay, Guthrie, & Farneti, 2010; Williams, Wilmshurst, & Clift, 2010). Es decir, debe considerarse la preocupación de las Organizaciones Internacionales por la influencia de la estructura demográfica y la situación socioeconómica de los gobiernos (EU, 2012a; Eurostat, 2015; FASAB, 2009; IFAC, 2012a).

Por esta razón, la ***RQ 2*** surge con el objetivo de descubrir los posibles factores influyentes, tanto demográficos como socioeconómicos, que podrían influir en la sostenibilidad financiera de los gobiernos locales. En este sentido, hemos llegado a la conclusión de que, si bien existen factores demográficos y socioeconómicos que pueden influir negativa o positivamente en la sostenibilidad financiera de los gobiernos locales españoles, existen otros factores que tienen un efecto insignificante (Figura 5).

Respecto a la estructura demográfica hemos descubierto que, aunque el tamaño de la población influye negativamente en la sostenibilidad financiera de los gobiernos locales españoles, el crecimiento de la población y la densidad de población tienen una influencia no significativa. Además, hemos encontrado que la población dependiente

menor de 16 años tiene una fuerte influencia en la sostenibilidad financiera de los gobiernos locales españoles, mientras que la población dependiente mayor de 65 años no tiene influencia (Figura 5).

En relación a la población extranjera, en un estudio preliminar, concluimos que esta variable no afectaba la sostenibilidad financiera de los gobiernos locales españoles. Sin embargo, en un análisis posterior de esta variable con una muestra ampliada tanto en el número de municipios como en el número años analizados, hemos concluido que esta variable influye negativamente en la sostenibilidad financiera de los gobiernos locales españoles (Figura 5).

Teniendo en cuenta las variables socioeconómicas, nuestros resultados indican que el nivel educativo de la población podría ser considerado como un factor estimulante de la sostenibilidad financiera de los gobiernos locales españoles. Sin embargo, cuando dividimos esta variable en educación superior e intermedia, descubrimos que mientras que la población con educación media (Bachillerato y Educación Profesional -FP I o FP II-) afecta positivamente, la población con educación superior (al menos con estudios de grado o licenciatura) afecta negativamente la sostenibilidad financiera (Figura 5).

Por otro lado, la tasa de desempleo es una variable que podría considerarse un factor de riesgo, ya que influye negativamente en la sostenibilidad financiera de los gobiernos locales españoles. En un segundo análisis más detallado, hemos descubierto que el desempleo en el sector agrícola es el que más afecta a la sostenibilidad financiera, seguido por el desempleo en el sector de la construcción y los servicios. Sin embargo, hemos detectado que la tasa de desempleo en el sector industrial no parece afectar significativamente la sostenibilidad financiera (Figura 5).

Por último, la concentración de las empresas y el resultado presupuestario pueden verse como factores impulsores de la sostenibilidad financiera de los gobiernos locales

españoles, ya que afectan positivamente a la misma. Sin embargo, el PIB y la actividad turística no parecen tener una influencia significativa en la sostenibilidad financiera de los gobiernos locales (Figura 5).

4.3. *RQ 3:* ¿Son los incentivos para la sostenibilidad financiera los mismos considerando las competencias de cada nivel gubernamental y/o la cultura administrativa?

Una vez identificados los factores que influyen en la sostenibilidad financiera de los gobiernos locales españoles a través de la investigación resumida en el apartado anterior, juzgamos interesante realizar un estudio adicional con el objetivo de identificar algunos factores influyentes asociados con las características comunes de la sostenibilidad financiera en diferentes niveles de gobiernos, con las características de la cultura administrativa de cada país, y con las características específicas de cada nivel gubernamental (***RQ 3***). Este análisis nos permitió identificar que la estructura demográfica, tal como lo sugieren las Organizaciones Internacionales (Eurostat, 2015; FASAB, 2009; IFAC, 2012a), es un factor influyente clave en la sostenibilidad financiera, independientemente del tipo de gobierno. Es decir, nuestros hallazgos muestran que el tamaño de la población es un factor que influye negativamente en la sostenibilidad financiera (tanto a nivel regional como en los gobiernos locales españoles e ingleses) (Figura 5).

Además, hemos descubierto varios factores influyentes cuya incidencia en la sostenibilidad financiera depende de las características específicas de la entidad pública analizada. De esta forma, la población extranjera podría ser interpretada como un factor de riesgo que afecta la sostenibilidad financiera dependiendo de la cultura administrativa del gobierno estudiado. De hecho, esta variable sólo afecta negativamente en la

sostenibilidad financiera de las administraciones españolas (tanto locales como regionales), mientras que el resto de variables demográficas estudiadas influyen en los entes locales españoles e ingleses simultáneamente.

Además, hay factores influyentes que están asociados con el nivel gubernamental, sus competencias y su forma de financiación. Por ejemplo, la población dependiente de más de 65 años (factor de riesgo de la sostenibilidad financiera) y la densidad de población (factor estimulante de la sostenibilidad financiera) están asociadas con las competencias específicas de los gobiernos regionales. Además, la tasa de desempleo (factor de riesgo de la sostenibilidad financiera) y la población dependiente menor de 16 años (factor de riesgo de la sostenibilidad financiera) están relacionadas con las competencias de los gobiernos locales. Estas variables afectan negativamente tanto a los municipios español como a los ingleses (Figura 5).

4.4. Conclusiones

La crisis económico-financiera que golpeó fuertemente a España en 2008, ha llevado a las administraciones públicas a afrontar una situación financiera difícil. De hecho, tal como se describe en el primer apartado de este resumen y en el capítulo 1 de esta tesis, se han detectado cambios significativos en la situación financiera y en la estructura sociodemográfica de los gobiernos en el período de crisis.

En este sentido, la situación financiera de las entidades públicas se vio comprometida cuando los gastos alcanzaron los ingresos e incluso los superaron, llevando a las entidades públicas a niveles altos de déficit, por lo que tuvieron que incurrir en una deuda financiera excesiva.

Ante este contexto, se advirtió una mayor preocupación de las Organizaciones Internacionales (EU, 2012a; IFAC, 2013; IMF, 2014b; LGA, 2015) y la investigación

previa (Afonso & Jalles, 2015; Andrews, 2015; Navarro-Galera et al., 2016; Rodríguez et al., 2014, 2016) sobre las finanzas públicas, reflejándose en un mayor control sobre las entidades públicas para revelar información financiera de mayor calidad y transparencia (Pina, Torres, & Royo, 2010). En este sentido, aunque se venían empleando diferentes indicadores para conocer la posición financiera de los gobiernos, estos indicadores no permitieron hacer predicciones sobre las dificultades que se avecinaban.

En consecuencia, las Organizaciones Internacionales y la investigación previa han enfatizado la necesidad de evaluar la sostenibilidad financiera centrada en proporcionar información útil sobre las proyecciones futuras. Este nuevo concepto puede ayudar a los gestores públicos y los responsables políticos a tomar las decisiones apropiadas para seguir proporcionando a las generaciones futuras la misma calidad y cantidad de servicios públicos. Esta información permitirá a los gestores públicos establecer las políticas y las acciones necesarias para prever los riesgos potenciales y aprovechar las oportunidades.

Los hallazgos de esta tesis han permitido avanzar sobre las conclusiones de la investigación previa, respondiendo a las ***RQs*** planteadas. Nuestros resultados empíricos podrían resultar útiles no sólo para evaluar las finanzas de una entidad gubernamental, sino también para posibilitar proyecciones futuras sobre la posición de la entidad pública con respecto a la sostenibilidad financiera y sus factores influyentes.

Esta información podría ayudarles a gestionar la sostenibilidad financiera, es decir, a gestionar las finanzas públicas para que la entidad pública pueda seguir proporcionando a las generaciones futuras la misma cantidad y calidad de servicios públicos sin incurrir en una mayor deuda. Así, la información que proporciona la cuenta del resultado económico-patrimonial respecto a la sostenibilidad financiera, junto con el análisis de sus factores impulsores y de riesgo, podrían ser relevantes para tomar las

decisiones adecuadas para anticiparse y/o resolver los riesgos potenciales y aprovecharse de las oportunidades.

Los políticos y los gestores públicos deben adoptar diferentes medidas y establecer diferentes políticas, teniendo en cuenta cómo afectan los diferentes factores a la sostenibilidad financiera de cada nivel gubernamental y cómo afecta la cultura administrativa a la sostenibilidad financiera. Además, la información proporcionada por la cuenta del resultado económico-patrimonial sobre la sostenibilidad financiera podría ser útil también para otros *stakeholders*, tales como las Organizaciones Internacionales y los ciudadanos.

5. Limitaciones y Futuras Líneas de Investigación.

A pesar de los logros alcanzados, los estudios presentados en esta tesis tienen algunas limitaciones. En primer lugar, existen algunas condiciones económicas del país (variables macroeconómicas) que no han sido consideradas en nuestra investigación, tales como los tipos de interés, las calificaciones crediticias de la deuda soberana, la prima de riesgo y/o el saldo de la balanza de pagos.

En segundo lugar, la muestra utilizada tiene diferentes limitaciones. Por un lado, en el caso de España, hemos centrado nuestros estudios en 148 municipios, aquellos que obtienen la calificación de municipios de gran población según el art. 121 de la Ley Orgánica 7/1985 (Ley 7/1985, de 2 de abril de 1985), modificada por la Ley de Modernización de la Administración Local 57/2003. Es decir, nuestra muestra está formada por municipios cuya población supera los 250.000 habitantes, por aquéllos que son capitales de provincia, capitales autonómicas o sedes de las instituciones autonómicas y por los municipios cuya población supera los 75.000 habitantes y presenten circunstancias económicas, sociales, históricas o culturales especiales. Sin embargo, no

hemos podido utilizar la totalidad de la muestra, ya que algunos datos sobre las variables estudiadas (dependientes e independientes) no están disponibles para algunos municipios en cada uno de los años del período estudiado (2006-2014).

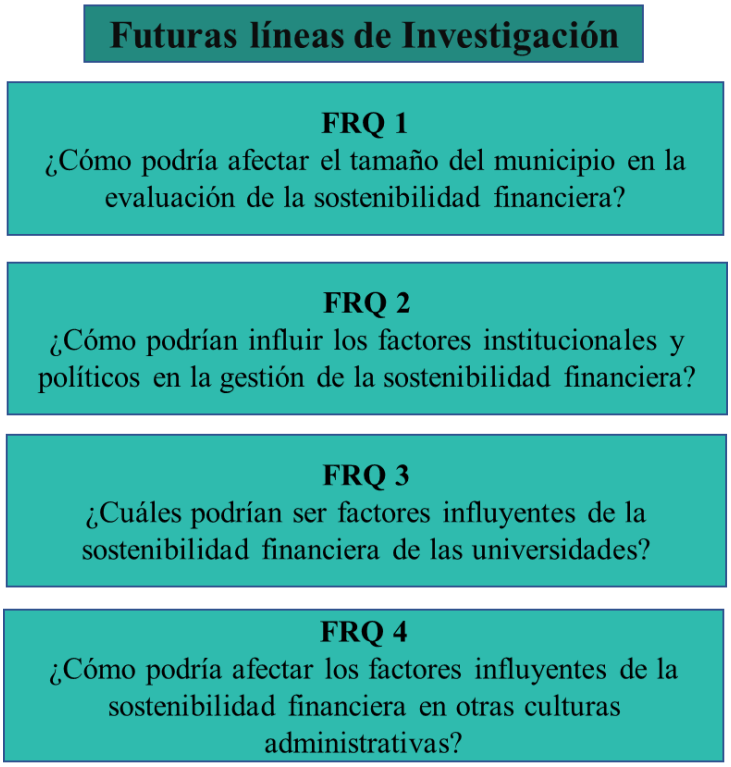
En nuestro primer estudio, sólo encontramos datos disponibles de 110 municipios en el año 2010, por lo que sólo utilizamos esta muestra. En posteriores estudios, tratamos de solventar este problema ampliando, tanto el número de municipios como los años analizados, siempre que la disponibilidad de los datos lo permitiera. Por tanto, pudimos ampliar nuestra muestra en tres ocasiones. En primer lugar, aumentamos la muestra a 116 municipios en el período 2008-2011, en segundo lugar, utilizamos 130 entes locales españoles en el período 2006-2011y, finalmente, en los estudios más recientes, hemos utilizado una muestra de 139 municipios en el período 2006-2014.

Por otra parte, otra limitación de esta investigación, como se ha mencionado anteriormente, es que hemos considerado sólo los municipios considerados de gran población. Por ello, no podemos determinar la influencia del efecto del tamaño poblacional en la sostenibilidad financiera. En este sentido, es posible que los factores estimuladores y de riesgo que influyen en la sostenibilidad financiera de municipios españoles de gran población puedan diferir de los factores estimulantes y de riesgo que podrían afectar la sostenibilidad financiera en los gobiernos locales españoles más pequeños. En investigaciones futuras, nuestra intención es ampliar la muestra considerando más municipios y los años más recientes (Figura 6).

Por consiguiente, queremos extender nuestros estudios y análisis respondiendo a la siguiente cuestión de investigación: ***¿cómo podría afectar el tamaño del municipio en la evaluación de la sostenibilidad financiera?*** En este sentido, nuestra primera línea de investigación futura sería analizar cómo el tamaño del municipio influye en la sostenibilidad financiera de los gobiernos locales españoles. Cabe destacar que analizar

el tamaño del municipio no sólo hace referencia a analizar el efecto del tamaño poblacional, sino que también involucra el análisis de diversas cuestiones tales como identificar si las necesidades de cada tipo de municipio y/o si las capacidades que los gestores públicos o los políticos necesarias para gestionar la sostenibilidad financiera son las mismas independientemente del tamaño del municipio.

Figura 6. Futuras líneas de Investigación



Además, aunque hemos estudiado cómo las variables demográficas y socioeconómicas afectan la sostenibilidad financiera, no hemos analizado aún la posible influencia de los factores institucionales y políticos. Así pues, otra línea futura de investigación sería analizar ***cómo los factores institucionales y políticos podrían influir en la gestión de la sostenibilidad financiera*** (Figura 6). Los factores institucionales y políticos a analizar podrían ser aquellos tales como la competencia política, la fortaleza política, la fragmentación política y/o la composición del gobierno teniendo en cuenta el género. Por otra parte, sería interesante también analizar si las preferencias y las

capacidades de los gestores públicos y/o los políticos podrían influir en la gestión de la sostenibilidad financiera.

Otro tema de interés podría ser extender el estudio a otros tipos de entidades públicas tales como las universidades. En este sentido, las universidades también están sufriendo las consecuencias de la crisis, ya que los gobiernos centrales, regionales y locales están reduciendo el apoyo financiero prestado. Luego, estas entidades públicas han visto comprometidas su capacidad para seguir proporcionando la misma cantidad de servicios educativos y con la misma calidad para las generaciones futuras. Por lo tanto, sería interesante ***analizar la sostenibilidad financiera de las universidades y sus factores influyentes*** (Figura 6).

Por último, otro reto en esta investigación sería realizar un análisis comparativo entre la sostenibilidad financiera de otras culturas administrativas (Figura 6). Varios autores han identificado cinco tipos de cultura administrativa en Europa: la anglosajona, la centroeuropea, la germánica, la nórdica y la del sur de Europa (Kickert, Randma-Liiv y Savi, 2015; Navarro y Rodríguez, 2011). En el desarrollo de esta tesis hemos realizado un análisis comparativo entre las administraciones públicas anglosajonas (gobiernos locales ingleses) y las del sur de Europa (gobiernos locales españoles). Sin embargo, sería interesante ampliar este estudio y comparar otros países de otras culturas administrativas con la intención de descubrir factores influyentes asociados con la característica específica de cada cultura administrativa. Por tanto, la línea de investigación futura sería ***identificar cómo las diferencias en las culturas administrativas podrían influir en la gestión de la sostenibilidad financiera y las acciones de resiliencia adoptadas para hacer frente a las consecuencias de la crisis***.

Referencias

Afonso, A., & Jalles, J. T. (2015). Fiscal sustainability: a panel assessment for advanced economies. *Applied Economics Letters*, *22*(11), 925–929. DOI: 10.1080/13504851.2014.987913

Aldasoro, I., & Seiferling, M. (2014). *Vertical fiscal imbalances and the accumulation of government debt* (IMF Working Paper No. 14/209). Statistics Department Vertical.

Andrews, R. (2015). Vertical consolidation and financial sustainability: evidence from English local government. *Environment and Planning C: Government and Policy*, *33*(6), 1518–1545. DOI: 10.1177/0263774X15614179

Bailey, S., Valkama, P., & Salonen, S. (2014). The EU's public finance crisis: causes, consequences and cure. *Public Money & Management*, *34*(2), 83–90. DOI: 10.1080/09540962.2014.887514

Benito, B., Vicente, C., & Bastida, F. (2015). The impact of the Housing Bubble on the growth of municipal debt: Evidence from Spain. *Local Government Studies*, *41*(6), 997–1016. DOI: 10.1080/03003930.2015.1048231

Bovens, M., Goodin, R. E., & Schillemans, T. (2014). *The Oxford Handbook of Public Accountability*. DOI: 10.1093/oxfordhb/9780199641253.013.0012

Bradbury, K. (1982). Fiscal Distress in Large U.S. Cities. *New England Economic Review*, *November/December*, 33–44.

Brundtland, G. H. (1987). *Report of the World Commission on environment and development:" our common future.". United Nations, 1987.* (WCED, Ed.). United Nations. DOI: 10.1002/jid.3380010208

Cabaleiro, R., Buch, E., & Vaamonde, A. (2013). Developing a method to assessing the municipal financial health. *The American Review of Public Administration*, *43*(6), 729–751. DOI: 10.1177/0275074012451523

Cabasés, F., Ezcurra, R., & Pascual, P. (2011). Municipal indebtedness in Spain revisited : the impact of borrowing limits and urban development. *XVIII Encuentro de Economía Pública*, 1–59.

Carballo-Cruz, F. (2011). Causes and consequences of the Spanish economic crisis: Why the recovery is taken so long? *Panoeconomicus*, *58*(3), 309–328. DOI: 10.2298/PAN1103309C

CICA. (1997). *Indicators of Government Financial Condition*. Toronto: CICA.

CICA. (2009). *Public sector statements of recommended practice (SORP) 4.Indicators of Financial Condition*. Toronto: CICA.

Dollery, B., & Crase, L. (2006). *A Comparative Perspective on Financial Sustainability in Australian Local Government* (September 2006 No. 01–2006). New England.

Dollery, B., & Grant, B. (2011). Financial Sustainability and Financial Viability in Australian Local Government. *Public Finance and Management*, *11*(1), 28–47.

Dumay, J., Guthrie, J., & Farneti, F. (2010). Gri Sustainability Reporting Guidelines For Public And Third Sector Organizations. *Public Management Review*, *12*(4), 531–548. DOI: 10.1080/14719037.2010.496266

El País. (2006). La Economía española creció en la última década gracias a la aportación de los inmigrantes. *El País*.

EU. (2012a). *Fiscal Sustainability Report*. Brussels: European Union. https://doi.org/10.2765/19669

EU. (2012b). *Stability and Growth Pact*. Strasbourg: European Union.

EU. (2016). *Fiscal Sustainability Report*. Luxembourg: European Union. DOI: 10.2765/412671

Eurostat. (2015). *Sustainable development in the European Union*. Luxembourg: Publications Office of the European Union. DOI: 10.2785/999711

FASAB. (2009). *Reporting Comprehensive Long-Term Fiscal Projections for the U.S. Government. Standards 36*. Washington, DC: FASAB.

G-20. (2013). *G20 leaders' declaration*. St. Petersburg, Russia: G-20.

GASB. (1987). *Concepts Statement No. 1: Objectives of Financial Reporting Model*. Norwalk: GASB.

GASB. (1990). *Concepts Statement No. 11: Measurement Focus and Basis of Accounting –Government Fund Operating Statements*. Norwalk: GASB.

GASB. (2011). *Governmental Accounting Standards Series. Preliminary Views. Economic Condition Reporting: Financial Projections*. Norwalk: GASB.

GASB. (2013). *Why Governmental Accounting and Financial Reporting is - and Should be - Different*. Norwalk: GASB.

Groves, S. M., Godsey, W. M., & Shulman, M. A. (1981). Financial Indicators for Local Government. *Public Budgeting & Finance*, *1*(2), 5–19. DOI: 10.1111/1540-5850.00511

Groves, S. M., & Valente, M. G. (1994). *Evaluating financial condition: a handbook for local government* (3rd ed.). Washington, D.C: International City/County Management Association.

Gupta, H. (2013). *Public Expenditure and Economic Growth: Econometric Models from Developing Countries*. Deemed University.

IFAC. (2012a). *Reporting on the Long-Term Sustainability of a Public Sector Entity's Finances*. New York: IFAC.

IFAC. (2012b). *Sustainability Framework 2.0.Professional Accountants as Integrators*. New York: IFAC.

IFAC. (2013). *Recommended Practice Guideline. Reporting on the Long-Term Sustainability of an Entity ' s Finances*. New York: IFAC.

IFAC. (2014). *Handbook of International Public Sector Accounting Pronouncements*. New York: IFAC.

IFAC. (2016). *Handbook of International Public Sector Accounting Pronouncements*. New York: IFAC.

IMF. (2014a). *World Economic and Financial Surveys Global Financial Stability Report*. Washington, DC: IMF.

IMF. (2014b). *World Economic Outlook (WEO) - Recovery Strengthens, Remains Uneven*. Washington, DC: IMF.

Kloha, P., Weissert, C. S., & Kleine, R. (2005a). Developing and Testing a Composite Model to Predict Local Fiscal Distress. *Public Administration Review*, *65*(3), 313–323. DOI: 10.1111/j.1540-6210.2005.00456.x

Kloha, P., Weissert, C. S., & Kleine, R. (2005b). Someone to Watch Over me: State Monitoring of Local Fiscal Conditions. *The American Review of Public Administration*, *35*(3), 236–255. DOI: 10.1177/0275074005277435

LGA. (2012). *Information Paper 1 Financial Sustainability*. Australia: LGA.

LGA. (2015). *South Australia Model Model Financial Statements*. Wagga Wagga: LGA.

Masten, I., & Gnip, A. G. (2016). Stress testing the EU fiscal framework. *Journal of Financial Stability*. DOI: 10.1016/j.jfs.2016.07.011

Muñoz-Cañavate, A., & Hípola, P. (2011). Electronic administration in Spain: From its beginnings to the present. *Government Information Quarterly*, *28*(1), 74–90. DOI: 10.1016/j.giq.2010.05.008

NAO. (2012). *Sustainability Reporting in government*. London: SLS Print Design.

NAO. (2014). *Financial sustainability of local authorities. Department for Communities and Local Government*. London: The Stationery Office.

Navarro-Galera, A., Rodríguez-Bolívar, M. P., Alcaide-Muñoz, L., & López-Subires, M. D. (2016). Measuring the financial sustainability and its influential factors in local governments. *Applied Economics*, *48*(41), 1–15. DOI: 10.1080/00036846.2016.1148260

Padilla, E. (2002). *Equidad intergeneracional y sostenibilidad: las generaciones futuras en la evaluación de políticas y proyectos*. Barcelona.

Pezzy, J., & Toman, M. (2002). Making Sense of Sustainability. *Resources for the Future*, *Issue Brie*(02–25).

Pina, V., Torres, L., & Royo, S. (2010). Is E-Government Promoting Convergence Towards More Accountable Local Governments? *International Public Management Journal*, *13*(4), 350–380. DOI: 10.1080/10967494.2010.524834

Rivenbark, W. C., Roenigk, D. J., & Allison, G. S. (2010). Conceptualizing Financial Condition in Local Government. *Journal of Public Budgeting, Accounting and Financial Management*, *22*(2), 149–177.

Rodríguez, M. P., Navarro, A., & Alcaide, L. (2014). New development: The role of accounting in assessing local government sustainability. *Public Money & Management*, *34*(3), 233–236. DOI: 10.1080/09540962.2014.908035

Rodríguez, M. P., Navarro, A., Alcaide, L., & López, M. D. (2014). Factors Influencing Local Government Financial Sustainability: An Empirical Study. *Lex Localis*, *12*(1), 31–54. DOI: 10.4335/12.1.31-54(2014)

Rodríguez, M. P., Navarro, A., Alcaide, L., & López, M. D. (2016). Risk Factors and Drivers of Financial Sustainability in Local Government: An Empirical Study. *Local Government Studies*, *42*(1), 29–51. DOI: 10.1080/03003930.2015.1061506

Royo, S. (2013). *Lessons from the Economic Crisis in Spain*. New York: Palgrave Macmillan.

Royo, S. (2014). *After austerity: lessons from the Spanish experience* (No. WP 11/2014).

Sáiz, M. P. (2011). La Ley de Economía sostenible: la sostenibilidad financiera del sector público. *Revista de Contabilidad Y Dirección*, *13*, 21–41.

Wang, X., Dennis, L., & Tu, Y. S. (jeff). (2007). Measuring Financial Condition: A Study of U.S. States. *Public Budgeting & Finance*, *27*(2), 1–21. DOI: 10.1111/j.1540-5850.2007.00872.x

WB. (1988). *World Development Report 1988*. Washington, D.C.: The World Bank Oxford University Press.

Williams, B., Wilmshurst, T., & Clift, R. (2010). The Role Of Accountants In Sustainability Reporting – A Local Government Study. In *Sixth Asia Pacific Interdisciplinary Research in Accounting Conference* (pp. 1–18). Sydney: University of Sydney, Australia.

Woodbury, K. I. M., Dollery, B., & Rao, P. (2003). Is Local Government Efficiency Measurement In Australia Adequate? An Analysis of the Evidence. *Public Performance & Management Review*, *27*(2), 77–91. DOI: 10.1080/15309576.2003.11051797

Part I:

Introduction

Chapter 1:

Introduction

1. The Evolution in the Management of Public finances

It is said that the public sector plays a key role in the economy of a country. In this regard, the public sector could be considered as one of the main driving forces for the socio-economic development of a country (WB, 1988). Indeed, the public sector is the responsible for dealing with the limitations of a country and making out the necessary actions that should be implemented so as to bolster the weakest sectors. This leads the public sector to encourage the economic growth through the supply of the necessary technical and technological infrastructures (WB, 1988) and the investment in the different economic sectors (Gupta, 2013).

In addition, the public sector is in charge of providing a wide range of public services. The public sector has to supply a great number of basic public services and, also, those services that the private sector cannot provide due to their high cost. So, the public sector has the responsibility of making the social services affordable for every citizen.

However, these functions of the public sector have been compromised by the financial and economic crisis of the recent years. It made to decrease the public revenues and to increase the public expenditures, and consequently, it provoked a high volume of a debt and a deficit in public entities (Aldasoro & Seiferling, 2014; Bailey, Valkama, & Salonen, 2014).

This situation has lead the accountability to become a relevant issue in public administrations. The accountability can be defined with a multi-purpose objective and it has different perspectives (Bovens, Goodin, & Schillemans, 2014). However, the financial problems to keep running the public services have made scholars (Dollery & Crase, 2006; Navarro-Galera et al., 2016; Rodríguez, Navarro, & Alcaide, 2014) and International Organisations (EU, 2012b; G-20, 2013; IFAC, 2012; NAO, 2014) to focus

on the link between the financial sustainability and the accountability. So, different stakeholders such as International Organisations or citizens, with the aim at monitoring the current financial situation, demand more increasingly a greater amount of higher quality and transparent financial information (Pina, Torres, & Royo, 2010). This way, there has been a call for research regarding useful financial information to monitor the public sector's accomplishment of a sustainable economic balance. This allows the public sector to consider the inter-period equity and the intergenerational equity, which have become crucial points with regard to the management of public entities (GASB, 2013).

Following GASB (2011), the inter-period equity has become an essential element in public finances because it assesses *the degree to which a government raises sufficient resources in each reporting period to cover that reporting period's costs, versus shifting costs into future years, consuming resources accumulated in the past years, or accumulating resources in the current year*. On the other hand, the intergenerational equity essentially extends inter-period equity over the long term, i.e., it considers *the degree to which each generation raises sufficient resources to finance the services it receives, versus shifting the costs of those services onto future generations or consuming resources acquired from prior generations.*

In this regard, prior research has focused on several fundamental aspects of public administrations such as financial condition and fiscal distress, among others. The fiscal condition was one of the sources of information used to analyse the financial capacity of public administrations to meet their financial duties with providers (Cabaleiro, Buch, & Vaamonde, 2013; Groves, Godsey, & Shulman, 1981; Groves & Valente, 2003; Wang, Dennis, & Tu, 2007). It tries to represent the level of sustainability, flexibility, and vulnerability of a public entity (CICA, 1997, 2009) focusing on solvency and using financial indicators.

However, the usefulness of the information that these indicators provide is limited. They cannot capture the wide range of financial dimensions of public entities and they are not able to evaluate the capacity of public administrations to keep running public services and activities (Rivenbark, Roenigk, & Allisonr, 2010). So, although sustainability is an element included in the financial condition, the financial indicators used to measure it do not fit with the new concept of financial sustainability, which tries to identify future projections so as to improve the public management (GASB, 2011).

Therefore, the necessity to find indicators which allow to measure public finances and to predict when a public entity might be facing financial difficulties led prior research to make new efforts in order to develop other indicators such as fiscal distress. This concept is focused mainly on budgetary information to examine both short- and long-term difficulties (Bradbury, 1982; Groves & Valente, 2003). Indeed, Bradbury (1982) and Groves and Valente (2003) classified fiscal distress in "Budgetary fiscal distress" and "Citizen fiscal distress" and "Budgetary solvency" and "Service-level solvency" respectively. That means that those indicators which refer to the public administrations are based on the budgetary information.

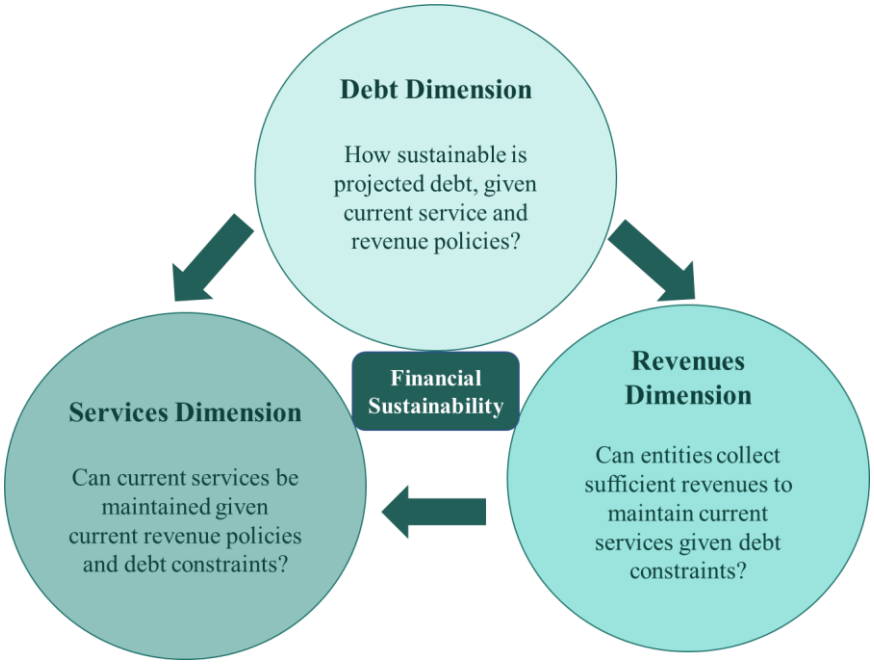
Nevertheless, some authors have found different difficulties regarding fiscal distress indicators (Dollery & Crase, 2006; Kloha, Weissert, & Kleine, 2005a, 2005b; Woodbury, Dollery, & Rao, 2003) such as the use of a huge number of variables, the exclusion of some key variables or the ambiguous interpretation of several indicators (Kloha, Weissert, & Kleine, 2005a, 2005b). Indeed, following the International Organizations such as EU (Eurostat, 2015), the external information provided by the demographics or the socio-economic factors should be considered to analyse the public finances. The inclusion of these factors as influential variables for public finances could help public managers and other stakeholders reach financial sustainability making future

financial projections and considering the intergenerational equity. However, this relevant information was not included as key variables in the analysis of the fiscal distress. So, these indicators are not well-fitted to be used to evaluate the provision of public services over time.

In fact, the financial and economic crisis has revealed that the information provided by the prior indicators was not enough to predict the financial problems of public administrations (Rodríguez, Navarro, & Alcaide, 2014). The greatest problem of the indicators used to measure the financial condition and fiscal distress is that they are based on the historical financial information. So, they could measure the past events and describe the present financial situation of an entity, but they are unable to predict the future.

The prediction of the future is linked to a new concept of financial sustainability which is more complex and multidimensional since it is centred on the future instead of the past. Therefore, financial sustainability is considered as a broader concept than the financial condition or the fiscal distress because, apart from being focused on the future projections, financial sustainability covers three main dimensions of public finances: debt, revenues, and services (IFAC, 2013; Navarro-Galera et al., 2016; Rodríguez et al., 2016) (Figure 1.1).

Figure 1.1. Financial Sustainability Dimensions



Source: IFAC (2013)

Under this framework, the concept of the financial sustainability emerges strongly and becomes more important than the other dimensions of the sustainability (environmental or social) or of the public sector management (Afonso & Jalles, 2015; Rodríguez et al., 2014). The financial sustainability can be defined as the ability to continue current policies without changes in the amount and quality of public services delivery and taxation, avoiding a continuously rising debt which allows not to compromise future generations (GASB, 2011; IFAC, 2013; LGA, 2012; WB, 1988).

The importance of this new vision derives from its link to the concept of inter-period equity or intergenerational equity (Padilla, 2002; Pezzy & Toman, 2002). That means that financial sustainability should provide public managers and policymakers with useful financial information which allows them to make future projections. This information lets public managers and policymakers not only to anticipate and solve the potential risks but also to benefit from the opportunities with the aim at keeping providing future generations with the same quality and amount of public services.

Therefore, the indicator of the financial sustainability has a twofold function. On the one hand, this indicator allows to evaluate the public entity's capacity of continuing providing citizens with at least the same volume of goods and services. So, public managers and policymakers could obtain useful information about the services that will be needed considering the well-being of the future generations.

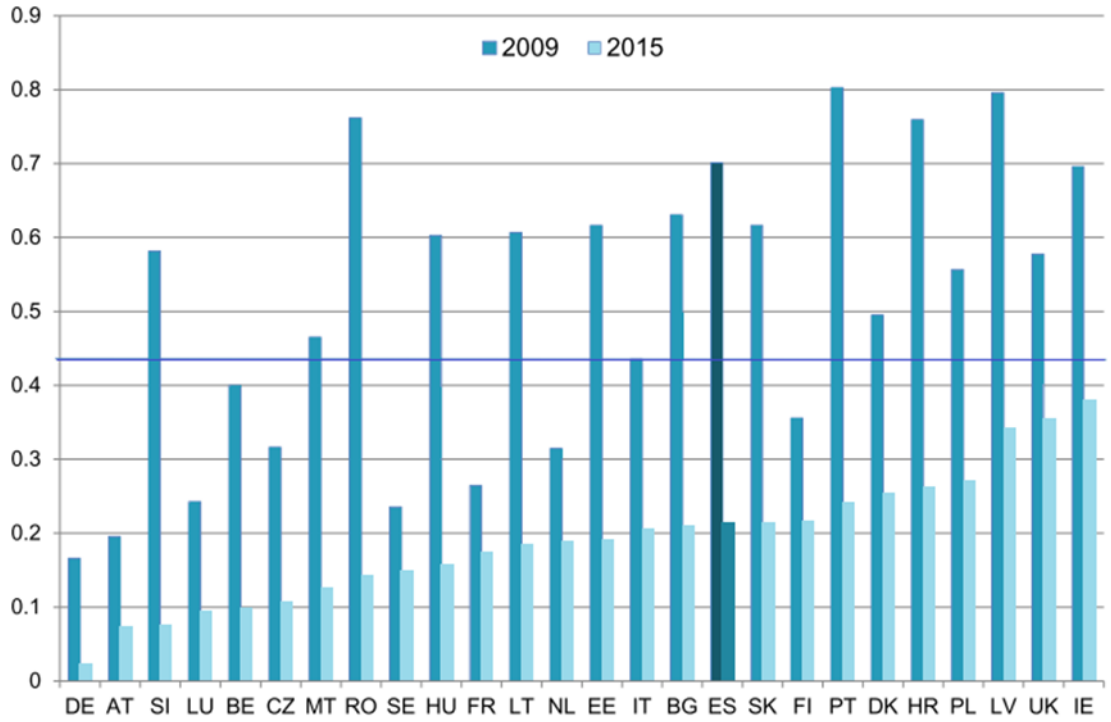
On the other hand, this indicator should reveal the level of resources that will be needed in the future to continue meeting its public services delivery obligation (GASB, 1987; IFAC, 2014). Thus, public managers and policymakers will be provided with information about financial projections and the capacity to identify possible future shocks and risks in order to respond quickly to the threats and to benefit from the opportunities.

Nonetheless, although there are studies about the financial sustainability, this is a new concept that requires attention from the researchers. In this regard, its definition is clear but its measure is still unconsolidated. A call for the research about financial sustainability in public administrations is necessary to advance in the accomplishment of sustainable public entities.

Therefore, the study of the accounting measurement of the financial sustainability considering the intergenerational equity and its three dimensions jointly has become particularly timely and relevant. Indeed, it is especially interesting in the countries where the crisis hit more strongly such as Spain (see Figure 1.2, Table 1.1 and Figure 1.3).

In this regard, following the Fiscal Sustainability Reports of the European Commission (2012-2016), although Spain shows a recovery in 2015, it was one of the countries that had a highest short-term S0 indicator in 2009 (EU, 2016) (Figure 1.2). In fact, in 2012 it was one of the only two countries that faced short-term risks for fiscal stress (EU, 2012a).

Figure 1.2. The S0 indicator for EU countries, 2009 and 2015



Source: EU (2016)

Moreover, in the medium-term, Spain was one of the countries that had a highest S1 indicator (Table 1.1). So, it required an additional adjustment of the primary balance to bring the public debt/GDP ratio to 60% of GDP (EU, 2012a).

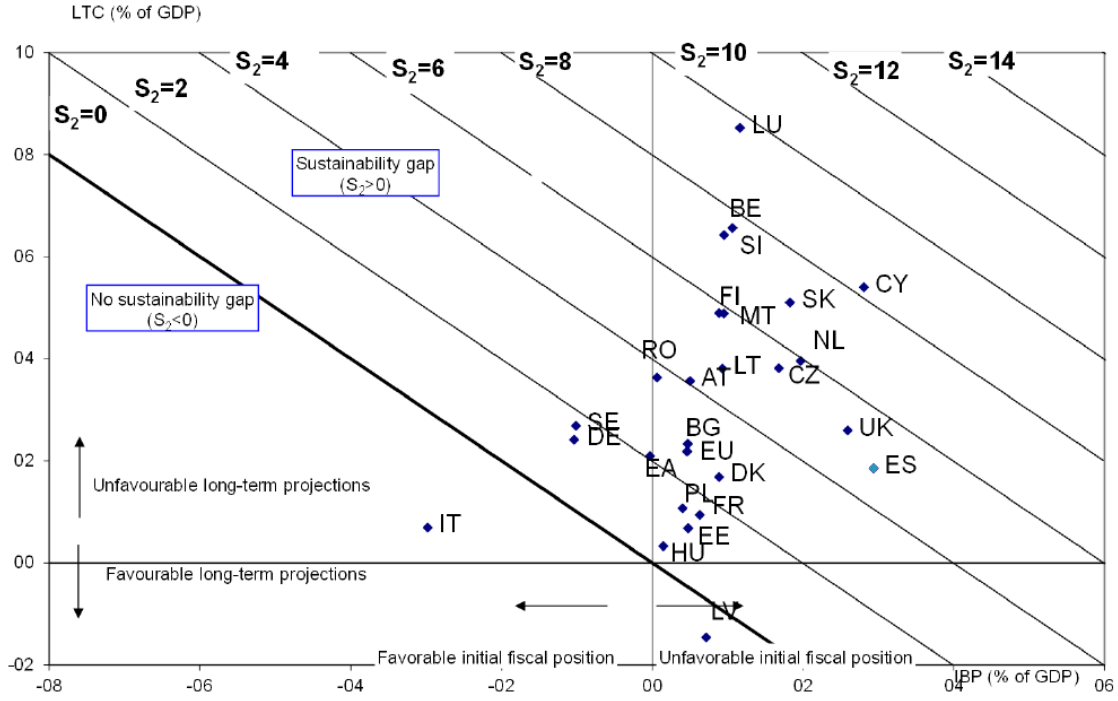
Table 1.1. Quantitative results of the S1 medium-term sustainability indicator

Country	S1	Country	S1	Country	S1
BE	6,2	IT	0,6	AT	2,6
BG	-1,5	CY	82	PL	0,1
CZ	1,3	LV	-2	RO	-1,4
DK	-2	LT	0,3	SI	3,2
DE	-0,3	LU	0,3	SK	2,2
EE	-3,4	HU	-0,4	FI	2
ES	5,3	MT	2	SE	-3,6
FR	1,9	NL	2,2	UK	5

Note: only presented the data available
Source: EU (2016)

Finally, regarding the long-term indicator S2, Spain showed in 2009 a sustainability gap over the average of the EU starting from an unfavourable fiscal position and with unfavourable long-term projections (Figure 1.3).

Figure 1.3. Decomposition of the S2 indicator



Source: EU (2016)

Hence, the potential driving and risk factors that could influence on financial sustainability should be studied in order to provide public managers and policymakers with the adequate information to make future projections about the financial sustainability.

2. The Spanish Public Sector Context

In Spain, as well as in other European countries, the period before the international global crisis has one of the highest growth rates in the history (4.077% change of the GDP in 2006) (Carballo-Cruz, 2011; Royo, 2013) (see Table 1.2). Indeed, Spain had become one of the most successful economies in EU. Its fiscal position seemed enviable, even

compared with Germany (Royo, 2013, 2014), having a surplus until 2007 (Table 1.2). Moreover, the unemployment rate fell to 8.26% in 2007 and Spain became one of the largest creators of jobs in the EU (generating approximately 600,000 jobs per year, see Table 1.2) (Cabasés, Ezcurra, & Pascual, 2011). Given these opportunities, the foreign population grew, which implied more than 50% of the employment growth and 78.6% of the demographic growth (El País, 2006; Royo, 2014).

Table 1.2. The evolution of the Spanish context

Variable	Units	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
GDP[1]	**% change**	3.25	3.58	4.07	3.47	0.88	-3.74	-0.07	0.71	-1.82	0.12	1.15	1.64	1.76
Total investment	**% of GDP**	28.30	29.53	30.94	30.97	29.11	24.40	23.30	22.14	20.66	20.25	19.94	19.61	19.47
Unemployment rate	**% of total labour force**	10.97	9.16	8.51	8.26	11.3	18.01	20.06	21.63	24.20	23.90	22.80	21,9	20,6
Employment	**Persons (millions)**	18.51	19.26	20.02	20.62	20.54	19.18	18.74	18.39	17.80	17.81	n/a	n/a	n/a
Foreign Population	**% change**	13.89	22.95	11.09	9.06	16.58	7.21	1.75	0.07	-0.26	-3.31	-9.43	-11.33	-0.81
General government revenue	**% of GDP**	38.51	39.38	40.35	41.09	37.14	34.87	36.09	35.13	36.01	36.13	36.09	36.34	36.71
General government total expenditure	**% of GDP**	38.85	38.42	38.34	39.19	41.30	46.06	45.43	43.58	42.03	41.82	41.32	41.09	41.1
General government net debt	**% of GDP**	38.62	34.85	30.65	26.7	30.80	42.50	49.68	56.94	67.02	71.77 7	75.08	76.91	78.28
Current account balance	**% of GDP**	-5.25	-7.35	-8.96	-9.99	-9.62	-5.20	-4.60	-3.70	-2.14	-1.72	-1.29	-0,83	-0,39

Note: 1.- GDP, constant prices; n/a: not available
Source: International Monetary Fund, World Economic Outlook Database, April 2017

This situation favoured the local urban development. These entities were benefited by public revenues associated with the urban development such as the land transactions tax, the construction tax, fees on developers, fees for planning permission, and the funds received from the granting of use rights of municipal-owned property (Benito, Vicente, & Bastida, 2015; Cabasés, Ezcurra, & Pascual, 2011). Spanish local governments were using these revenues for the promotion of social housing and the construction of public facilities (sports centres, theatres, parks, etc.). So, these revenues were being utilised to support capital expenditure, i.e., as an alternative to the debt financing (Benito, Vicente, & Bastida, 2015; Cabasés, Ezcurra, & Pascual, 2011).

Nevertheless, the financial problems did not take long to appear. The first signs of the Spanish crisis were in the summer of 2007 when the Spanish economy's downward phase started (Table 1.2). Although the GPD kept raising, it was the first time that the growth of the GDP decreased from 4.08% in 2006 to 3.48% in 2007. In fact, although Spain continued having a surplus, it was the first year after the expansion cycle that the growth of the public revenues was below their tendency and the expenditure suffered an increase. In addition, the urban development slowdown, which provoked a decline in local governments' revenues from this sector (Benito, Vicente, & Bastida, 2015).

However, it was in the spring of 2008 when it was officially recognised since it became impossible to deny (Carballo-Cruz, 2011; Royo, 2013). The real estate market collapsed and the burst of the housing bubble provoked a deterioration of the fiscal position and huge deficits. The GPD growth was paralyzed (only grew 0.88%) (Table 1.2). The unemployment rate increased and was the first year where instead of creating jobs, there was a loss of approximately 100.000 jobs. Also, the public revenues did not bear the public expenditures (Table 1.2).

The hardest stage of the crisis was 2009 when the economy entered into recession (Carballo-Cruz, 2011; Royo, 2014). The GDP became negatively falling more than 3% and the unemployment increased by around 7%. In this year, the urban development revenue plummeted provoking that the public expenditures experienced the strongest rise while the public revenues continued decreasing, reaching the highest deficit (11.1%) and the debt growth (-11.19% of the GDP) (Table 1.2). The local governments were the most affected public level (Benito, Vicente, & Bastida, 2015) by the housing bubble since one of its main sources of funding came from the urban development which was paralysed. Moreover, these entities suffered the central government cuts (NAO, 2012). So, high levels of the budgetary deficit and the debt were detected in local governments (Muñoz-

Cañavate & Hípola, 2011), compromising their capacity to provide the same wide variety, amount, and quality of public services (Sáiz, 2011).

The Spanish economy began to recover in 2010, with only a slight decrease of the GDP growth (from -3.74% in 2009 to -0.07% in 2010) (Carballo-Cruz, 2011). Nevertheless, the growth of the unemployment rate (approximately 3%) and the destruction of jobs (around 400.0000) were kept. Under this situation, the growth of the foreigners decreased approximately a 15% from 2008 (16.58%) to 2010 (1.75%), which made the economy and the structure of the population suffer a change. The domestic demand in Spain fell 7.6% between 2008 and 2010, whereas in the Eurozone it fell only 1.6% (Carballo-Cruz, 2011; Royo, 2013). In this regard, the investment in housing was the most affected component, which decreased by 41% (Carballo-Cruz, 2011) and had a greater impact on local government finances.

The public accounts, trying to bear with the critical situation of the private sector provoked by the housing boom, went from having a surplus of 1.9% in 2007 to presenting a deficit of 9.2% in 2010 (Carballo-Cruz, 2011). Therefore, the Updated Stability Programme of February 2010 was established with the aim of reducing gradually the deficit to 3% of the GDP by 2013. In 2010, the fiscal consolidation was achieved due to an increase in the tax revenues and a fall in the public expenditure (see Table 1.2).

In 2011, the signs of recovery became slightly visible. The GDP turned into positive and although the unemployment rate and the job destruction continued, their increase was lower than in the last years (Table 1.2). In April 2011, the government submitted a new version of the Stability Programme, for the 2011-2014 period. Following the objectives set out, the public deficit should reduce to 3% of the GDP by the end of 2013 and the public debt ratio will stabilize just below 70% of the GDP, in the 2012-2013 biennium. The established measures to reach these objectives were based on spending

cuts, including a deep reduction of public consumption (35% of total) (Carballo-Cruz, 2011).

However, the austerity policies implemented in May 2010 aggravated the country's fiscal position (Royo, 2014) since in 2012 the GDP turned again into negative and the unemployment rate and the jobs destruction reached their highest figures. Moreover, the crisis in the financial sector forced the EU to devise an emergency rescue plan for the Spanish banking sector (Royo, 2014).

In 2013 started a new recovery which has been maintained until now. The GDP growth turned again into positive and in 2014 grew approximately a 1%. Moreover, it was the first year after the crisis period that the unemployment rate decreased and new jobs were created. However, the recovery has become a slow challenge since the public expenditures were still higher than the public revenues. Indeed, Spain has a sustainability gap indicator above the European Union average in the short-, medium- and long-term (EU, 2016) which has led to legislative reforms such as the Budgetary Stability and the Financial Sustainability Act (2012) and the Sustainable Economy Act (2012).

Therefore, following the recent pronouncements of International Organizations (EU, 2012a, 2012b; G-20, 2013; GASB, 2011; IFAC, 2013; IMF, 2014; OECD, 2001), the analysis of the financial sustainability has become a timely issue, especially in Spanish local governments, with the aim of monitoring public finances and avoiding future problems.

3. Research Questions

Having considered financial context of Spanish local governments and the concern of the International Organizations (EU, 2012b, 2016; FASAB, 2009; IFAC, 2013, 2016; NAO, 2014) and prior studies (Andrews, 2015; Bailey, Valkama, & Salonen, 2014; Dollery & Grant, 2011; Rodríguez, Navarro, & Alcaide, 2014) about financial sustainability, this research aims at filling the literature gap regarding this issue. A brief review of the research questions and their association with the chapter of this thesis are described in Figure 1.4.

As mentioned in the first section, there are several indicators to assess the public finances. In this regard, IFAC has pointed out that although the budgetary information has its limitations regarding the future projections, it is the starting point to assess the financial situation of a public entity, and thus, the financial sustainability (IFAC, 2012). However, the indicators described in the first section could only describe the financial situation of a public entity since they are based on past event and historical information which makes them unable to predict the future. So, they are limited to determine the capacity of public administrations to keep running public services and activities (Kloha, Weissert, & Kleine, 2005a; Rivenbark, Roenigk, & Allisonr, 2010; Woodbury, Dollery, & Rao, 2003). This way, it is necessary to find a new measure of the financial sustainability that despite considering the budgetary information, it could go further and it could provide information on the future projections. Moreover, an appropriate indicator to measure financial sustainability should consider its three dimensions jointly: revenues, services, and debt (IFAC, 2013).

Figure 1.4. Research Questions

According to IFAC (2013) the income statement, which includes directly two dimensions (revenues and services) and indirectly one dimension (debt) of the financial sustainability, could fit with the intention of making future projections. Indeed, the adequacy of the income statement, also named statement of financial performance, will be associated with its representation of the intergenerational equity (Rodríguez, Navarro, & Alcaide, 2014). So, we propose a new indicator based on the income statement which is made on an accrual basis, a concept linked to the intergenerational equity (GASB, 1990; IFAC, 2012, 2014).

Therefore, this research will try to answer the following research question:

RQ 1) Can the income statement be a useful measure of the financial sustainability?

With the aim at answering this research question, firstly it is presented in the second chapter of this thesis the paper "*Factors Influencing Local Government Financial Sustainability: An Empirical Study*" published in *Lex Localis-Journal of Local Self-Government* (Year 2014, Volume 12, Issue 1). This study tries to identify whether different indicators based on budgetary information could be associated with the new financial sustainability indicator based on the income statement that we propose. This new indicator would consider not only its link to the intergenerational equity but also would consider jointly the three dimensions of the financial sustainability.

So, we try to identify whether indicators associated with budgetary information are linked to the income statement. As mentioned by International Organizations, the government financial statements such as the budget should be the baseline to assess the financial sustainability although this is a broader concept linked to the intergenerational equity. To achieve this aim, we perform an empirical analysis considering 110 Spanish local governments with a relatively large population in the fiscal year 2010 (see Figure 1.1). We try to identify whether previous indicators of public finances such as the

budgetary results, the short-term solvency, the financial independence and the current liabilities are linked to the financial sustainability measured through the income statement.

Therefore, the following ***RQ 1.1*** is derived from the ***RQ 1***:

RQ 1.1) Is relevant information associated with the budget included in the income statement?

Having considered the findings in the previous study, we have carried out an empirical study to validate the adequacy of the income statement to represent the financial sustainability considering its three dimensions (IFAC, 2013).

In this regard, the chapter three, based on the paper "*Measuring the financial sustainability and its influential factors in local governments*" published in *Applied Economics* (Year 2016, Volume 48, and Issue 41), performs a more complex statistical analysis in order to verify the usefulness of the income statement as an indicator of the financial sustainability considering its dimensions. This indicator would represent the intergenerational equity and would consider the financial sustainability's three dimensions: revenues, services, and debt. Moreover, in concordance with IFAC (2014), we have tried to analyse its effectiveness as an indicator to assess two key issues of each dimension: capacity and vulnerability. Following IFAC (2013), the capacity could be defined as the ability of the entity to change or influence the dimension. In addition, the vulnerability is considered as the extent of the entity's dependence on the factors outside its control or influence (IFAC, 2013).

So, we have carried out an empirical analysis of 130 Spanish municipalities with a relatively large population during the period 2006-2011 (see Figure 1.4) with the aim at answering the following research question:

RQ 1.2) Is the income statement representative of the three dimensions of the financial sustainability?

In addition to the above mentioned, the International Organizations and prior research (Eurostat, 2015; GASB, 2011; IFAC, 2013; Masten & Gnip, 2016; Williams, Wilmshurst, & Clift, 2010) have highlighted that the information necessary for analysing the financial sustainability should be broader than that derived from the financial statements. In this regard, the analysis of the financial sustainability should consider the demographic and socio-economic factors (EU, 2012a; Eurostat, 2015; GASB, 2011; Masten & Gnip, 2016; Rodríguez, Navarro, & Alcaide, 2014) which are beyond public administrations' control.

Therefore, the chapter four, based on the article "*Risk Factors and Drivers of Financial Sustainability in Local Government: An Empirical Study*" published in *Local Government Studies* (Year 2016, Volume 42, and Issue 1), and five, based on the paper "*Analyzing Forces to the Financial Contribution of Local Governments to Sustainable Development*" published in S*ustainability Journal* (Year 2016, Volume 8, and Issue 9), of this thesis try to identify the main potential factors that could influence on financial sustainability. These studies seek to help policymakers and public managers to make appropriate decisions to improve financial sustainability, prevent and/or solve sustainability problems and to maintain the well-being of future generations.

In chapter 4, we consider the main explanatory factors studied in public administrations as influential factors for public finances. So, we analyse through the empirical analysis of 116 Spanish local governments with a relatively large population during the period 2008-2011 (see Figure 1.4) the influence of demographic factors such as population size, dependency ratio, unemployment, foreign population and educational level of the population. In addition, we also analyse the influence of socio-economic

factors such as the budget result, the economic level, the touristic activity, and the firm concentration.

Moreover, in chapter 5, we focus the research on identifying influential factors that could be considered as forces to the financial contribution of the public sector to the sustainable development. So, this study puts emphasis in variables such as the human capital, the companies concentration, the unemployment rate differenced by economic sectors (agricultural, industrial, building and services sector), the economic level, and the population structure.

So, we go further in the analysis of the influential factors of the financial sustainability since we analyse in detail the influence of the components of several factors such as the educational level and unemployment rate. Moreover, we extend our sample to 139 Spanish local governments with a relatively large population during the period 2006-2014 (see Figure 1.4).

Hence, the purpose of these studies is to respond the second research question:

RQ 2) Do the demographic and the socio-economic factors influence on financial sustainability of local governments?

Once identified the potential factors for Spanish local governments' financial sustainability, another interesting question regarding this issue could be whether the administrative culture is an influential factor for financial sustainability. In other words, it is relevant to analyse whether the influential factors for financial sustainability in local governments are the same in other countries. So, a comparative analysis of the influential factors of financial sustainability between local governments of different countries such as Spain and United Kingdom could provide useful information to determinate whether the administrative culture should be considered in the analysis of the financial

sustainability or whether the influential factors for financial sustainability are the same in the same governmental level regardless the administrative culture.

In this regard, this analysis could identify the adequacy of the policies taken, since policymakers and public manager can get information about the financial sustainability and its influential factors considering the administrative culture of their country. So, the policies taken can differ from countries with different administrative cultures although these policies aim to reach financial sustainability.

So, the following research question can be derived to:

RQ 3.1) Are the incentives for the financial sustainability the same regardless the administrative culture?

Moreover, the research about the financial sustainability should go further than previous studies regarding its definition, measure or influential factors (Afonso & Jalles, 2015; Navarro-Galera et al., 2016; Rodríguez, Navarro, & Alcaide, 2014; Rodríguez et al., 2016; Williams, Wilmshurst, & Clift, 2010). Furthermore, the research about financial sustainability should analyse whether the competencies and responsibilities of each level of public administration could be influenced by the same influential factors as the local level. So, the study of the financial sustainability and its influential factors is relevant in any level of public administration, such as regional level, since this could help understand the financial situation of a country and know how each level of government should face different challenges to achieve the financial sustainability.

So, it is interesting to answer the following research question:

RQ 3.2) Are the incentives for the financial sustainability the same regardless the competencies and the funding model of each governmental level?

Hence, the chapter 6 of this thesis tries to carry out two comparative analysis about the influential factors of the financial sustainability. One is centred on the local

governments of different countries (local governments of Spain and the United Kingdom) and another is focused on the different administration levels (regional and local governments).

According to this, these comparative analyses will try to answer the following research question:

RQ 3) Are the incentives for the financial sustainability the same considering the administrative culture and/or the competencies of each governmental level?

Finally, the chapter 7 of this thesis presents the most significant findings obtained by these empirical studies and summarizes the main conclusions together with some interesting lines for future research.

References

Afonso, A., & Jalles, J. T. (2015). Fiscal sustainability: a panel assessment for advanced economies. *Applied Economics Letters*, *22*(11), 925–929. DOI: 10.1080/13504851.2014.987913

Aldasoro, I., & Seiferling, M. (2014). *Vertical fiscal imbalances and the accumulation of government debt* (IMF Working Paper No. No. 14/209). Statistics Department Vertical.

Andrews, R. (2015). Vertical consolidation and financial sustainability: evidence from English local government. *Environment and Planning C: Government and Policy*, *33*(6), 1518–1545. DOI: 10.1177/0263774X15614179

Bailey, S., Valkama, P., & Salonen, S. (2014). The EU's public finance crisis: causes, consequences and cure. *Public Money & Management*, *34*(2), 83–90. DOI: 10.1080/09540962.2014.887514

Benito, B., Vicente, C., & Bastida, F. (2015). The impact of the Housing Bubble on the growth of municipal debt: Evidence from Spain. *Local Government Studies*, *41*(6), 997–1016. DOI: 10.1080/03003930.2015.1048231

Bovens, M., Goodin, R. E., & Schillemans, T. (2014). *The Oxford Handbook of Public Accountability*. DOI: 10.1093/oxfordhb/9780199641253.013.0012

Bradbury, K. (1982). Fiscal Distress in Large U.S. Cities. *New England Economic Review*, *November/D*, 33–44.

Cabaleiro, R., Buch, E., & Vaamonde, A. (2013). Developing a method to assessing the municipal financial health. *The American Review of Public Administration*, *43*(6), 729–751. DOI: 10.1177/0275074012451523

Cabasés, F., Ezcurra, R., & Pascual, P. (2011). Municipal indebtedness in Spain revisited : the impact of borrowing limits and urban development. *XVIII Encuentro de Economía Pública*, 1–59.

Carballo-Cruz, F. (2011). Causes and consequences of the Spanish economic crisis: Why the recovery is taken so long? *Panoeconomicus*, *58*(3), 309–328. DOI: 10.2298/PAN1103309C

CICA. (1997). *Indicators of Government Financial Condition*. Toronto: CICA.

CICA. (2009). *Public sector statements of recommended practice (SORP) 4.Indicators of Financial Condition*. Toronto: CICA.

Dollery, B., & Crase, L. (2006). *A Comparative Perspective on Financial Sustainability in Australian Local Government* (September 2006 No. 01–2006). New England.

Dollery, B., & Grant, B. (2011). Financial Sustainability and Financial Viability in Australian Local Government. *Public Finance and Management*, *11*(1), 28–47.

El País. (2006). La Economía española creció en la última década gracias a la aportación de los inmigrantes. *El País*.

EU. (2012a). *Fiscal Sustainability Report*. Brussels: European Union. https://doi.org/10.2765/19669

EU. (2012b). *Stability and Growth Pact*. Strasbourg: European Union.

EU. (2016). *Fiscal Sustainability Report*. Luxembourg: European Union. DOI: 10.2765/412671

Eurostat. (2015). *Sustainable development in the European Union*. Luxembourg: Publications Office of the European Union. DOI: 10.2785/999711

FASAB. (2009). *Reporting Comprehensive Long-Term Fiscal Projections for the U.S. Government. Standards 36*. Washington, DC: FASAB.

G-20. (2013). *G20 leaders' declaration*. St. Petersburg, Russia: G-20.

GASB. (1987). *Concepts Statement No. 1: Objectives of Financial Reporting Model*. Norwalk: GASB.

GASB. (1990). *Concepts Statement No. 11: Measurement Focus and Basis of Accounting –Government Fund Operating Statements*. Norwalk: GASB.

GASB. (2011). *Governmental Accounting Standards Series. Preliminary Views. Economic Condition Reporting: Financial Projections*. Norwalk: GASB.

GASB. (2013). *Why Governmental Accounting and Financial Reporting is - and Should be - Different*. Norwalk: GASB.

Groves, S. M., Godsey, W. M., & Shulman, M. A. (1981). Financial Indicators for Local Government. *Public Budgeting & Finance*, *1*(2), 5–19. DOI: 10.1111/1540-5850.00511

Groves, S. M., & Valente, M. G. (2003). *Evaluating Financial Condition: A Handbook for Local Governments* (4th ed.). Washington DC: ICMA.

Gupta, H. (2013). *Public Expenditure and Economic Growth: Econometric Models from Developing Countries*. Deemed University.

IFAC. (2012). *Reporting on the Long-Term Sustainability of a Public Sector Entity's Finances*. New York: IFAC.

IFAC. (2013). *Recommended Practice Guideline. Reporting on the Long-Term Sustainability of an Entity ' s Finances*. New York: IFAC.

IFAC. (2014). *Handbook of International Public Sector Accounting Pronouncements*. New York: IFAC.

IFAC. (2016). *Handbook of International Public Sector Accounting Pronouncements*. New York: IFAC.

IMF. (2014). *World Economic Outlook (WEO) - Recovery Strengthens, Remains Uneven*. Washington, DC: IMF.

Kloha, P., Weissert, C. S., & Kleine, R. (2005a). Developing and Testing a Composite Model to Predict Local Fiscal Distress. *Public Administration Review*, *65*(3), 313–323. DOI: 10.1111/j.1540-6210.2005.00456.x

Kloha, P., Weissert, C. S., & Kleine, R. (2005b). Someone to Watch Over me: State Monitoring of Local Fiscal Conditions. *The American Review of Public Administration*, *35*(3), 236–255. DOI: 10.1177/0275074005277435

LGA. (2012). *Information Paper 1 Financial Sustainability*. Australia: LGA.

Masten, I., & Gnip, A. G. (2016). Stress testing the EU fiscal framework. *Journal of Financial Stability*. DOI: 10.1016/j.jfs.2016.07.011

Muñoz-Cañavate, A., & Hípola, P. (2011). Electronic administration in Spain: From its beginnings to the present. *Government Information Quarterly*, *28*(1), 74–90. DOI: 10.1016/j.giq.2010.05.008

NAO. (2012). *Sustainability Reporting in government*. London: SLS Print Design.

NAO. (2014). *Financial sustainability of local authorities. Department for Communities and Local Government*. London: The Stationery Office.

Navarro-Galera, A., Rodríguez-Bolívar, M. P., Alcaide-Muñoz, L., & López-Subires, M. D. (2016). Measuring the financial sustainability and its influential factors in local governments. *Applied Economics*, *48*(41), 1–15. DOI: 10.1080/00036846.2016.1148260

OECD. (2001). *The Well-being of Nations. The Role of Human and Social Capital*. French: OECD.

Padilla, E. (2002). Intergenerational equity and sustainability. *Ecological Economics*, *41*(1), 69–83. DOI: 10.1016/S0921-8009(02)00026-5

Pezzy, J., & Toman, M. (2002). Making Sense of Sustainability. *Resources for the Future, Issue Brie*(02–25).

Pina, V., Torres, L., & Royo, S. (2010). Is E-Government Promoting Convergence Towards More Accountable Local Governments? *International Public Management Journal*, *13*(4), 350–380. DOI: 10.1080/10967494.2010.524834

Rivenbark, W. C., Roenigk, D. J., & Allisonr, G. S. (2010). Conceptualizing Financial Condition in Local Government. *Journal of Public Budgeting, Accounting and Financial Management*, *22*(2), 149–177.

Rodríguez, M. P., Navarro, A., & Alcaide, L. (2014). New development: The role of accounting in assessing local government sustainability. *Public Money & Management*, *34*(3), 233–236. DOI: 10.1080/09540962.2014.908035

Rodríguez, M. P., Navarro, A., Alcaide, L., & López, M. D. (2014). Factors Influencing Local Government Financial Sustainability: An Empirical Study. *Lex Localis*, *12*(1), 31–54. DOI: 10.4335/12.1.31-54(2014)

Rodríguez, M. P., Navarro, A., Alcaide, L., & López, M. D. (2016). Risk Factors and Drivers of Financial Sustainability in Local Government: An Empirical Study. *Local Government Studies*, *42*(1), 29–51. DOI: 10.1080/03003930.2015.1061506

Royo, S. (2013). *Lessons from the Economic Crisis in Spain*. New York: Palgrave Macmillan.

Royo, S. (2014). *After austerity: lessons from the Spanish experience* (No. WP 11/2014).

Sáiz, M. P. (2011). La Ley de Economía sostenible: la sostenibilidad financiera del sector público. *Revista de Contabilidad Y Dirección*, *13*, 21–41.

Wang, X., Dennis, L., & Tu, Y. S. (jeff). (2007). Measuring Financial Condition: A Study of U.S. States. *Public Budgeting & Finance*, *27*(2), 1–21. DOI: 10.1111/j.1540-5850.2007.00872.x

WB. (1988). *World Development Report 1988*. Washington, D.C.: The World Bank Oxford University Press.

Williams, B., Wilmshurst, T., & Clift, R. (2010). The Role Of Accountants In Sustainability Reporting – A Local Government Study. In *Sixth Asia Pacific Interdisciplinary Research in Accounting Conference* (pp. 1–18). Sydney: University of Sydney, Australia.

Woodbury, K. I. M., Dollery, B., & Rao, P. (2003). Is Local Government Efficiency Measurement In Australia Adequate? An Analysis of the Evidence. *Public Performance & Management Review*, *27*(2), 77–91. DOI: 10.1080/15309576.2003.11051797

Part II:

The Measurement

of the

Financial Sustainability

in

Local Government

Chapter 2:

Factors Influencing Local Government Financial Sustainability:

An Empirical Study

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1. Introduction

In recent years, the financial and economic crisis has added further pressure on public administrations to control financial sustainability, and therefore public administrations are urged to provide higher quality financial information and maintain information transparency (Pina, Torres, & Royo, 2010) in order to detect financial distress (Zafra-Gómez, López-Hernández, & Hernández-Bastida, 2009) and achieve a sustainable financial balance (Burritt & Schaltegger, 2010).

In the field of public sector accounting, governmental financial reports, particularly the income statement, play a fundamental role in assessing financial sustainability (IFAC, 2011a) and should provide all the information required to assess the capability of public administrations to maintain the level of public services over time (Krueger & Agyeman, 2005; Navarro, Alcaraz, & Ortiz, 2010), thus enabling intergenerational equity to be taken into account in decisions affecting the volume of services provided, or those involving the search for new external resources, modifications to user payment requirements for services or any combination of these measures.

In addition, public administrations should seek short-term solvency – defined as the entity's ability to generate sufficient liquidity to pay its debts (Groves & Valente, 2003) – in order not to increase public debt or incur public deficits. However, current financial tensions in public administrations may prevent them from achieving financial sustainability in the future and this could be a signal of future financial distress (Zafra-Gómez, López-Hernández, & Hernández-Bastida, 2009). The total volume of short-term liabilities could also be associated with financial sustainability because a high volume of short-term debt could mean governments do not have sufficient financial resources to meet their liabilities, which could provoke fiscal distress.

One approach to defining sustainability is to consider governmental solvency in terms of the inter-temporal budget constraint (EU, 2012b), examining the government's ability to meet the costs of current and future debt through future revenues (EU, 2012b). Financial independence, i.e. the organization's ability to generate sufficient non-financial income to meet its non-financial budgetary obligations (Groves & Valente, 2003), is required in order to meet current and future debt.

Budget information may have a significant impact on financial sustainability (EC, 2011) and in this respect, the Council of the EU has issued a directive calling on the Member States to implement solid accounting systems in drawing up budget forecasts in order to avoid future budget deficits (EC, 2011). To achieve this aim, budget frameworks require consistent accounting rules and procedures and reliable data collection and processing systems (EC, 2011).

It is recognised that complete, dependable public accounting practices are a precondition for the production of high-quality statistics that are comparable across Member States (EC, 2011). Therefore, to effectively promote budget discipline and financial sustainability, comprehensive budget frameworks are needed for public finances, with particular attention to the management of risk scenarios (EC, 2011). In this regard, governments are called on to publish relevant information on contingent liabilities with a potentially large impact on public budgets, including government guarantees, non-performing loans, and the extent of liabilities stemming from the operation of public corporations.

While such an analysis of financial sustainability would be valid for any level of public administration, it is perhaps more so at the local level as these bodies are closest to the general public and shoulder the greatest burden as far as public services are concerned. In addition, the large budgets managed and the variety of services provided

(Sáiz, 2011), coupled with the present context of global economic crisis and of accumulated deficit and debt in large municipalities (Muñoz-Cañavate & Hípola, 2011), all render it necessary to analyse the capacity of governments to continue providing services in the future. In fact, there exists a considerable consensus of opinion that sustainability will not be achieved without the full involvement of local governments and of civil society (Echebarria, Barrutia, & Aguado, 2009; Krueger & Agyeman, 2005).

At present, despite the crisis, government financial statements do not appear sufficient to assess the financial sustainability or otherwise of public administrations (Williams, Wilmshurst, & Clift, 2010). Furthermore, little research has been undertaken concerning the assessment and analysis of financial sustainability in government financial statements, particularly regarding financial sustainability in local public administrations. In the local context, although numerous studies have been made of financial disclosure and accountability (Guillamón, Benito, & Bastida, 2011; Pina, Torres, & Royo, 2010), few have been specifically devoted to the question of sustainability reporting (Dumay, Guthrie, & Farneti, 2010; Guthrie & Farneti, 2008). While factors like accounting systems, budget information, financial independence and short-term solvency appear to be closely linked to public administrations' ability to achieve financial sustainability, no research in this respect has previously been undertaken.

Therefore, this paper contributes to the analysis of the financial sustainability of local governments by identifying significant factors in this area. We first examine the concept of intergenerational equity in public sector accounting, and then conduct a critical analysis of the usefulness of the annual income statement for measuring inter-period equity, which is viewed as an essential concept in financial sustainability. Finally, we carry out an empirical study to identify the main incentives to measure financial sustainability in public administrations.

The rest of this paper is organized as follows. Section Two discusses the intergenerational concept in public sector accounting. In the following section, the research methodology is described and explained. Section Four presents the results obtained, and the final section discusses these findings and summarises the main conclusions drawn.

2. The Intergenerational Equity Concept in Public-Sector Accounting

In 1945, Hicks observed that the concept of income included that of economic sustainability, defining this as the maximum amount that a person can consume during a period and still be as well off at the end of the period as he was at the beginning. This idea has since been taken up in several academic papers, which have identified an interrelationship between sustainability and accounting, via the latter's capacity to measure the intergenerational equity of public acts and policies. For example, Stavins et al. (2003) and Bath (2001) related sustainability with the revenues and expenses generated by a public administration and pointed out that economists see a better world whenever the magnitude of profits is greater than that of losses. Stavins et al. (2003) suggested that a broad approach should be taken to sustainability, based on a pattern of growth combining dynamic efficiency – measured on the basis of the difference between revenues and expenses – with future maintenance. Similarly, Pezzey and Toman (2002) and Padilla (2002) have warned that the mere assessment of efficiency in the conventional analysis of sustainability loses much of its legitimacy within the framework of intergenerational analysis because the rights of future generations must be taken into account.

Although sustainability is a complex term (Aras & Crowther, 2009), recent international pronouncements (CSIS, 2010; EC, 2011; EU, 2012b; IFAC, 2011a; USAID,

2011) have taken this concept as the ability of public administrations to continue current policies without causing debt to rise continuously, and have allied this concept with that of “intergenerational equity” (IFAC, 2011b; Pezzy & Toman, 2002; Stavins, Wagner, & Wagner, 2003).

Intergenerational equity is considered an essential factor in evaluating sustainability, which in turn is crucial to the future financial viability of public activities. Government financial statements, especially income statements, play a key role in this assessment. Nonetheless, the importance of the income statement in this respect depends on how it represents intergenerational equity for future decision making, and this question is addressed in recent conceptual frameworks (CSIS, 2010; EC, 2011; EU, 2012a; IASB, 2010; IFAC, 2011a).

International organizations have performed many analyses of the relevance of budget information and other variables with respect to governmental financial sustainability (CSIS, 2010; EC, 2011; EU, 2012a; IFAC, 2011; USAID, 2011). The EC has highlighted the following factors as vital to any assessment of the overall sustainability of a country's public finances: pension expenditure projections, the level of debt, the primary balance and the assets of public administrations in cases where the real and book values differ or where returns differ from the interest rate on the debt (EU, 2012a).

Fiscal distress and economic crisis have drawn attention to the need to analyse variables accounting for reduced financial sustainability over time. By the end of 2011, Spanish municipalities had accumulated a total debt of over 46.77 billion euros, amounting to 4.3% of GDP (Bank of Spain, 2012). This illustrates the fact that the large budgets managed by local authorities in developed Western countries, the wide variety of services provided (Sáiz, 2011), the accumulated deficit and debt in large municipalities

(Muñoz-Cañavate & Hípola, 2011) and the present context of global economic crisis make it necessary to analyse the capacity of governments to continue providing services in the future, and in this respect sustainability (economic, social, and environmental), a key element in corporate social responsibility, will play a crucial role.

With the knowledge provided by such an analysis, politicians, public managers, and other stakeholders would become aware of unsustainable budgetary policies and other variables affecting financial sustainability, and would be able to take action to resolve or at least alleviate this problem, and thus put into practice the concept of intergenerational equity.

In view of these considerations, it is a matter of urgent interest to study the importance of the annual income statement (as recommended by IPSAS) in measuring the financial sustainability of local governments and to analyse the variables that could affect the financial sustainability of public administrations.

3. Research Methodology

3.1. Sample Selection

In Spain, as in other EU countries, public sector income and expenditure have increased very significantly in recent years, as a result of the increasing functions undertaken and the expanding role of the public sector in economic activity (Bank of Spain, 2012). Economic growth has taken place in a very unbalanced way; revenues have risen from 23.5% to 35.7% of GDP and expenditure has increased from 23.44% to 34%. According to Ruiz-Huerta and García (2012), Guillamón et al. (2011), and the Bank of Spain (2012) this behaviour is not consistent with the real capacity of the economy, and that it has led to high levels of public debt, which will have a very negative effect on future service provision by all levels of government.

The Fiscal Sustainability Report (EU, 2012a) concluded that Spain has a sustainability gap indicator above the EU average, in the short, medium and long term. Spanish governmental concern about the negative impact of these figures on the financial sustainability of public bodies has led to major legislative reforms such as the Budgetary Stability and Financial Sustainability Act (2012) and the Sustainable Economy Act (2011).

Therefore, studies of financial sustainability are an area of great current interest, and very timely in countries like Spain, where the current crisis in public finance has led the (EU, 2012a) to recognize that the deterioration of governments' financial position and sharp increases in debt, together with the foreseeable evolution of population variables, make financial sustainability a key issue in the future of public sector organizations. For these reasons, the present empirical study is focused on the situation in Spain.

This study focuses on the financial sustainability of local governments for the following reasons. First, because our understanding of this question would be enriched by greater attention to institutional detail, with particular respect to the context of local government, which has been a basic aim of many public sector reforms (Christiaens, 1999; Mussari, 2000; Pallot, 2001; Smith, 2004; Ter Bogt & Jan van Helden, 2000). Second, in view of the politics of legislative reforms of administrative structures carried out in the 1990s (Gallego & Barzelay, 2010) and the managerial devolution process implemented in Spain (Bastida & Benito, 2006), local government in this country is well placed to be aware of citizens' information needs (Watt, 2004). Furthermore, local governments manage very large budgets and provide a great variety of services (Sáiz, 2011). Finally, the accumulated deficit and debt in large municipalities in Spain have very significant effects on the sector (Muñoz-Cañavate & Hípola, 2011).

In designing this study, the large number of local governments in Spain (over 8,000, most of which have fewer than 5,000 inhabitants) and the diversity of population sizes obliged us to adopt an appropriate sample selection criterion. In accordance with numerous prior empirical studies of local public finance (Bastida & Benito, 2010; Benito & Bastida, 2007; Guillamón, Benito, & Bastida, 2011; Navarro-Galera, Ortiz-Rodríguez, & López-Hernández, 2008; Navarro, 2005; Rodríguez & Navarro, 2007; Zafra-Gómez, López-Hernández, & Hernández-Bastida, 2009), we chose to examine exclusively municipalities with relatively large populations. This was done for the following reasons.

First, because the municipalities with a population of over 50,000 account for more than 50% of the Spanish population (Fundación La Caixa, 2013). Therefore, according to the EU Stability and Growth Pact (EU, 2012b) and its Fiscal Sustainability Report 2012 (EU, 2012a), sustainability can be more fully analysed in these municipalities, where the demographic effects of a large population on local government finance are apparent, and where a broader range of stakeholders are involved.

Second, in large municipalities, the available resources are greater than in smaller ones, and so sustainability analyses have greater scope and impact.

Third, the accounting model used by local governments with large populations (regulated by Order EHA/4041/2004) is considerably more complete and detailed than the simplified version used by small municipalities. Therefore, the information content of the financial statements of large local authorities is expected to be more useful for measuring sustainability.

Fourth, as observed by Navarro et al. (2010) and Rodríguez and Navarro (2007), the professional training of managers in large municipalities is usually more complete than that available in municipalities with smaller populations; accordingly, the former

should possess more advanced accounting systems, which could favour innovation regarding the value of financial statements for measuring sustainability.

Under this rationale, the present empirical study is based on a sample of large Spanish municipalities, defined as those with a population of over 50,000 inhabitants, together with those which, although smaller in terms of numbers are classified as "large population" under Article 121 of Local Government Regulatory Act 7/1985, amended by the Local Government Modernization Act 57/2003, i.e. municipalities that are provincial capitals, regional capitals or in which the headquarters of regional institutions are located.

In total, 148 Spanish municipalities meet these conditions, and account for 24,225,379 of the 46,951,532 total population of Spain (51.60%) and disburse 11.18% of the total national budget. The study sample consisted of 116 Spanish municipalities with over 50,000 inhabitants for which financial information and the complete budget for 2010 were available. This number corresponds to 78.37% of valid municipalities for the study and represents 44.42% of the total Spanish population and 9.29% of the total national budget.

3.2. Dependent variable

The aim of this paper is to analyse the financial sustainability of local governments, and therefore this is the dependent variable in the study. As stated in the Introduction, financial sustainability can be defined in various ways (Aras & Crowther, 2009), but for the present purposes we apply a definition based on recent international declarations (CSIS, 2010; EC, 2011; EU, 2012b; IFAC, 2011; USAID, 2011), in which the financial sustainability of local governments is considered to be their ability to maintain current policies without causing municipal debt to rise.

One of the crucial issues pertaining to sustainability is that of intergenerational equity (Brundtland, 1987) and it has been allied with the term "inter-period equity" (IFAC, 2011; Pezzy & Toman, 2002; Stavins, Wagner, & Wagner, 2003). In the field of public sector accounting, this concept is closely linked to the economic performance of local government, defined as the ability of the income it generates in any one year to cover the costs of delivering its services (GASB, 1987, 1990).

Income statements play a fundamental role in assessing financial sustainability because they should enable users to assess, on the one hand, the capacity of the entity to continue providing at least the same volume of goods and services and, on the other, the level of resources that the entity may need in the future to continue to meet its obligation to provide public services (IFAC, 2011).

The importance of the income statement in measuring these elements depends on how well it represents this equity, with a view to future decision taking. This latter function requires more emphasis on providing information about coming financial years than on explaining the figures for the present one. This outlook is in line with recent conceptual frameworks: IASB (2010), FASB (2010) and IFAC (2011a).

Accordingly, although income statements are an essential element in measuring financial sustainability, it is arguable whether they offer a sufficiently representative measurement of inter-period equity with which to assess the financial sustainability of local governments.

According to the paradigm of the usefulness of a financial information framework, and according to GASB (1987, 1990), IPSAS No. 1, IPSAS No. 3 (IFAC, 2011) and the sustainability framework of the IFAC (2011c), an income statement is made up of the sum of the surplus/deficit from ordinary activities and of the surplus/deficit from extraordinary items. Ordinary activities are those undertaken by an entity as part of its

service-providing activities, and extraordinary activities are those that are not expected to be repeated in the foreseeable future within the environment in which the entity operates.

As the management of future risk is crucial to financial sustainability (IFAC, 2011) and extraordinary activities are unlikely to be repeated in the future, the measurement of financial sustainability must focus on ordinary activities in as much as these activities are those in which local governments are habitually involved. Thus, an initial conceptual analysis leads us to deduce that the inclusion of so-called "extraordinary items" in the annual income statement would distort the representativity of its accounting balance, at least if we wish it to provide a measurement of intergenerational equity that is useful for assessing financial sustainability.

Similarly, whatever the problems arising from applying accrual basis accounting, some items of revenues or expenditure lack any implications for the future despite their classification as ordinary. Thus, any estimation of the maintenance of the level of local government revenue is subject to a certain degree of uncertainty deriving from future occurrences that might affect its financial condition, such as legal changes affecting municipal taxes, changes in the volume of demand for public services for which extra payment is required, substantial modifications in the policies of financing organizations at both national and international level in their awarding of subsidies, the effects of international mechanisms for correcting deficit and debt and the final outcome of certain previously allowed for contingencies.

On the expenses side, quantification of the future effect may also be subject to uncertainty deriving from possible events, such as changes to regulatory norms concerning the retirement of staff, legislative permissiveness with regard to offers of public employment, the system of length-of-service payments for staff, the behaviour of current expenditures according to fixed-asset investments, ways of calculating

depreciation, or the final outcome of situations considered to be contingent, such as arrears in receivables or legal cases pending judgment.

To all these uncertainties, which might put into question the predictive capacity of the income statement with regard to financial sustainability, we must add one more risk, that of the development of the population receiving the public services provided by local governments. Prior research has revealed that both the size of the population and the socio-economic characteristics of citizenry are capable of influencing future expenses and revenues, above all variables such as the dependent population, income per capita and the unemployment rate (Alt, Lassen, & Rose, 2006; Gonzalez et al., 2011; Guillamón, Benito, & Bastida, 2011).

Bearing in mind all these weaknesses in the informative capacity of the income statement when it comes to measuring the inter-period equity in local administrations, we have adjusted this magnitude in accordance with the purposes of this paper, with the ultimate aim of improving the income statement to maximise its utility for assessing financial sustainability.

Therefore, in this paper, the dependent variable is represented by the total amount of the adjusted income statement, as shown in Table 2.1.

Table 2.1. Intergenerational equity for financial sustainability

Concept	Amount
Income statement for the financial year obtained by applying the current IPSAS	(1)
+ Negative entries for extraordinary activities	(2)
- Positive entries for extraordinary activities	(3)
Corrected income statement for the financial year (intergenerational equality for the financial sustainability)	(1)+(2)–(3)

According to the IPSAS (IFAC, 2011) and according to Spanish accounting standards (Ministry of Economy and Finance, 2010), it is necessary to distinguish between the concepts of budget expenditures and revenues (termed, respectively,

recognized obligations and recognized rights) and financial expenditure and revenue. The former are part of the budget and provide the annual budget results, while the latter fall within the area of financial accounting and constitute the income statement as analysed above.

The differences between these concepts arise, on the one hand, from their content, and on the other, from the criteria applied for allocation. Thus, some expenditures are defined as budget items but are not reflected in the public administration income statement and are not considered financial expenditures. This is the case, for example, of the acquisition of financial assets and non-financial fixed assets (items VIII and VI of the expenditure budget, respectively); while they are considered budget expenditures, they do not constitute financial expenditures in the year of acquisition. Conversely, there are financial expenditures that are charged to the income statement, but which are not present among budget items, for example, impairments of assets and provisions for risks and expenses. As in the case regarding the existence of differences between financial expenditures and budget expenditures, these differences are reflected in the particular case of budget revenues with respect to financial revenues.

Furthermore, while the allocation of expenses and income to the income statement is carried out in accordance with the accrual basis of financial accounting, the allocation of budget expenditures and revenue is primarily cash-based or follows a mixed cash-accrual criterion in determining the budget results, and these criteria are clearly divergent. Thus, with respect to the income statement, the accrual basis focuses on the concept of financial consumption and service delivery, while in the budget field, the allocation of budget expenditures and revenue focuses on the moment at which the corresponding administrative act is issued to recognize and settle the budget obligation (budget expenditure) or the collection right (budget revenue).

In this paper, therefore, and in accordance with the above arguments that financial sustainability can be estimated by analysis of the income statement, it is deemed to consist of the financial expenditures and revenues of the public organisations under study.

3.3. Independent variables

Internationally, various proposals have been made and studies were undertaken on the notion of using accounting variables to measure budget stability and sustainability. The Stability and Growth Pact signed by the EU Member States (EU, 2012b) is a regulatory framework to coordinate national fiscal policies within the Economic and Monetary Union, and it was created in order to achieve and maintain sound public finances. The preventive component of this Pact is comprised of accounting tools to prevent excessive deficits, in the view that these are of major importance to the sustainability of government finances. Thus, the Pact states that the long-term sustainability of public finances depends on the effect of variables such as population aging on the behaviour of budget variables.

In the same vein, Council Directive 2011/85/EU of the Council of Europe (EC, 2011), states that improvements in public accounting practices to make them more complete and reliable are crucial to obtaining quality information on budgetary stability and financial sustainability. Furthermore, Article 2 of this Directive includes budgetary accounting systems as key elements of the Member States' budget framework.

In parallel, the Fiscal Sustainability Report (EU, 2012a) analysed the sustainability of Member States' public finances, considering the impact of the financial, economic and fiscal crisis, together with its demographic impact. According to this report, improving government financial sustainability must be addressed in terms of expanding the traditional long-term financial approach to incorporate short-term risk indicators,

whereby accounting and budgetary variables will play a vital role in overcoming the crisis in public finances. In the same vein, the Global Aging Preparedness Index (CSIS, 2010), which is an index of fiscal sustainability for twenty countries, also incorporates variables of a financial and budgetary nature.

However, despite the importance of accounting and budgetary variables in the analysis of governmental sustainability, to date, academic studies have paid little attention to analysing the influence of these variables on the financial sustainability of public policies.

Some studies have attempted to identify relevant factors in problematic areas of local government finance, such as debt (Bastida & Benito, 2005; Guillamón, Benito, & Bastida, 2011; Lago-Penas, 2008; Pascual, Cabasés, & Ezcurra, 2008; Vallés, Pascual, & Cabasés, 2005), deficit (Benito & Bastida, 2009), financial condition (Zafra-Gómez, López-Hernández, & Hernández-Bastida, 2009), the accrual accounting method (Pina, Torres, & Yetano, 2009) or fiscal pressure (Benito, Bastida, & García, 2010; Delgado, 2006). However, none have focused specifically on the factors that may affect the financial sustainability of local government, although some have analysed issues that could be related to this area.

Taking into account previous research, and given the aims of this study, we selected four variables as possible factors influencing the level of financial sustainability of the local governments under study, namely: 1) budget result per capita as defined in the European System of Accounts; 2) financial independence; 3) short-term solvency; 4) current liabilities per capita. To enable comparison between different municipalities, these variables are considered in relative terms, per capita (Guillamón, Benito, & Bastida, 2011).

The first two variables are of a budgetary nature and are calculated taking the budget performance included by the local governments in their financial statements, prepared in accordance with current accounting standards in Spain. These two variables were selected because both the Stability and Growth Pact (EU, 2012b) and the Fiscal Sustainability Report 2012 (EU, 2012a) consider the budget surplus/deficit a key variable of financial sustainability. Accordingly, the budget results should be measured in non-financial terms, i.e. without including revenues and expenditures arising from financial assets and liabilities.

The financial autonomy variable was selected because, according to some recent papers and reports (Bank of Spain, 2012; EU, 2012a; Eurostat, 2011; Ruiz-Huerta & García, 2012; USAID, 2011), one of the possible causes of the precarious state of government finances internationally may be a confounding of the ordinary and extraordinary nature of much public revenue. To avoid this confusion, the financial independence variable is obtained as the ratio of budget revenues from own resources, i.e., direct taxes, indirect taxes and public fees and charges (the numerator) to total budget revenues in the revenue budget (the denominator).

The reason for including the solvency variable concerns the possible effect of the current capacity to meet obligations with respect to future financial viability. Council Directive 2011/85/EU (EC, 2011) stated that the measurement of financial sustainability requires not only budget data but also complete, reliable accounting practices. In the same vein, the Fiscal Sustainability Report 2012 (EU, 2012a), the Center for Strategic & International Studies (CSIS, 2010) and the U.S. Agency for International Development (USAID, 2011) have all concluded that the measurement of future financial risk is a key element in governmental fiscal sustainability.

According to these sources, thus, the solvency ratio can help visualize financial risks, both short and long term, and therefore, determine the level of sustainability of local government policies. It is calculated, not on the basis of budget payments, but from the balance data, prepared on the basis of accrual accounting policy, as is mandatory for Spanish local governments. Thus, in the solvency ratio, the numerator is current assets and the denominator is current liabilities. This value provides useful information to assess the ability of local government to meet payment obligations in coming years.

Finally, the current liabilities variable represents short-term local government debt, at a particular time. This is a key element in calculating both the solvency ratio and non-financial debt, and reflects the volume of financial resources that the municipality must disburse in the short term in order to meet its debts to third parties. It could be related to financial sustainability in the sense that a high value could jeopardize the financial resources needed by the municipality to conduct its activities and perform its functions.

3.4. Information compilation method and statistical analysis

For the purposes of this study, economic and financial information was needed for the municipalities included in the sample, and in particular their financial income statements and budget payments. To obtain these, we first consulted the accountability website of the Spanish Court of Audit (http://www.rendiciondecuentas.es), which facilitates the online presentation of local government accounts, thus increasing the transparency of municipal management. Second, if the municipal economic-financial statements were not available on this website, we contacted the municipality directly to request the information needed. Budget performance data were supplied by the Ministry of Finance and Public Administration (http://www.minhap.gob.es) for all the municipalities in the sample. All the economic and financial information compiled for

this study refers to the fiscal year 2010, which was the last for which complete information was available for analysis.

The Pearson correlation coefficient (technically, the Pearson Product Moment Correlation) was calculated to determine the influence of the financial variables on financial sustainability, as measured by the corrected income statement for the financial year. This correlation measure is widely used in the statistical analysis (Smith, 2004; Yesilkagit & van Thiel, 2012) and is considered an excellent means of measuring the linear relation between two random quantitative variables (Gujarati, 2004; Wooldridge, 2009). This quantitative method of analysis is also used because the index it produces enables easy interpretation of the relationship between the variables considered. Therefore, we obtained the Pearson correlation matrix and the variance inflation factor for the multicollinearity of the model, using SPSS v.20 statistical software.

4. Analysis of results

4.1. Descriptive statistical analysis of budget performance

Table 2.2 and Table 2.3 show descriptive statistics of the budget performance of expenditures and revenues, respectively, for all the sample municipalities.

Table 2.2. Budget performance of expenditures

Item	Mean (€)	Coefficient of Variation	%
1. Personnel	57.490.849	2,01	27,08
2. Current Account Goods and Services	61.983.227	3,03	29,20
3. Financial Expenditures	3.472.307	3,72	1,64
4. Current Transfers	32.889.475	3,07	15,49
6. Real Investments	36.563.104	2,39	17,22
7. Capital Transfers	7.375.523	5,61	3,47
8. Financial Assets	937.431	2,39	0,44
9. Financial Liabilities	11.589.748	2,92	5,46

Table 2.3. Budget performance of Revenues

Item	Mean (€)	Coefficient of Variation	%
1. Direct taxes and Social Security	70.247.103	2,23	33,98
2. Indirect taxes	6.379.903	1,97	3,09
3. Fees, charges and other revenues	30.701.161	2,08	14,85
4. Current Transfers	53.784.680	2,53	26,01
5. Equity Revenues	4.249.581	1,76	2,06
6. Disposal of real Investment	2.551.607	3,56	1,23
7. Capital Transfers	22.104.610	1,79	10,69
8. Financial Assets	1.502.804	7,75	0,73
9. Financial Liabilities	15.232.846	3,84	7,37

As it can be seen in Table 2.2, the major item in the budget performance of expenditures is "Current account goods and services" (29.20%) followed by Personnel (27.08%). The remainder of the budget performance of expenditures mainly concerns investments and current transfers. However, the standard deviation is very high for all the items, and so the mean values are not statistically significant.

In the sample municipalities, the majority of items concern running expenditures (73.41% of the budget performance of expenditure is concentrated in items 1-4), i.e., those needed in order to provide public sector services. Of the remaining items (i.e., capital expenses), 17.22% concern investments; these municipalities, therefore, dedicate almost a fifth of their expenditure budget to acquiring infrastructure, property, plant and equipment for the provision of public services.

In any case, due to the great variety of the municipalities included in the sample, it was not possible to perform a statistical analysis of overall trend. As noted previously, the sample municipalities are those defined by Spanish legislation as "large population", which includes all those with over 50,000 inhabitants plus smaller ones that are provincial capitals, regional capitals or the location of regional institutions. In consequence, the sample municipalities present widely varying characteristics; some have a population of over three million (Madrid) while one (Teruel) has only 35,000 inhabitants.

With respect to budget revenues, the main sources of funding for the sample municipalities are the transfers received, mainly from other public administrations (26.01% and 10.69%, current and capital transfers, respectively), followed by the direct taxes (33.98%) imposed by the municipality. Nonetheless, as with budget expenditures, the pattern for budget revenues is not homogeneous; the standard deviation is very high in every case, and so the mean values are not statistically significant.

Nevertheless, the data suggest that the main source of municipal funding is that of transfers from other public entities because the minimum values for items 4 and 7 of the revenue budget are higher than the sum of items 1, 2, 3 and 5. Therefore, the sample municipalities appear to depend on external funding in order to meet their budget expenditures.

4.2. Statistical analysis of the factors of financial sustainability

The descriptive statistics for the dependent and independent variables show that, except for financial independence and short-term solvency, there is a general high dispersion in the behaviour of the municipalities with respect to financial solvency, budget results and current liabilities (Table 2.4). Nevertheless, while per capita financial sustainability is positive in all cases (minimum value greater than 0), some municipalities have per capita budget deficits (minimum value less than 0).

The data for financial independence suggest that these municipalities are financially dependent on other public bodies and do not generate sufficient own resources to cover operating expenses (financial independence ratio less than 1). This corroborates the above comments on the budget performance of revenues by the municipalities in our sample.

Table 2.4. Descriptive statistics for the variables (n = 116)

Variables (expected sign)	Description	Source	Mean	Median	Std. Deviation	Min.	Max.
Financial Sustainability[1]	Adjusted results per capita 2010 (€)	Local Government Financial Statement	168,79	152,30	114,16	16,75	825,31
Budget per capita (+)	Budget result per capita 2010 (€)	Ministry of Finance Public Administration	-3,57	3,22	102,10	-333,20	411,44
Short-term Solvency (+)	Ratio of current assets to current liabilities 2010	Local Government Financial Statement	1,52	1,18	2,15	0,24	23,21
Financial independence (+)	Ratio of sum of items 1, 2, and 3 of budget revenues to total budget revenues 2010	Ministry of Finance Public Administration	0,53	0,54	0,08	0,26	0,77
Current Liabilities per capita (-)	Current liabilities per capita 2010 (€)	Local Government Financial Statement	468,62	371,62	366,94	18,46	2.688,30

Note: 1.- Corrected Income Statement for the financial year capital

To identify potential factors influencing the behaviour of the dependent variable (the financial sustainability of local government), Table 2.5 shows the Pearson correlation matrix, which reveals the possible association between variables and its degree of strength. In addition, in Table 2.6, the variance inflation factors for the multicollinearity of the model are under 10, which means that there is no multicollinearity among the variables analysed.

Table 2.5. Pearson correlation variables (n = 116)

Variables	1	2	3	4	5
Financial Sustainability[1]	1				
Budgetary result per capita	0,575 (0,000) ***	1			
Short-term solvency	0,063 (0,500)	0,004 (0,969)	1		
Financial independence	0,033 (0,724)	0,006 (0,952)	0,041 (0,661)	1	
Current liabilities per capita	0,110 (0,240)	0,001 (0,988)	-0,248 (0,007)***	0,031 (0,742)	1

Note: 1.- Corrected Income Statement for the financial year capital
2.- Significance at 1% (***)

Table 2.6. Multicollinearity Test (n=116)

Variance Inflation Factors (VIF)	
Budgetary result per capita	**1.000**
Short-term solvency	**1.068**
Financial independence	**1.004**
Current liabilities per capita	**1.067**

Note: Minimum possible value = 1
Values over 10 indicate a problem of multicollinearity among variables.

According to this analysis, the per capita budget result is the only variable presenting a very strong positive association with financial sustainability (+0.575 and p<1%). This shows that variations in the per capita budget result may cause changes in the behaviour of local government financial sustainability, in the same direction and with the same sign. Thus, a downward trend in per capita budget results could be the source of potential problems of financial sustainability arising from the policies adopted by local governments, as our analysis shows that a negative budget result generates negative balances in the income statement.

By contrast, Table 2.5 also shows that short-term credit and financial independence have no statistically significant influence on the dependent variable, because, although their values are positive (+0.063 and 0.033, respectively), their probabilities (0.724 and 0.500, respectively) clearly exceed the 1% required to corroborate the existence of a statistical relationship between the variables. Therefore, the behaviour of these two variables does not appear to significantly influence local government financial sustainability.

Similarly, the current liabilities per capita variable has no significant relationship with financial sustainability. In this case, too, the value is positive (+0.110) but the probability exceeds 1%. In conclusion, these results show that variations in this variable would not be related to the evolution of financial sustainability. On the other hand, and as shown in Table 2.4, the current liabilities per capita variable is inversely related to

another independent variable, the short-term solvency, with a value of -0.024 and p=0.007, i.e., less than 1%. This result was to be expected, as solvency is a ratio whose denominator is the level of local government current liabilities. However, considering that this denominator, in turn, is calculated from the number of inhabitants, it seems that population size has no influence on the above-mentioned inverse relationship between solvency and current liabilities.

In view of these Pearson partial correlations, together with the definition of budget results used (as set out in SEC 95), our results suggest that the ordinary non-financial management of local governments in Spain – with respect to the financial resources necessary for the provision of services, for transfers and for investments – could be one of the most influential factors in their financial sustainability.

Therefore, regardless of the borrowing operations of these governments (such as the raising or repayment of bank loans), achieving a balance in the non-financial budget results would greatly favour the future viability of local government policies, by helping preserve future financial sufficiency. In short, the financial sustainability of the local governments studied can be more effectively enhanced by paying attention to the overall management of non-financial budgetary resources than by controlling partial budget concepts, financial or otherwise, in day-to-day management in local government.

Moreover, the very strong relationship between non-financial budget results and financial sustainability reveals that the accounting control of budget performance during the year significantly contributes to ensuring the financial sustainability of local government actions, especially as regards staff costs, current expenditures and, to a lesser extent, the volume of investments. These three items represent, on average and in cumulative terms for the municipalities analysed, 27.08%, 29.20% and 17.22% of the budget performed (Table 2.2).

Furthermore, the effectiveness of the control of these expenditures (personnel, current expenditures, investments) for the purposes of financial sustainability does not depend on the origin of the resources, since financial independence bears no statistically significant influence on the dependent variable (Table 2.5). In addition, these results are confirmed by the values of the correlation between financial independence and budget results (+0.006 and 0.952), thus indicating that the first of these exerts no statistically significant influence on the second. According to the results of our analysis, current liabilities do not exert a positive influence on financial sustainability (+0.110 and p>1%), which could indicate that the negotiation of longer payment terms to suppliers and short-term creditors does not favour the future viability of local public services, because these debts will still need to be repaid on the due date.

However, in order to control financial sustainability, it is necessary to systematically monitor developments in financial expenses, due to the interest payment obligations generated by current liabilities. This necessity arises for two reasons: first, because our descriptive analysis shows that, on average and in aggregate terms, the specific weight of financial expenditures is 1.64% (Table 2.2) for the local governments studied. Second, because of Spanish legislation and the general trend in Europe, it is very demanding, about the right of creditors, to demand default interest from local governments when debt repayment exceeds certain time limits.

The negative relationship between current liabilities and financial solvency, together with the scant influence of solvency on financial sustainability (+0.063 and p>1%), could indicate that local governments' management of receivables has similarly little effect on their financial sustainability, to the extent that the numerator of the solvency ratio does not alter the absence of statistical relationship between current liabilities and financial solvency.

Finally, Table 2.5 shows that the goodness of the predictor variables (R=0.593) and the goodness of fit (R^2=0.351) suggest that the variables considered in this study do account for many of the effects on local government financial sustainability, as they accounted for more than a third of its determination. However, future studies should examine other variables, financial and non-financial, that could contribute to our understanding of local government financial sustainability.

5. Conclusions

In the present context of the international crisis in public sector finance, the measurement of financial sustainability in local governments is a crucial matter, which has led to renewed interest in the concept of intergenerational equity in analyses of local government policy making. In this respect, financial statements, and especially income statements, play a key role.

According to international accounting standards, and the findings of previous research, the annual income statement presents certain weaknesses for the purposes of assessing the financial sustainability of public administrations. Taking into account the concept of sustainability generally employed, in order to measure local government financial sustainability, it is necessary to correct the balance of the income statement result by adding the negative entries and subtracting the positive ones for extraordinary activities. In parallel, international organizations such as the EU, the EC, Eurostat and the IFAC all recognize the relevance of accounting ratios, as published in local government income statements, for assessing financial sustainability.

Statistical analysis of the financial statements of 116 Spanish local governments has shown that the per capita budget result significantly influences the financial sustainability of these governments' policies. On the other hand, no evidence was

obtained of any such influence by the variables short-term solvency, financial independence and current liabilities per capita.

Therefore, the long-term behaviour of local governments' budget results could provoke problems concerning the sustainability of public services, as a downward trend in this respect could reduce sustainability and prejudice the future viability of local governments' future actions.

Our results also imply that in order to prevent the appearance of problems in financial sustainability, local governments should pay particular attention to maintaining balanced budget results. For this purpose, careful accounting control is needed of the budget performance of expenditures and revenues and of their degree of compliance with budget estimates. To this end, the analysis and systematic monitoring of ordinary, non-financial management (i.e., excluding bank debt operations) could contribute significantly to maintaining the financial sustainability of local government, where a key role is played by personnel costs, current expenditures and local government investments, and their correlation or otherwise with equity and with the transfers received from other levels of government (central or regional).

Similarly, our results show that the preventive control of financial sustainability can be enhanced by a systematic monitoring of the financial expenditures arising from interest on financial and non-financial liabilities. However, apart from the impact of financial expenditures, we obtained no evidence that the management of local governments' receivables produces any effect on financial sustainability.

In any case, these conclusions about the factors impacting on financial sustainability are not dependent on the origin of local governments' resource because, as stated above, financial independence is not a causal variable. Therefore, the origin of budget resources does not limit the positive impact on financial sustainability of measures

such as the accounting control of the budget balance or monitoring the behaviour of the cost of interest payments.

Finally, the empirical results obtained reflect the interest and timeliness of questions for future research such as: a) the influence on local government financial sustainability of other variables, of an accounting, population, socioeconomic or political nature; b) the behaviour of local government financial sustainability in terms of population size; c) regression modelling based on time series for different financial periods; d) the comparative analysis of factors influencing local government financial sustainability and of those influencing financial sustainability at other levels, such as regional government.

References

Alt, J. E., Lassen, D. D., & Rose, S. (2006). The causes of fiscal transparency: evidence from the US states. *IMF Staff Papers*, *53*(Special Issue), 30–57.

Aras, G., & Crowther, D. (2009). Corporate Sustainability Reporting: A Study in Disingenuity? *Journal of Business Ethics*, *87*(S1), 279–288. DOI: 10.1007/s10551-008-9806-0

Bank of Spain. (2012). *Boletín Estadístico 03/2012*. Madrid: Banco de España.

Bastida, F., & Benito, B. (2005). Análisis del endeudamiento en los Ayuntamientos: Un Estudio Empírico. *Revista Espanola de Financiacion Y Contabilidad*, *34*(126), 613–635.

Bastida, F., & Benito, B. (2006). Financial reports and decentralization in municipal governments. *International Review of Administrative Sciences*, *72*(2), 223–238. DOI: 10.1177/0020852306064611

Bastida, F., & Benito, B. (2010). Politics and financial management: a long-term evaluation on Spanish local governments. *International Journal of Critical Accounting*, *2*(3), 249–266. DOI: 10.1504/IJCA.2010.033432

Benito, B., & Bastida, F. (2007). La consolidación de cuentas en las entidades locales españolas: un estudio empírico. *Revista Española de Financiación Y Contabilidad*, *36*(134), 351–388.

Benito, B., & Bastida, F. (2009). Budget Transparency, Fiscal Performance, and Political Turnout: An International Approach. *Public Administration Review*, *69*(3), 403–417. DOI: 10.1111/j.1540-6210.2009.01988.x

Benito, B., Bastida, F., & García, J. A. (2010). Explaining differences in efficiency: an application to Spanish municipalities. *Applied Economics*, *42*(4), 515–528. DOI: 10.1080/00036840701675560

Brundtland, G. H. (1987). *Report of the World Commission on environment and development:" our common future.". United Nations, 1987.* (WCED, Ed.). United Nations. DOI: 10.1002/jid.3380010208

Burritt, R. L., & Schaltegger, S. (2010). Sustainability accounting and reporting: Fad or trend? *Accounting, Auditing & Accountability Journal*, *23*(7), 829–846. DOI: 10.1108/09513571011080144

Christiaens, J. (1999). Financial accounting reform in Flemish municipalities: an empirical study of implementation and annual financial reports. *European Accounting Review*, *8*(4), 803–804. DOI: 10.1080/096381899335826

CSIS. (2010). *Annual report 2010. Strategic Insights and Bipartisan Policy Solutions*. Washington, DC: Center for Strategic and International Studies Strategic.

Delgado, F. (2006). Are the Tax Mix and the Fiscal Pressure Converging in the European Union ? *Papeles de Trabajo Del Instituto de Estudios Fiscales. Serie Economía*, *11*, 1–35.

Dumay, J., Guthrie, J., & Farneti, F. (2010). Gri Sustainability Reporting Guidelines For Public And Third Sector Organizations. *Public Management Review*, *12*(4), 531–548. DOI: 10.1080/14719037.2010.496266

EC. (2011). *Council Directive 2011/85/EU of 8th November 2011 on requirements for budgetary frameworks of the Member States*. Brussels: EC.

Echebarria, C., Barrutia, J. M., & Aguado, I. (2009). The ISC framework: Modelling drivers for the degree of Local Agenda 21 implantation in Western Europe. *Environment and Planning A*, *41*(4), 980–995. DOI: 10.1068/a40301

EU. (2012a). *Fiscal Sustainability Report*. Brussels: European Union. https://doi.org/10.2765/19669

EU. (2012b). *Stability and Growth Pact*. Strasbourg: European Union.

Eurostat. (2011). *Eurostat Yearbook 2011*. Strasbourg: EU.

Fundación La Caixa. (2013). *Informe anual Obra Social "La Caixa" 2013*. Barcelona: Fundación "la Caixa".

Gallego, R., & Barzelay, M. (2010). Public Management Policymaking in Spain: The Politics of Legislative Reform of Administrative Structures, 1991-1997. *Governance*, *23*(2), 277–296. DOI: 10.1111/j.1468-0491.2010.01479.x

GASB. (1987). *Concepts Statement No. 1: Objectives of Financial Reporting Model*. Norwalk: GASB.

GASB. (1990). *Concepts Statement No. 11: Measurement Focus and Basis of Accounting –Government Fund Operating Statements*. Norwalk: GASB.

Gonzalez, E., Carcaba, A., Ventura, J., & Garcia, J. (2011). Measuring Quality of Life in Spanish Municipalities. *Local Government Studies*, *37*(2), 171–197. DOI: 10.1080/03003930.2011.554826

Groves, S. M., & Valente, M. G. (2003). *Evaluating Financial Condition: A Handbook for Local Governments* (4th ed.). Washington DC: ICMA.

Guillamón, M. D., Benito, B., & Bastida, F. (2011). Evaluación de la deuda pública local en España. *Revista Española de Financiación Y Contabilidad*, *XL*(150), 251–285.

Gujarati, D. N. (2004). *Basic Econometrics* (4th ed.). The McGraw-Hill.

Guthrie, J., & Farneti, F. (2008). GRI Sustainability Reporting by Australian Public Sector Organizations. *Public Money & Management*, *28*(6), 361–366. DOI: 10.1111/j.1467-9302.2008.00670.x

IASB. (2010). *Conceptual framework for financial reporting 2010*. *International Financial Reporting Standards*. London, UK: IFRS Foundation.

IFAC. (2011). *Handbook of International Public Sector Accounting Pronouncements*. New York: IFAC.

IFAC. (2011). *Reporting on the Long-Term Sustainability of a Public Sector Entity's Finances*. New York: IFAC.

IFAC. (2011). *Sustainability Framework 2.0. Professional Accountants as Integrators*. New York: IFAC.

Krueger, R., & Agyeman, J. (2005). Sustainability schizophrenia or "actually existing sustainabilities?" toward a broader understanding of the politics and promise of local sustainability in the US. *Geoforum*, *36*(4), 410–417. DOI: 10.1016/j.geoforum.2004.07.005

Lago-Penas, S. (2008). Local Governments' Asymmetric Reactions to Grants: Causes and Consequences. *Public Finance Review*, *36*(2), 219–242. DOI: 10.1177/1091142107299596

Ministry of Economy and Finance. (2010). *Orden EHA/1037/2010, de 13 de abril, por la que se aprueba el Plan General de Contabilidad Pública*. Spain: BOE num. 102.

Muñoz-Cañavate, A., & Hípola, P. (2011). Electronic administration in Spain: From its beginnings to the present. *Government Information Quarterly*, *28*(1), 74–90. DOI: 10.1016/j.giq.2010.05.008

Mussari, R. (2000). Some Considerations on the Significance of the Assets And Liabilities Statement In Italian Local Government Accounting Reform. In E. Caperchione & R. Mussari (Eds.), *Comparative Issues in Local Government Accounting* (pp. 175–190). Boston, MA: Springer US. DOI: 10.1007/978-1-4615-4581-1_11

Navarro-Galera, A., Ortiz-Rodríguez, D., & López-Hernández, A. M. (2008). Identifying barriers to the application of standardized performance indicators in local government. *Public Management Review*, *10*(2), 241–262. DOI: 10.1080/14719030801928706

Navarro, A. (2005). Una propuesta para la aplicación de los modelos de valoración de las normas internacionales a los activos de las entidades públicas españolas. *Revista Espanola de Financiacion Y Contabilidad*, *34*(126), 637–661. DOI: 10.1080/02102412.2005.10779557

Navarro, A., Alcaraz, F. J., & Ortiz, D. (2010). La Divulgación de Información sobre Responsabilidad Corporaiva en Administraciones Públicas: Un estudio Empírico en Gobiernos Locales. *Revista de Contabilidad-Spanish Accounting Review*, *13*(2), 285–314.

Pallot, J. (2001). Transparency in local government: antipodean initiatives. *European Accounting Review*, *10*(3), 645–660. DOI: 10.1080/09638180126794

Pascual, P. A., Cabasés, F. H., & Ezcurra, R. (2008). Financiación , restricciones institucionales y endeudamiento : Un análisis con microdatos de los municipios de Navarra. In *XV Encuentro de Economía Pública, 7 y 8 de Febrero, Salamanca* (pp. 1–28).

Pezzy, J., & Toman, M. (2002). Making Sense of Sustainability. *Resources for the Future*, *Issue Brie*(02–25).

Pina, V., Torres, L., & Royo, S. (2010). Is E-Government Promoting Convergence Towards More Accountable Local Governments? *International Public Management Journal*, *13*(4), 350–380. DOI: 10.1080/10967494.2010.524834

Pina, V., Torres, L., & Yetano, A. (2009). Accrual Accounting in EU Local Governments: One Method, Several Approaches. *European Accounting Review*, *18*(4), 765–807. DOI: 10.1080/09638180903118694

Rodríguez, M. P., & Navarro, A. (2007). Could fair value accounting be useful, under NPM models, for users of financial information? *International Review of Administrative Sciences*, *73*(3), 473–502. DOI: 10.1177/0020852307081153

Ruiz-Huerta, J., & García, M. A. (2012). El endeudamiento de las Comunidades Autónomas: límites y problemas en el contexto de la crisis económica. *Revista D'estudis Autonòmics I Federals*, *15*, 124–162.

Sáiz, M. P. (2011). La Ley de Economía sostenible: la sostenibilidad financiera del sector público. *Revista de Contabilidad Y Dirección*, *13*, 21–41.

Smith, K. A. (2004). Voluntarily Reporting Performance Measures to the Public: A test of Accounting Reports From U.S. Cities. *International Public Management Journal*, *7*(1), 19–48.

Stavins, R. N., Wagner, A. F., & Wagner, G. (2003). Interpreting sustainability in economic terms: dynamic efficiency plus intergenerational equity. *Economics Letters*, *79*(3), 339–343. DOI: 10.1016/S0165-1765(03)00036-3

Ter Bogt, H. J., & Jan van Helden, G. (2000). Accounting change in Dutch government: Exploring the gap between expectations and realizations. *Management Accounting Research*, *11*(2), 263–279. DOI: 10.1006/mare.2000.0132

USAID. (2011). *Fundamentals of NGO Financial Sustainability*. Washington, DC: USAID.

Vallés, J., Pascual, P., & Cabasés, F. (2005). *Un Análisis Con Microdatos De La Normativa De Control Del Endeudamiento Local* (P. T. No. 8/05).

Watt, P. (2004). Financing Local Government. *Local Government Studies*, *30*(4), 609–623. DOI: 10.1080/0300393042000318012

Williams, B., Wilmshurst, T., & Clift, R. (2010). The Role Of Accountants In Sustainability Reporting – A Local Government Study. In *Sixth Asia Pacific Interdisciplinary Research in Accounting Conference* (pp. 1–18). Sydney: University of Sydney, Australia.

Wooldridge, J. M. (2009). *Introductory econometrics: A modern approach* (4th ed.). Canada, USA: Paraninfo Cengage Learning.

Yesilkagit, K., & van Thiel, S. (2012). Autonomous Agencies and Perceptions of Stakeholder Influence in Parliamentary Democracies. *Journal of Public Administration Research and Theory*, *22*(1), 101–119. DOI: 10.1093/jopart/mur001

Zafra-Gómez, J. L., López-Hernández, A. M., & Hernández-Bastida, A. (2009). Developing an alert system for local governments in financial crisis. *Public Money & Management*, *29*(3), 175–181. DOI: 10.1080/09540960902891731

Chapter 3:

Measuring the Financial Sustainability and Its Influential Factors in Local Governments

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1. Introduction

The economic crisis, especially the debt and deficit in government finances, has led international organizations to point out the need for sustainability policies to be implemented (CICA, 2009; EC, 2011; EU, 2012b; IFAC, 2014), in order to create the necessary conditions for achieving financial health and ensuring intergenerational equity (Cabaleiro, Buch, & Vaamonde, 2013; Groves & Valente, 2003), particularly in local governments which have been involved in a context of a decrease of public revenues followed by public expenditure cuts.

In fact, recent papers and international pronouncements have identified high volume of debt and deficit as two essential problems for local governments, encouraging the opportunity and the interest of studying its repercussion on financial sustainability of these organizations (Bailey, Valkama, & Salonen, 2014; Checherita-Westphal, Hughes Hallett, & Rother, 2014; IMF, 2014; Pérez-López et al., 2013).

In this context, following World Commission on Environment and Development (Brundtland, 1987) and International Federation of Accountants (IFAC, 2014), financial sustainability can be defined as the ability to meet service delivery and financial commitments both now and in the future, applying current policies and maintaining them in the future without causing debt to rise continuously. According to IFAC (2013), long-term sustainability of a public sector entity's finances is composed of three interrelated dimensions: service, revenue, and debt.

However, to measure the financial sustainability of governmental policies, international bodies, such as EC (2011), EU (2012a, 2012b), IFAC (2012, 2013), NAO (2013) and previous studies (Navarro, Alcaraz, & Ortiz, 2010; Rodríguez et al., 2014; Williams, Wilmshurst, & Clift, 2010), are recognizing the usefulness of government financial statements to report on the sustainability of public policies.

Specifically, the income statement is strongly linked to the intergenerational equity concept (GASB, 1990; IFAC, 2012, 2014), which has a crucial importance in assessing financial sustainability (IFAC, 2014; Pezzy & Toman, 2002; Stavins, Wagner, & Wagner, 2003), by enabling users to assess, on the one hand, the capacity of the entity to continue providing at least the same volume of goods and services and, on the other hand, the level of resources that will be needed in the future to continue to meet its public services delivery obligation (GASB, 1987, 1990; IFAC, 2014). This has led pronouncements of international organizations (EU, 2012a, 2012b; IFAC, 2014; Rodríguez et al., 2014) and previous research (Krueger & Agyeman, 2005; Rodríguez et al., 2014) to recognize that the income statement should play a fundamental role in the assessment of financial sustainability in public administration.

In this line, the financial sustainability measurement and the influence of the three dimensions of IFAC (2013) are especially interesting for local governments, since its behaviour has not been consistent with the real economy evolution (EU, 2012b) causing high debt levels. This fact significantly contributed to the economic and financial crisis of the governments of Eurozone countries, generating substantial risk in maintaining the ability to deliver services in the future (Bailey, Valkama, & Salonen, 2014).

However, up until now, very few works have been dedicated to studying how the financial sustainability of local governments and its determining factor can be measured and controlled, so more studies on the subject are necessary (Guthrie & Farneti, 2008; Rodríguez et al., 2014).

This article aims to provide new knowledge on the measurement and improvement of the financial sustainability of governmental policies. Therefore, the aim of this article is twofold. First, the article analyses whether the informative content of financial statements, specially the income statement, provides useful information to measure the

financial sustainability in local governments. Secondly, the article also examines influential factors on the evolution of the financial sustainability in these governments. We have carried out a statistical model of panel data based on the analysis of the association between the behaviour of the income statement and the evolution of the three dimensions of sustainability proposed by IFAC (2013).

The remainder of this article is as follows: Section II deals with the need for measuring financial sustainability and how it can be measured. Section III shows the research questions, and Section IV shows that empirical research is performed on local governments in Spain with large population. Section V reports the results of the empirical analysis. In Section VI, conclusions are analysed.

2. Measuring financial sustainability in governmental organizations

Based on CICA (1997), Bath (2001) and Stavins, Wagner, and Wagner (2003), financial sustainability can be defined as the ability of government to finance the provision of public services at present without compromising the ability to do so in the future. So, one of the crucial issues pertaining to sustainability is intergenerational equity (Brundtland, 1987), or 'inter-period equity' (IFAC, 2014; Pezzy & Toman, 2002).

In this regard, the Stability and Growth Pact of the Member States of the European Union (EU, 2012b) focuses on accounting tools to prevent excessive deficits. In addition, Directive 2011/85/EU of the European Council of 8 November 2011 (EC, 2011) stresses that improvements in public accounting practices, making them more comprehensive and reliable, are crucial to financial sustainability.

In addition, IFAC (2014) has also highlighted the importance of financial statements for assessing financial sustainability, considering them vital to achieve an understanding of the present situation of public finances. Specifically, IFAC (2012)

indicates that the income statement provides useful information for assessing the future ability of governments to continue providing the same services while maintaining their quality, which is a main feature of long-term fiscal sustainability. IPSAS no 1 (IFAC, 2014) indicates that the statement of financial performance, also named as income statement, reflects all items of revenue and expense recognized in the fiscal period. So, the income statement comprises positive components (revenues), which are added, and negative components (expenses), which are subtracted. The balance of this financial statement is obtained as a difference of these components, which are registered under accrual basis of accounting (called surplus/deficit of the period).

Accordingly, the IFAC has released a Recommended Practice Guide that provides a guidance report on the financial sustainability of governmental entities, identifying that it consists of three interrelated dimensions: revenues, debt, and services. Therefore, based on the concept of interperiod equity, the income statement is a representative indicator of financial sustainability of government policy (GASB, 1990; IFAC, 2014) and it could include the three financial sustainability dimensions (IFAC, 2013).

According to IFAC (2013), the revenue dimension considers taxation levels and other revenue sources over the period of the projections, given current policy assumptions on the provision of services to recipients and entitlements for beneficiaries, while remaining within debt constraints. Secondly, the debt dimension considers debt levels over the period of the projections, given current policy assumptions on the provision of services to recipients, and entitlements for beneficiaries and revenue from taxation and other sources. Thirdly, the service dimension considers the volume and quality of services to recipients and entitlements to beneficiaries over the period of the projections, given

current policy assumptions on revenue from taxation and other sources, while remaining within debt constraints.

In this context, although international bodies and previous research conclude that the income statement is a useful measure of financial sustainability statement, our motivation is based on the fact that previous studies neither have analysed its ability to reflect the combined effect of the three dimensions nor have identified influential factors on the evolution of the financial sustainability.

We undertake this empirical research on the conviction that our findings will advance the knowledge of useful tools to manage and to improve the financial sustainability of public services, allowing us to identify influential factors. Therefore, the aim of the article is of scientific interest because it could be useful for public managers and policymakers, since it provides them relevant information to: (a) evaluate the ability to modify the volume and the quality of services provided; (b) identify and measure risks for maintenance across the time of this capacity; (c) provide vulnerability issues linked to reduced revenues and increased expenses.

3. Objectives and research questions of the empirical research

According to the previous sections of this article, our empirical research analyses the usefulness of the informative content of the income statement to assess the financial sustainability and, furthermore, we try to find influential factors on its evolution in local governments.

To achieve these goals, four investigation questions are analysed in this article:

1) Does the income statement provide relevant information to measure the financial sustainability?

2) Can the behaviour of revenues affect the evolution of financial sustainability?

3) Can the evolution of the debt have influence on the behaviour of the financial sustainability?

4) Can the changes in the volume and quality of services explain the behaviour of the financial sustainability?

The opportunity and interest of the objectives and questions of our empirical research are motivated by international organizations' pronouncements and prior research. Following IFAC (2014), we seek to answer the first research question analysing the informative content of the income statement to assess the financial sustainability and studying its association with possible explanatory variables.

The financial sustainability is determined by the ability of the local government to manage expected financial risks and shocks over the long-term financial planning period, without necessity to introduce substantial or disruptive revenue (and expenditure) adjustments (CICA, 2009; CSIS, 2010; EC, 2011; EU, 2012a, 2012b, IFAC, 2012, 2014; USAID, 2011). So, one of the crucial issues pertaining to sustainability is intergenerational equity (Brundtland, 1987), or 'interperiod equity' (IFAC, 2014; Pezzy & Toman, 2002).

In public sector accounting, the intergenerational equity is a concept more closely linked to the income statement (GASB, 1990; IFAC, 2012), since it uses the accrual criteria. Under this approach, financial sustainability through the information content in the income statement can be measured from a much more comprehensive standpoint than that of budget information, as it includes the consumption of capital investments,

estimates of future costs and expenses incurred but pending allocation to the budget, among other items. These concepts effectively represent the organization's capacity to maintain its financial well-being in the future.

So, the income statement must play a fundamental role in assessing financial sustainability, by enabling users to assess, on the one hand, the capacity of the entity to continue providing at least the same volume of goods and services and, on the other hand, the level of resources that will be needed in the future to continue to meet its public services delivery obligation (IFAC, 2012).

On the other hand, the second research question analyses the behaviour of revenues because the IFAC (2013) considers it as one of the dimensions of the financial sustainability. This dimension should include the ability to vary government revenues from taxes and create new ones, including income received from entities at other levels of government or from international organizations (IFAC, 2013). So, in our empirical study, this dimension must include the total income of the period, taking into account current policies on the provision of services to citizens and revenue from taxation and other sources. Thus, it could be interesting to select some variables to measure the revenue dimension and its elements, since the destiny and source of this dimension could have influence on its probability of future occurrence (Guillamón, Benito, & Bastida, 2011; Rodríguez et al., 2014).

According to the third research question, IFAC (2013) proposes the debt as another dimension of the financial sustainability and establishes that an increase of debt shows that a higher proportion of income is required to repay it, causing the diversion of resources necessary for the provision of services. Therefore, our empirical research will try to identify the influence of the debt dimension on the financial sustainability, since the debt control is crucial to maintain it (Checherita-Westphal, Hughes Hallett, & Rother,

2014). In this regard, it could be necessary to determine the variable that can represent the debt dimension and its factors, since its maturity and origin could have influence on financial sustainability (Cabaleiro, Buch, & Vaamonde, 2013; Rivenbark, Roenigk, & Allison, 2010).

Finally, the IFAC (2013) determines that the quality and volume of services provided by the government given current policies is the service dimension of the financial sustainability. So, the study of the public services is relevant in order to achieve the financial sustainability. Therefore, it is essential to choose adequate variables in order to measure the service dimensions, since this dimension must express the ability of the entity to maintain or change the volume and quality of provided services.

Moreover, it could be interesting to analyse its factors, since the nature and purpose of the expenditures could determine the fixedness or variability of services (Groves & Valente, 2003; Šťastná & Gregor, 2015).

4. Research methodology

4.1. Sample selection

We will check the proposed research questions using a sample of municipalities from a country which has one of the highest sustainability gap indicators in Europe, in the short, medium and long term (EU, 2012a). In Spain, as in other European Union countries, public sector revenues and expenditures have increased significantly in the recent years as a result of the increased functions undertaken and the expanding role of the public sector in economic activity (Bank of Spain, 2014; Pérez-López et al., 2013). According to Guillamón, Benito, and Bastida (2011), Ruiz-Huerta and García (2012), Solé-Ollé and Sorribas-Navarro (2012) and the Bank of Spain (2014), this behaviour is not consistent with the real capacity of the economy, and it has led to high levels of public

debt, which will have a very negative effect on future service provision by all levels of government.

In the case of Spanish municipalities, a great part of this deficit has been generated by the difference between the increase in expenditure and the decrease of revenue that has been a consequence of the 'property bubble'. In Spain, in the years 2002–2006, construction was a very important source of municipal revenue due to tax collection. However, in 2007, the property market correction caused new construction to fall (−14%), this decrease becoming huge in 2008 (−58%) (Bastida, Guillamón, & Benito, 2014). This caused a large decrease in municipal revenues that depend on construction activity, while the expenditures continued to rise, causing a great deficit in the Spanish municipalities.

Therefore, sustainability studies are particularly timely and relevant to the public sector in countries such as Spain, where its prior expansion, coupled with duplication in the delivery of services by local and regional governments, preceded severe public spending cuts (Bank of Spain, 2014; Navarro, Alcaraz, & Ortiz, 2010; Ruiz-Huerta & García, 2012).

This study focuses on the financial sustainability of local governments for the following reasons. First, local governments represent the level of administration that builds the highest level of debt in the Spanish public sector (Brusca, Rossi, & Aversano, 2015). Second, because our understanding of this question is enriched by greater attention to institutional detail, with particular respect to the context of local government, which has been the target of many public sector reforms (Pallot, 2001; Smith, 2004). Third, in view of the politics of legislative reforms of administrative structures carried out in the 1990s (Gallego & Barzelay, 2010) and the managerial devolution process implemented in Spain (Bastida & Benito, 2006), local government in this country is well placed to be

aware of citizens' information needs (Watt, 2004). Finally, local governments manage very large budgets and provide a wide variety of services (Sáiz, 2011).

In designing this study, according to numerous prior empirical studies of local public finance (Brusca, Rossi, & Aversano, 2015; Guillamón, Benito, & Bastida, 2011; Pina, Torres, & Royo, 2010), we chose to examine exclusively municipalities with relatively large populations. In Spain, there are municipalities with a population over 50,000 inhabitants, together with those which, although smaller in terms of numbers, are classified as 'large population' under Article 121 of Local Government Law 7/1985, amended by the Local Government Modernisation Act 57/2003. This was done for the following reasons.

First, the municipalities with a population over 50,000 account for more than 50% of the Spanish population (Brusca, Rossi, & Aversano, 2015; INE, 2013). Second, in large municipalities, the available resources are greater than in smaller ones, and so sustainability analysis has greater scope and impact. Third, according to the current legislation, all municipalities with over 50,000 inhabitants are obliged to provide the same type of services. Fourth, the accounting model used by local governments with large population (Ministry of Economy and Finance, 2004) is considerably more complete and detailed than the simplified version used by small municipalities. Moreover, this accounting model based on the accrual criteria proposed by the standards of IFAC (2014) involves a great homogeneity in the preparation of financial statements, which contributes to its proper statistical analysis.

Under this rationale, we analysed a sample of 130 of the total of large Spanish municipalities (148), the only ones whose financial and budget complete information were available from 2006 to 2011. This sample corresponds to 87.84% of the valid municipalities for the study and represents over 45% of the total Spanish population and

over 9.82% of the total national budget. Furthermore, the period studied includes 3 years where economic growth is not influenced by the crisis (2006, 2007 and 2008), and 3 years with effect of the crisis (2009, 2010 and 2011).

4.2. Variables (explained and explanatory variables)

Explained variable

In this article, the explained variable is financial sustainability in local governments, which is determined by these entities' ability to manage expected financial risks and shocks over the long-term financial planning period, without compromising the future generations (CICA, 2009; CSIS, 2010; EC, 2011; EU, 2012a, 2012b, IFAC, 2012, 2014; USAID, 2011). Due to the relationship between the intergenerational equity and the financial statements explained in Section III, we use the informative content of the income statement to assess the financial sustainability.

However, the government income statements currently produced do not seem to be sufficient to assess the financial sustainability or otherwise of public administrations (Rodríguez et al., 2014; Williams, Wilmshurst, & Clift, 2010), because they include extraordinary activities which are not expected to be repeated in the foreseeable future within the environment in which the organization operates. Accordingly, the effect of revenues and expenses deriving from extraordinary activities must be corrected in the income statement, since they lack of any future projections because they will not be repeated in the coming years. This modification would make the income statement a more reasonable measure of the intergenerational equity, and more accordant with the concept of financial sustainability.

Therefore, we have adjusted the balance of the annual income statements in accordance with the purposes of this article, in order to maximize their utility for assessing

financial sustainability. Thus, in this article, the explained variable is represented by the total amount of the adjusted income statement, as shown in **Table 3.1**.

Table 3.1. Dependent variable. Financial Sustainability: Adjusted Income Statement.

Concept	Amount
Income statement for the financial year obtained by applying the current IPSAS	(1)
+ Negative entries for extraordinary activities	(2)
- Positive entries for extraordinary activities	(3)
Corrected income statement for the financial year (intergenerational equality for the financial sustainability)	(1)+(2)–(3)

Likewise, we should distinguish between the concepts of budgetary expenditure and revenue, and financial expenditure and revenue. The former are part of the budget and provide the annual budget results, while the latter fall within the area of financial accounting and constitute the income statement as analysed above. The differences between these concepts arise, on the one hand, from their content, and, on the other, from the criteria applied for their allocation. Thus, some items are defined as budgetary expenditures or revenues and are not considered financial expenditures or revenues. Therefore, there are some differences between financial and budget expenditures, and these differences are reflected too in the particular case of budgetary revenues with respect to financial revenue.

Furthermore, in Spain, while expenditure and revenue are allocated to the income statement in accordance with the accrual basis of financial accounting, the allocation of budgetary expenditure and revenue is primarily cash-based or follows a mixed cash accrual criterion in determining the budget results, and these criteria are clearly divergent. In any case, during the period analysed, the Spanish local governments used a model consistent with IFAC's international accounting standards (2014).

In summary, in measuring financial sustainability, this article follows the recommendations of the main international organizations (EU, 2012a; USAID, 2011) and

the pronouncements of international accounting bodies such as GASB (1990), FASB (2012) and IFAC (2012). Accordingly with this section and Section III, our dependent variable is the measure of financial sustainability reflected in the income statement (adjusted for extraordinary results), which is an accounting statement based on the accrual basis (IFAC, 2014).

Explanatory variables

As already mentioned, IFAC (2013) indicates that long-term sustainability of public sector entities' finances is composed of three dimensions: debt, revenues, and services. Therefore, considering the objective of this article, we take these dimensions as potential explanatory variables in our statistical analysis, which allow us to identify influential factors on the financial sustainability.

To begin with the revenue dimension, as we have explained in Section III, IFAC (2013) considers that this dimension includes the ability to vary total government revenues. So, we measure the revenue dimension by the total income of each local government, reduced by the amount of the extraordinary income, since it is unlikely to recur in the future and they are not controllable by the local policymakers.

In addition, it is interesting to determine which factors of revenues could affect financial sustainability, since prior research shows that the source of revenues and its destiny could influence their probability of future occurrence (Guillamón, Benito, & Bastida, 2011; Rodríguez et al., 2014). So, to analyse the revenue dimension, we identify four possible factors which could affect financial sustainability: external revenues, internal revenues, capital revenues and operating revenues.

Regarding the debt dimension, IFAC (2013), in accordance with the IMF (2014) and CICA (2009), states that it must be measured by debt net per capita, since it is a variable that provides information about public administration's indebtedness in a year,

taking into account current policies in the provision of goods and services. Following these statements, in this article, the variable net debt will be calculated by total debt (total liabilities) less financial assets, defined as the receivables of the entity and the liquid assets.

Furthermore, to analyse the debt dimension (net debt per capita), we have identified four possible factors which could affect financial sustainability (long-term debt, short-term debt, commercial debt and financial debt), since Rivenbark, Roenigk, and Allisonr (2010) and Cabaleiro, Buch, and Vaamonde (2013) suggested that the maturity and origin of the debt could influence on financial sustainability.

Finally, IFAC (2013) considers the services dimension as the quality and volume of services provided by the government given current policies.

We utilize the government expenditures to measure this dimension following Schaltegger and Torgler (2006) who used the expenditures as an approach of the government size. In fact, Cameron (1978) and Choi et al. (2008) take government expenditures as approach of demand for public services and goods, due to the causal relationship between volume of provided services and expenditures. It means, a greater volume of provided services by local government requires a greater amount of expenditures (staff, infrastructures. . .), since the resources employed by local government to meet the citizens' demands increase when the number of users of public services rises.

Moreover, in the analysis of the services dimension, it is interesting to identify which factors related to services, like wages, financial expenditures, capital expenditures and operating expenditures, could influence on financial sustainability, since factors such as wages and capital expenditure influence on the financial stress of Spanish municipalities (Brusca, Rossi, & Aversano, 2015). Following prior research (Groves & Valente, 2003; Šťastná & Gregor, 2015), the nature and purpose of the expenditures could

determine the fixedness or variability of services, which could affect the sustainability of public services.

Table 3.2 shows all the dependent and independent variables that we try to analyse in this article, together with their measurement and the main descriptive data.

Table 3.2. Descriptive analysis

Variable	Calculation	Mean		Std. Dev.	Min	Max
Financial Sustainability[1]	Income Statement Adjusted = income statement – extraordinary revenues + extraordinary expenses	121,1277	overall	160,6058	-532,7156	997,755
			between	90,5543	-103,271	375,031
			within	99,163	427,8481	2072,04
Revenues[1]	Total of revenues – extraordinary revenues	977,8347	overall	256,9811	89,6399	2889,68
			between	233,3268	-353,8658	1188,95
			within	122,346	-727,9144	1156,77
External Revenues[1]	Current and capital transfers and grants + ceded taxes	378,5737	overall	130,7489	35,9921	1127,13
			between	83,1675	168,775	580,739
			within	76,4692	269,3641	1281,52
Internal Revenues[1]	Total revenues – extremal revenues – extraordinary revenues	600,6627	overall	214,1218	47,99468	2248,4
			between	195,3929	321,6445	1644,94
			within	104,0553	154,7598	1737,35
Operating Revenues[1]	Current revenues (current transfers, grants, services revenues, tax revenues…)	870,9289	overall	228,7696	83,41305	2686,7
			between	216,8804	645,8931	2131,74
			within	110,3737	-730,0548	1085,2
Capital Revenues[1]	Revenues for capital transfers, and grants	102,3041	overall	89,5883	-11,7603	661,893
			between	81,1621	241,9506	702,237
			within	76,3646	-147,8213	453,148
Debt[1]	Total liabilities – financial assets[2]	393,2627	overall	476,9442	-1561,673	2770,29
			between	438,8859	-1074,426	1809,09
			within	208,4378	-790,3945	1608,02
Long Term Debt[1]	Total long-term debt – the percentage of financial assets[2]	211,363	overall	250,782	-459,8469	2062,78
			between	218,898	83,4130	1995,6
			within	111,9509	-451,8071	947,95
Short Term Debt[1]	Total short-term debt – the percentage of financial assets[2]	185,3308	overall	303,8322	-1343,755	1919,31
			between	274,2705	-818,3453	1458,2
			within	144,8233	-85,2356	2271,66
Commercial Debt[1]	Total commercial debt (example creditors)– the percentage of financial assets[2]	150,7308	overall	265,2456	-1297,31	1550,43
			between	240,3188	-763,654	1297,34
			within	130,4939	-458,6253	1465,37
Financial Debt[1]	Total Financial debt (example departure and other securities of financial assets[2])	245,5002	overall	277,3562	-497,69	2118,76
			between	257,5461	-420,2527	1207,49
			within	133,0098	-407,1345	924,3
Services[1]	Total operating expenses of services and social benefits such as social benefits, staff cost	702,6666	overall	178,529	74,0514	1535,63
			between	162,6186	377,3664	1333,04
			within	98,753	-21,8399	1561,01
Wagers[1]	Total staff cost	325,0117	overall	89,1598	32,4109	707,36
			between	47,5714	6,2269	350,661
			within	43,9334	-292,729	905,052
Financial Expenditures[1]	Finical expenses	21,16739	overall	16,07,8	0	127,954
			between	13,7924	2,6829	86,7072
			within	8,4353	-15,4391	88,7498

Operating Expendiutures[1]	Total expenses – capital expenses and extraordinary expenses	823,3808	overall	203,2929	95,483	2289,42
			between	177,956	573,2655	1671,24
			within	102,0778	-118,1686	803,462
Capital Expeditures[1]	Expenditures for capital transfers and grants	6,716299	overall	51,34419	-0,8236	1197,78
			between	29,9683	0	299,445
			within	31,21849	49,3689	622,334

Note: N=880 observations (148 local governments, 6 years)
1,- Numbers in per capita values
2,- Financial assets = receivables + liquid assets
Source: Own elaboration based on results obtained from STATA12 and the information obtained from INE and Income Statement.

4.3. Statistical model and methodology

To achieve the aim of this study, we will check if the measurement of financial sustainability may or may not be explained by the behaviour of the three dimensions proposed by IFAC (2013), based on the following model:

$$FS_{it} = \beta_1 REV_{it} + \beta_2 SERV_{it} + \beta_3 DEBT_{it} + u_{it}$$

where FS = financial sustainability; REV = revenues; SERV = services; DEBT = debt.

We selected the panel data technique because it is the technique used by the latest research in government, since the technique can increase the number of observations by pooling different time-series together (Zhu, 2013). In other words, we have a vector of variables for N (148 local governments) over T periods of time (6 years, from 2006 to 2011): x_{it} for i = 1...N and t = 1...T. The error (u_{it}) is composed for α_i (unobservable heterogeneity) designed to measure unobservable characteristics of the local governments that have a significant impact on financial sustainability of local governments, and e_{it} (the error term).

To conduct panel data estimation, it is necessary to determine the use of fixed effects or random effect. However, the exogeneity of the variables should also be considered, since both estimators are biased when endogenous variables are included in

the model (Baltagi, 2008; Wooldridge, 2009). In our research, although there are no previous studies on the possible endogeneity of the explanatory variables with financial sustainability, there are studies that interpret the possible existence of bidirectional causality between transfers, municipal debt and income endogenous in a model of municipal spending (Cárdenas & Sharma, 2011). Given the variables in this study are closely related to the variables in our model, we thought endogeneity might exist between financial sustainability and income, services and debt. Therefore, we estimate our model by Generalised Method of Moment (GMM) (Dynamic Panel Data), which is very appropriate to control for explanatory variables' potential endogeneity (Baltagi, 2008; Wooldridge, 2009).

We use, specifically, the robust System-GMM (Arellano & Bover, 1995; Windmeijer, 2005), which combines the moment conditions for the equations in first-differences with additional moment conditions implied for equations in level. In this sense, this statistical technique is a more powerful tool to control the possible endogeneity that could occur in this type of database.

To check the robustness and suitability of the model used, we perform the Arellano–Bond test (m) to check the existence of serial correlation (Arellano & Bond, 1991), and the Sargan test of over-identifying restrictions to verify that the instruments used to control the endogeneity are adequate (Arellano & Bond, 1991). In our investigation, the Arellano– Bond test ($p = 0.17$) and Sargan test ($p = 0.067$) (See Table 3.4) confirm the consistency of our model and, therefore, the robustness of the results we have obtained, controlling any type of endogeneity that may exist between the variables.

In summary, we use the statistical methodology which avoids the distorting effect of possible endogeneity and multicollinearity, allowing us to obtain robust results to properly support the findings related to the purpose of the article.

5. Analysis of results

5.1. Descriptive statistics

As shown in Table 3.2, the variable with the highest average is the total revenue (977.83), followed by operating revenues with a value of 870.93; while the lowest averages correspond to financial expenditures (21.17) and capital expenditures (6.72).

Regarding the homogeneity of the behaviour of the variables, considering all observations (overall), variables with less dispersion (SD) are financial expenditures (16.07) and capital expenditures (51.34) and the variables with greater dispersion are total debt (476.94), short-term debt (303.83) and financial debt (277.36).

On the one hand, the comparison of the dependent variable with the explanatory variables of the three dimensions proposed by IFAC (2013) shows that the financial sustainability has a lower SD (160.60) than the three mentioned dimensions (revenues, services, and debt). Similarly, if we observe the SD of the mean between analysed governments, the uniformity of financial sustainability is higher than in the three dimensions, because it shows the lowest value (90.55).

However, when we analyse the intra-group values, financial sustainability has greater homogeneity than revenues or debt dimensions, but less homogeneity than services dimension (98.75).

On the other hand, it is important to highlight that the behaviour of all independent variables is more heterogeneous among municipalities (between groups) than between the years within the same local government (intra-groups). However, in the case of the dependent variable (financial sustainability), the uniformity of evolution is higher among governments than between years observed for each government.

Similarly, the analysis of pairs of variables reveals interesting information. Our empirical results suggest that capital revenues, financial expenditures, and capital expenditures appear to be the variables with lower oscillations and greater predictability as to future developments. Therefore, these three variables could be controlled and managed more easily than the rest and could represent less risk to the financial sustainability.

Regarding the use of the expenditures, even though the staff expenditures have a fixed character in time, their level of dispersion is greater than the capital expenditures which generally represent an investment effort which often varies significantly between years and/or between governments. This difference could be due to local governments analysed during the period under review devoting more resources to human capital rather than investing.

Taking into account the nature of the debt, although the meaning of commercial debt is significantly lower than the average of financial debt, the uniformity of their behaviour is very similar (see SDs overall, between and within). However, its values (overall, between and within) identify it as the variable with the most volatility, and therefore more difficult to control. This suggests that the debt could be one of the risk factors more harmful to the financial sustainability of local governments.

Finally, in the case of financial sustainability, the lowest dispersion of values between local governments implies that the management style of the policymakers possibly causes less volatility (and therefore less risks to financial sustainability) than the specific economic situation of each year, which usually comes imbued with factors uncontrollable by the local government, such as unemployment, income per capita, population age or volume of received grants.

Therefore, based on these results, the analysis of the vulnerability of variables advocated by IFAC (2014) must be more intense in those variables with higher level of volatility, because they seem to have higher risk of oscillating and being uncontrolled over time, particularly total debt and more especially, commercial debt and financial debt.

In addition, it seems interesting to compare behaviour of the variables between pre-crisis years (2006– 2008) and post-crisis period (2009–2011). In the postcrisis period, the mean of the revenues (1008.35) suffered a sharp drop compared with its mean in pre-crisis period (4447.36). Due to the drop of the revenues in post-crisis period, local government had to reduce their expenditures (from 2511.95 to 719.29) and increase their debt (from 302.87 to 467.98). Nevertheless, the mean of the revenues decreased in greater proportion than that of expenditures (77.32% and 71.36%, respectively).

This fact provoked that the mean of the financial sustainability fell and changed from 1045.11 in the precrisis period to 135.78 in the post-crisis period. However, the SDs of the financial sustainability between these two periods are not significantly different (−532.72 and −518.09). As it was above mentioned, this result could corroborate that the behaviours of this variable in these two periods are similarly between local governments.

5.2. Analysis of relationship between the income statement and three dimensions of the financial sustainability

The results generated by the utilized statistical tools are robust enough to support these findings, since it allows control of the possible effects of endogeneity and multicollinearity.

Our results in Table 3.3 show that the financial sustainability in a particular year is not influenced by the behaviour of the previous year's financial sustainability, which is

in concordance with the results mentioned about the descriptive statistics. In addition, to test the robustness of our model we pose the model without the lagged dependent variable.

The results shown in Table 3.4 do not change substantially when we drop the lagged dependent variable from the previous model (Benito, Bastida, & Vicente, 2012; Drukker, 2008), except in the case of the long-term debt or financial debt which were not strongly significant. This confirms the robustness of our estimations and, therefore, we will analyse the results shown in Table 3.4.

Table 3.3. Lagged dependent variable in the right-hand side

Variables	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**	**Model 7**
FS–Retarded_1	-3.21E-05	-2.10E-05	3.93E-05	1.22E-05	3.51E-05	6.17E-05	-4.11E-05
Revenues	0.8790***			0.8798***	0.8819***	0.9273***	0.7735***
Services	-1.0208***	-1.0092***	-1.0054***	-1.0170***	-1.0224***		
Debt	-0.0461***	-0.0432***	-0.0362**			-0.0173*	-0.1194**
External Revenues		0.9108***					
Internal Revenues		0.8356***					
Operating Revenues			0.8335***				
Capital Revenues			0.9877***				
Long-Term Debt				-.0761*			
Short-Term Debt				-0.0219			
Commercial Debt					0.0017		
Financial Debt					-.0822**		
Operating Expenses						-.7664***	
Capital Expenses						0.0515	
Financial Expenses							-1.9517***
Staff Expenses							-1.0649**

Source: Own elaboration based on the test performed in STATA12
Note: Significant at 1%***; Significant at 5%**; Significant at 10% level*.

Table 3.4. Estimation result of the model

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Revenues	.8592***			.8488***	.8516***	0.2691**	0.7779***
Services	-1.1304***	-1.1309***	-1.1181***	-1.1103***	-1.1157***		
Debt	-0.0319*	-0.0320	-0.0373*			-0.0813**	-0.05323*
External Revenues		0.8941***					
Internal Revenues		0.7963***					
Operating Revenues			0.7804***				
Capital Revenues			0.9566***				
Long-Term Debt				-0.0551			
Short-Term Debt				0.0005			
Commercial Debt					0.0097		
Financial Debt					-0.0502		
Operating Expenses						-0.1109*	
Capital Expenses						0.0435	
Financial Expenses							-1.7438***
Staff Expenses							-2.4466***
_cons	85.0639***	111.9355***	143.8634***	80.9408***	81.8231***	-19.1942	-1.6393
***m*_Z**	-1.3549	-0.4906	-0.59554	-1.3792	-1.2881	-1.8973	-1.3258
***m*_Prob>z**	0.1755	0.6237	0.5515	0.1678	0.1977	0.0578	0.1849
Sargan_chi²	74.0614	88.0408	84.75416	89.42601	88.2504	118.7004	96.397
***Sargan*_Prob>chi²**	0.067	0.1629	0.2302	0.1392	0.1591	0.1704	0.0591

Source: Own elaboration based on the test performed in STATA12

Note: All models have been estimated by System-GMM. All the independent variables are treated as endogenous. The first-differenced equation has instruments in form of the endogenous variables in levels lagged by 2 periods.

Significant at 1%***; Significant at 5%**; Significant at 10% level*.

We have carried on the test *m* that reports the Arellano–Bond test for serial correlation in the first-differenced errors and the Sargan test for overidentifying restrictions which tests the validity of the instruments.

Therefore, the findings shown in Table 3.4 have empirically contrasted that the income statement is an important statement for the measurement of financial sustainability of local governments, as its temporal evolution is associated with the behaviour of the three main dimensions of financial sustainability proposed by IFAC (2013): revenues, debt and services. Our first results show that these three dimensions are significant for the analysis of financial sustainability, since the signs of the coefficients expected are accordant with the conceptual studies based on the IFAC (2013) pronouncements that we had realized in Section II of this chapter.

Individually, we have tested that the variable debt and variable services have an adverse effect on the financial sustainability (coefficients −1.1305 and −0.0319, respectively), whereas the variable revenues have a favourable influence (+0.8593).

Therefore, our empirical analysis shows the ability of the income statement to reflect the negative and positive impact of the evolution of the three dimensions proposed by IFAC (2013), since it follows the same relationship that the IFAC (2013) proposes between these three dimensions and financial sustainability. However, comparative analysis between the coefficients shows that the financial sustainability (income statement) is more influenced by the variable services and revenues than the variable debt.

Regarding the revenues dimension, its positive influence on financial sustainability has been tested empirically in our statistical analysis (coefficient +0.8593) with high explanatory power of external revenues (+0.8942), internal revenues (+0.7964), operating revenues (+0.7805) and capital revenues (+0.9566). Therefore, these results suggest that origin and nature of revenues could influence on the evolution of financial sustainability.

These positive coefficients suggest that the income statement could be a good indicator in two key issues of the revenues dimension, according to IFAC (2014): capacity and vulnerability. With respect to capacity, an increase of revenues could be reflected in the income statement, and it could mean a higher chance to increase the volume and the quality of services provided by local government. Otherwise, a decreased volume of revenues would involve a reduction of these possibilities.

In fact, the coexistence of negative coefficient for expenditures and positive coefficient for revenues empirically tests the utility of income statements for measuring sustainability, as suggested by IFAC (2014). The information obtained by the income statement could be useful in the management of financial sustainability and it could help

governments to provide citizens with sufficient information about the financial sustainability through the relationship between expenditures and revenues. Governments are under growing pressure not only to manage their funds effectively, but also to show their management has been effective. To achieve this, governments need complete information about their expenditures in order to assess their revenue requirements, the sustainability of their programmes and their flexibility (IFAC, 2014).

Moreover, the information content of the income statement could also help to predict vulnerability issues, since the source of revenues (coefficients +0.8593 and +0.8942) as their destination (+0.7805 and +0.9566) are indicators of the probability of occurrence in future years, as suggested by IFAC (2014). For example, a grant to fund expenditure programmes whose reception depends on a state government is more vulnerable than the taxes on ownership of houses in the town.

Continuing with the debt dimension, its relationship with the income statement is weaker than in the case of the other two dimensions (coefficient of total debt: −0.0319). So, the volume of debt should be taken into account in the management of financial sustainability. However, our results show that the income statement could provide useful information in order to study this dimension's capacity and vulnerability, although the maturity (short-term or long-term) and the debt origin (financial or commercial) are not associated with the evolution of the financial sustainability.

Finally, the services dimension (−1.1305) reflected in the income statement is a good approximation of its capacity and vulnerability (IFAC, 2014). We have been able to detect some explanatory factors, regarding its destination and nature, such as wages (−2.4466), financial expenditures (−1.7438) and operating expenditures (−0.1109), which could be a useful tool to the management of the financial sustainability. A positive sign of the income statement implies the coverage of the services provided expenditures and,

therefore, it shows the ability of the entity to maintain or even expand the volume and/or quality of services provided without jeopardizing financial sustainability. On the contrary, a negative balance involves the necessity to reduce its volume and/or quality in order not to endanger financial sustainability, or the necessity to obtain new funds to finance the expenditures.

Furthermore, our results reveal that the income statement could contribute to predict vulnerability problems, since it could help to make decisions about services taking into account uncontrollable factors by the local governments, such as the demand of citizens or regulatory impositions by other levels of government regarding services to be provided. This predictive ability of the income statement is reinforced by the fixed nature of staff expenditures, since the capacity of government decision on its evolution is more limited than in the case of variable expenditures, whose behaviour over time is more dependent on the volume of services provided, and operating expenditures.

In addition, a comparative analysis of the evolution of the financial expenditures and operating revenues could allow the income statement to predict vulnerability problems from uncontrollable factors such as changes in the interest rate of financial markets. As IFAC (2014) suggests, the income statement could contribute to making decisions about the percentage of revenues that should be destined to reimbursement debt and, therefore, the amount of revenues used to the provision of services.

Finally, the explanatory power of the income statement which supports our statistical analysis reveals that this statement is useful for measuring the interrelation between the three dimensions suggested by IFAC (2013) since our results show the simultaneous influence of several factors of these dimensions on financial sustainability.

These results imply that the balance of the income statement is an approximate indicator of the financial sustainability of local governments. Our findings reveal that a

negative value of the balance of the income statement reflects a warning sign, and policymakers and public managers should identify the causes making an analysis of the revenues and their application (current expenditures and capital expenditures) over time, the volume of the debt, the wages and the financial expenditures. Likewise, if the sign of the balance of the income statement is positive, our findings are useful for public managers and politicians interested in political preventive actions in order to maintain the financial sustainability through the analysis of the explanatory variables.

6. Conclusion

In the current international context of economic crisis, the analysis of the financial sustainability of governmental policies is a key issue for public sector leaders (politicians and managers) and citizens, since it is interesting to learn and improve the intergenerational equity of public services. The main international organizations and academic research have concluded that the accounting systems of public entities are called in to play an essential role in measuring and improving the governmental sustainability. According to prior literature and different international organizations, the income statement is the government's financial statement most tied to the financial sustainability, since it is a good indicator to measure the intergenerational equity. In parallel, IFAC (2013) has identified three dimensions of financial sustainability (services, revenues, and debt).

Our results in Spanish local governments provide empirical evidence to support the idea that the income statement reveals important information about the effect of the evolution of the three dimensions on the financial sustainability of governments, including the individual effects in each dimension and the impact of the interrelation between them. So, the results of our empirical research support that the income statement

is a useful instrument to provide relevant information about influential factors on financial sustainability, helping managers and politicians in the decision-making process about public policy.

In summary, the findings of this article have revealed, on the one hand, that the income statement represents a useful measure of the impact of these dimensions on the financial sustainability, both positive and negative and, on the other hand, that it is an effective tool to identify and to assess influential factors on financial sustainability.

In addition, we have found empirically that the income statement supplies information about the capacity of the entities to continue providing goods and services in the same volume and quality and the level of resources that will be needed to provide them in the future, so this income statement is relevant to analyse the evolution of the intergenerational equity. Therefore, the income statement shows useful information to assess the ability of vulnerability of the three dimensions identified by IFAC (2013). In this respect, in order to manage the intergenerational equity, local governments could adopt different decisions in any of these three dimensions to detect and manage the financial sustainability risk, taking into account the information that the income statement supplies.

In parallel, relevant information about revenues dimension can be extracted from the income statement as our findings support, since this report can be a good indicator of the capacity and vulnerability of this governmental sustainability dimension. Our results about revenues dimension imply that the revenues origin (external and internal) and its destination (operating and capital) can be specific factors which affect financial sustainability of local governments.

An increase in the volume of revenues would increase the chances of local government to increase the volume and/or quality of services provided. Also, according

to IFAC (2014), our empirical results show that the income statement can reveal useful information for citizens in order to assess the financial sustainability through the relationship between expenditures and revenues, helping to predict vulnerability problems associated with reduction in revenue to cover expenditures that are maintained in the future, especially since, as noted by our statistical analysis, revenues are one of the variables with greater dispersion between years.

On the other hand, the effect of the evolution of debt dimension is also reflected in the income statement. However, we have found no significant evidence of the debt origin and its maturity and, therefore, our results do not support the influence of these two factors on financial sustainability. Nevertheless, the negative influence of financial expenditures on financial sustainability can be useful to assess the capacity to provide services and to predict vulnerability problems caused by uncontrollable factors such as rising interest rates. This conclusion is reinforced when our descriptive results highlight that debt is the most volatile variable, between municipalities and between years.

Regarding services dimension, income statement reveals useful information to assess the government's ability to maintain or adjust the volume and/or quality of services provided, and to predict vulnerability problems caused by uncontrollable factors such as demographic trends or standards issued by other levels of government. Furthermore, the association of income statement with the evolution of expenditures suggests that this report is useful to identify risk factors such as the staff expenditures and financial expenditures, which are two variables with a strong dependence on governmental style management, as shown by our descriptive analysis. So, our results show that the nature of expenditures could influence on the financial sustainability evolution, although it is unclear the final influence of the expenditure purpose, since we have found no empirical evidence of the association between capital expenditure and financial sustainability.

Finally, regarding the possible extrapolation of our model for analysis of other governmental levels, we understand that the measurement of financial sustainability could be accepted, although it would require an adequate accounting system. However, our findings allow deducing that the explanatory factors in the central and regional governments should be elected according to its peculiarity of functions such as budget structure of revenues and expenditures, debt capacity, grants to the other governments or the final users of their activities.

References

Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The Review of Economic Studies*, *58*(2), 277. DOI: 10.2307/2297968

Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of Econometrics*, *68*(1), 29–51. DOI: 10.1016/0304-4076(94)01642-D

Bailey, S., Valkama, P., & Salonen, S. (2014). The EU's public finance crisis: causes, consequences and cure. *Public Money & Management*, *34*(2), 83–90. DOI: 10.1080/09540962.2014.887514

Baltagi, B. H. (2008). *Econometric analysis of Panel Data* (4th ed.). Chichester, UK: John Wiley & Sons, Ltd.

Bank of Spain. (2014). *Boletín Estadístico 12/2014*. Madrid: Bank of Spain.

Bastida, F., & Benito, B. (2006). Financial reports and decentralization in municipal governments. *International Review of Administrative Sciences*, *72*(2), 223–238. DOI: 10.1177/0020852306064611

Bastida, F., Guillamón, M. D., & Benito, B. (2014). Explaining Interest Rates in Local Government Borrowing. *International Public Management Journal*, *17*(1), 45–73. DOI: 10.1080/10967494.2014.874257

Benito, B., Bastida, F., & Vicente, C. (2012). Municipal elections and cultural expenditure. *Journal of Cultural Economics*, *37*(1), 3–32. DOI: 10.1007/s10824-012-9175-5

Brundtland, G. H. (1987). *Report of the World Commission on environment and development:" our common future.". United Nations, 1987.* (WCED, Ed.). United Nations. DOI: 10.1002/jid.3380010208

Brusca, I., Rossi, F. M., & Aversano, N. (2015). Drivers for the financial condition of local government: A comparative study between Italy and Spain. *Lex Localis*, *13*(2), 161–184. DOI: 10.4335/13.2.161-184(2015)

Cabaleiro, R., Buch, E., & Vaamonde, A. (2013). Developing a method to assessing the municipal financial health. *The American Review of Public Administration*, *43*(6), 729–751. DOI: 10.1177/0275074012451523

Cameron, D. R. (1978). The Expansion of the Public Economy: A Comparative Analysis. *American Political Science Review*, *72*(4), 1243–1261. DOI: 10.2307/1954537

Cárdenas, O. J., & Sharma, A. (2011). Mexican Municipalities and the Flypaper Effect. *Public Budgeting & Finance*, *31*(3), 73–93. DOI: 10.1111/j.1540-5850.2011.00990.x

Checherita-Westphal, C., Hughes Hallett, A., & Rother, P. (2014). Fiscal sustainability using growth-maximizing debt targets. *Applied Economics*, *46*(6), 638–647. DOI: 10.1080/00036846.2013.861590

CICA. (2009). *Public sector statements of recommended practice (SORP) 4.Indicators of Financial Condition*. Toronto: CICA.

CSIS. (2010). *Annual report 2010. Strategic Insights and Bipartisan Policy Solutions*. Washington, DC: Center for Strategic and International Studies Strategic.

Drukker, D. M. (2008). Econometric analysis of dynamic panel-data models using Stata. In *Summer North American Stata Users Group meeting. Gleacher Center, University of Chicago*.

EC. (2011). *Council Directive 2011/85/EU of 8th November 2011 on requirements for budgetary frameworks of the Member States*. Brussels: EC.

EU. (2012a). *Fiscal Sustainability Report*. Brussels: European Union. https://doi.org/10.2765/19669

EU. (2012b). *Stability and Growth Pact*. Strasbourg: European Union.

Gallego, R., & Barzelay, M. (2010). Public Management Policymaking in Spain: The Politics of Legislative Reform of Administrative Structures, 1991-1997. *Governance*, *23*(2), 277–296. DOI: 10.1111/j.1468-0491.2010.01479.x

GASB. (1987). *Concepts Statement No. 1: Objectives of Financial Reporting Model*. Norwalk: GASB.

GASB. (1990). *Concepts Statement No. 11: Measurement Focus and Basis of Accounting –Government Fund Operating Statements*. Norwalk: GASB.

Groves, S. M., & Valente, M. G. (2003). *Evaluating Financial Condition: A Handbook for Local Governments* (4th ed.). Washington DC: ICMA.

Guillamón, M. D., Benito, B., & Bastida, F. (2011). Evaluación de la deuda pública local en España. *Revista Española de Financiación Y Contabilidad*, *XL*(150), 251–285.

Guthrie, J., & Farneti, F. (2008). GRI Sustainability Reporting by Australian Public Sector Organizations. *Public Money & Management*, *28*(6), 361–366. DOI: 10.1111/j.1467-9302.2008.00670.x

IFAC. (2012). *Sustainability Framework 2.0.Professional Accountants as Integrators*. New York: IFAC.

IFAC. (2013). *Recommended Practice Guideline. Reporting on the Long-Term Sustainability of an Entity ' s Finances*. New York: IFAC.

IFAC. (2014). *Handbook of International Public Sector Accounting Pronouncements*. New York: IFAC.

IMF. (2014). *World Economic Outlook (WEO) - Recovery Strengthens, Remains Uneven*. Washington, DC: IMF.

INE. (2013). Spanish Statistical Office. Retrieved July 29, 2016, from www.ine.es

Krueger, R., & Agyeman, J. (2005). Sustainability schizophrenia or "actually existing sustainabilities?" toward a broader understanding of the politics and promise of local sustainability in the US. *Geoforum*, *36*(4), 410–417. DOI: 10.1016/j.geoforum.2004.07.005

Ministry of Economy and Finance. (2004). Order EHA/4041/2004, 23rd November, Instrucción del Modelo Normal de Contabilidad Local.

Navarro, A., Alcaraz, F. J., & Ortiz, D. (2010). La Divulgación de Información sobre Responsabilidad Corporaiva en Administraciones Públicas: Un estudio Empírico en Gobiernos Locales. *Revista de Contabilidad-Spanish Accounting Review*, *13*(2), 285–314.

Pallot, J. (2001). Transparency in local government: antipodean initiatives. *European Accounting Review*, *10*(3), 645–660. DOI: 10.1080/09638180126794

Pérez-López, G., Plata-Díaz, A. M., Zafra-Gómez, J. L., & López-Hernández, A. M. (2013). Deuda viva municipal en un contexto de crisis económica: análisis de los factores determinantes y de las formas de gestión. *Revista de Contabilidad*, *16*(2), 83–93. DOI: 10.1016/j.rcsar.2012.12.001

Pezzy, J., & Toman, M. (2002). Making Sense of Sustainability. *Resources for the Future, Issue Brie*(02–25).

Pina, V., Torres, L., & Royo, S. (2010). Is E-Government Promoting Convergence Towards More Accountable Local Governments? *International Public Management Journal*, *13*(4), 350–380. DOI: 10.1080/10967494.2010.524834

Rivenbark, W. C., Roenigk, D. J., & Allison, G. S. (2010). Conceptualizing Financial Condition in Local Government. *Journal of Public Budgeting, Accounting and Financial Management*, *22*(2), 149–177.

Rodríguez, M. P., Navarro, A., Alcaide, L., & López, M. D. (2014). Factors Influencing Local Government Financial Sustainability: An Empirical Study. *Lex Localis*, *12*(1), 31–54. DOI: 10.4335/12.1.31-54(2014)

Ruiz-Huerta, J., & García, M. A. (2012). El endeudamiento de las Comunidades Autónomas: límites y problemas en el contexto de la crisis económica. *Revista D'estudis Autonòmics I Federals*, *15*, 124–162.

Sáiz, M. P. (2011). La Ley de Economía sostenible: la sostenibilidad financiera del sector público. *Revista de Contabilidad Y Dirección*, *13*, 21–41.

Schaltegger, C. a., & Torgler, B. (2006). Growth effects of public expenditure on the state and local level: evidence from a sample of rich governments. *Applied Economics*, *38*(10), 1181–1192. DOI: 10.1080/00036840500392334

Smith, K. A. (2004). Voluntarily Reporting Performance Measures to the Public: A test of Accounting Reports From U.S. Cities. *International Public Management Journal*, *7*(1), 19–48.

Solé-Ollé, A., & Sorribas-Navarro, P. (2012). The dynamic adjustment of local government budgets: does Spain behave differently? *Applied Economics*, *44*(25), 3203–3213. DOI: 10.1080/00036846.2011.570723

Šťastná, L., & Gregor, M. (2015). Public sector efficiency in transition and beyond: evidence from Czech local governments. *Applied Economics*, *47*(7), 680–699. DOI: 10.1080/00036846.2014.978077

Stavins, R. N., Wagner, A. F., & Wagner, G. (2003). Interpreting sustainability in economic terms: dynamic efficiency plus intergenerational equity. *Economics Letters*, *79*(3), 339–343. DOI: 10.1016/S0165-1765(03)00036-3

USAID. (2011). *Fundamentals of NGO Financial Sustainability*. Washington, DC: USAID.

Watt, P. (2004). Financing Local Government. *Local Government Studies*, *30*(4), 609–623. DOI: 10.1080/0300393042000318012

Williams, B., Wilmshurst, T., & Clift, R. (2010). The Role Of Accountants In Sustainability Reporting – A Local Government Study. In *Sixth Asia Pacific Interdisciplinary Research in Accounting Conference* (pp. 1–18). Sydney: University of Sydney, Australia.

Windmeijer, F. (2005). A finite sample correction for the variance of linear efficient two-step GMM estimators. *Journal of Econometrics*, *126*(1), 25–51. DOI: 10.1016/j.jeconom.2004.02.005

Wooldridge, J. M. (2009). *Introductory econometrics: A modern approach* (4th ed.). Canada, USA: Paraninfo Cengage Learning.

Zhu, L. (2013). Panel Data Analysis in Public Administration: Substantive and Statistical Considerations. *Journal of Public Administration Research and Theory*, *23*(2), 395–428. DOI: 10.1093/jopart/mus0

Part III:

The Influential Factors

for the

Financial Sustainability

in

Local Governments

Chapter 4:

Risk Factors and Drivers of Financial Sustainability in Local Government: An Empirical Study

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1. Introduction

In recent years, the financial and economic crisis has spurred a demand for greater financial sustainability in public administrations, which is a factor of particular significance in local government finances. The European Union (EU) recently issued recommendations linked to governmental solvency in terms of inter-temporal budget constraints (EU, 2012a) and has called Member States to implement solid accounting systems in drawing up budget forecasts with the aim at producing high-quality, comparable statistics (EC, 2011). In fact, governmental financial reports, particularly the income statement, play a fundamental role in the assessment of financial sustainability (IFAC, 2012b) and should provide all the information required to assess the capability of public administrations to maintain the level of public services over time.

In the last years, leading international organisations have pointed out the need for sustainability policies to be implemented (CICA, 2009; EU, 2012a; IFAC, 2012b) in order to create the necessary conditions for achieving financial health and ensuring intergenerational equity (Cabaleiro, Buch, & Vaamonde, 2013). Under this milieu, the identification of explaining drivers and risk factors for financial sustainability can help public managers and politicians to monitor and keep sustainability of public services over time. With the knowledge of drivers and risk factors for financial sustainability, politic managers could take decisions addressed to strengthen the factors that favour the financial sustainability (drivers) and to reduce the negative effects of risk factors through the adoption of measures such as reducing costs, increasing revenues or consumption of reserves (EU, 2012a; IFAC, 2013b; NAO, 2013). Moreover, it can help them to assess the impact of its funding decisions as well as to manage financial risks and opportunities (IFAC, 2013b; NAO, 2013).

Prior research has investigated factors that influence fiscal distress (Kloha, Weissert, & Kleine, 2005; Zafra-Gómez, López-Hernández, & Hernandez-Bastida, 2009b) and public debt (Pirtea, Nicolescu, & Mota, 2013). Specifically, some authors have studied political and socio-economic factors' influence on the financial transparency of local governments (Guillamón, Bastida, & Benito, 2011), whereas other authors investigated the motivations of governments to publish sustainability reports (Greco, Sciulli, & D'onza, 2012). Nevertheless, none of these works identified specific explanatory variables that influence financial sustainability in public administrations. The financial sustainability is a broader concept that is composed by three inter-related dimensions: service, revenue, and debt (IFAC, 2013b).

Among these factors, the demographic variables (EU, 2012a; IFAC, 2013b) and the economic variables (EC, 2011) could influence on the achievement of financial sustainability which could be of overriding importance, even more so at the local level, which is closest to the general public and shoulders the greatest burden of public services. The considerable magnitude of the budgets managed and the great variety of services provided (Sáiz, 2011), coupled with the present context of global economic crisis and of accumulated deficit and debt in large municipalities (Muñoz-Cañavate & Hípola, 2011), makes it a matter of pressing concern to analyse governments' capacity to continue providing services in the future.

Therefore, this paper seeks to contribute to the analysis of the financial sustainability of local governments, by identifying significant explanatory variables that could be drivers or risk factors in this area, in particular, sociodemographic variables and economic variables.

2. Measuring financial sustainability and determinant factors in local government finance

Although IFAC has indicated that long-term fiscal sustainability information is broader than information derived from the financial statements (IFAC, 2013b), the European Council (2011) and the IFAC (2013a) have also highlighted the importance of financial statements for assessing financial sustainability, considering them vital to achieving an understanding of the present situation of public finances.

Specifically, based on the recent pronouncement of IFAC (2013a), the income would reflect an approach to two of the three dimensions included into the fiscal sustainability, in particular, the revenue dimension, whose value is included in this financial statement, and the service dimension, whose economic measurement can be estimated by the entity's service delivery commitments, which is also integrated via expenses on the income statement. Moreover, to the extent that the level of debt is associated with the volume of services provided, the income also reflects a very influential factor in the third dimension, as is debt (IFAC, 2013b).

Therefore, the question of using accounting methods to measure sustainability, defined as the ability of government to deliver services at present without compromising the ability to do so in the future, is of great current importance, so that politicians and managers can be provided with the necessary information for decision-making, from the standpoint of financial balance (Burritt & Schaltegger, 2010). Accordingly, it would be interesting to provide policy-makers with appropriate instruments enabling them to perceive, react to and/or prevent situations of imbalance in the financial sustainability of public administrations.

As demographic variables, the main explanatory factors analysed in most empirical studies are population size, population density, dependency ratio, level of unemployment, immigration and, finally, the education level. The population size has a negative effect on public spending (Choi et al., 2010) and on public debt (Guillamón, Benito, & Bastida, 2011).

Regarding the population density, the results obtained have been contradictory. While some have observed a negative influence of this factor on public spending (Choi et al., 2010), others have failed to obtain significant results in this regard (Guillamón, Benito, & Bastida, 2011).

The studies about the dependency ratio, defined as the ratio of the dependent population (those aged under 16 and over 65 years) have concluded that this ratio does affect the financial capacity of local authorities (Zafra-Gómez, López-Hernández, & Hernandez-Bastida, 2009a) and the per capita spending and taxation, and therefore the budget balance (Choi et al., 2010).

The level of unemployment is another very significant aspect in studies of public finances, especially in a context of international crisis, because it not only provokes increased social spending and changes in employment patterns (Benito, Bastida, & Muñoz, 2010; Zafra-Gómez, López-Hernández, & Hernandez-Bastida, 2009b) but also decreases the revenues available to the public treasury.

In addition, Guillamón, Bastida, and Benito (2011b) corroborated that migration flows tend to raise the level of accumulated debt. Whereas some authors have reported the immigrant population to be positively associated with the tax burden (Benito, Bastida, & Muñoz, 2010), by requiring increased social spending, others have reported this factor to have a negative influence on the financial performance of public administrations (Zafra-Gómez, López-Hernández, & Hernandez-Bastida, 2009a). Finally, the education level of

the population affects the demand for government information (Caba Pérez, Rodríguez Bolívar, & López-Hernández, 2008; Evans & Yen, 2005).

On the other hand, economic variables such as the budgetary surplus/deficit, the Gross Domestic Product (GDP), the touristic activity and the firm concentration have also been considered important factors with respect to public finance. In this regard, the Stability and Growth Pact of the EU Member States (EU, 2012b) the Fiscal Sustainability Report (EU, 2012a) and Directive 2011/85/EU of the European Council of 8 November 2011 (EC, 2011) all consider that budgetary variables such as the budget surplus/deficit may determine long-term sustainability.

In addition, previous studies have shown that GDP affects the tax revenues (Easterly & Rebelo, 1993) and public debt (Feld & Kirchgässner, 1999).

Regarding this, prior research has confirmed that touristic activity can positively affect financial independence, budgetary sustainability, solvency (Zafra-Gómez, López-Hernández, & Hernandez-Bastida, 2009b)and income taxes (Wong, 1996). In fact, touristic activity can affect the definition of public interventionist policies.

Finally, the firm concentration, Rogers et al. (1978) explain that industrialisation has generally been thought of as beneficial for communities. This variable influences on the lower unemployment rate (Sutaria & Hicks, 2004) and on higher collection of taxes (Rogers et al., 1978).

Based on previous comments, we identify two main groups of variables that can influence public finances: demographic variables and economic variables. However, despite their importance for governmental sustainability, little research attention has been addressed to analysing the influence of these variables on the financial sustainability of public policies. So, in this paper, we expect to identify possible drivers and/or risk factors that could influence positively or negatively on financial sustainability.

3. Empirical research

3.1. Sample selection

Sustainability studies are particularly timely and relevant to the public sector in countries like Spain, where public sector revenue and expenditure have increased very significantly, as a result of the increasing functions undertaken and the expanding role of the public sector in economic activity (Bank of Spain, 2012). This behaviour has led to high levels of public debt and to a sustainability gap indicator above the EU average, in the short, medium and long term – Fiscal Sustainability Report (EU, 2012a). This fact has led to major legislative reforms such as the Budgetary Stability and Financial Sustainability Act (2012) and the Sustainable Economy Act (2011). For these reasons, the present empirical study is focused on the situation in Spain.

This study focuses on the financial sustainability of local governments for the following reasons. First, because our understanding of this question would be enriched by greater attention to institutional detail, with particular respect to the context of local government, which has been the target of many public sector reforms (Pallot, 2001; Smith, 2004). Second, in view of the politics of legislative reforms of administrative structures carried out in the 1990s (Gallego & Barzelay, 2010) and the managerial devolution process implemented in Spain (Bastida & Benito, 2006), local government in this country is well placed to be aware of citizens' information needs (Watt, 2004). Finally, the accumulated deficit and debt in large municipalities in Spain have very significant effects on the sector (Muñoz-Cañavate & Hípola, 2011).

In accordance with numerous prior empirical studies of local public finance (Guillamón, Bastida, & Benito, 2011; Zafra-Gómez, López-Hernández, & Hernandez-Bastida, 2009a), we chose to examine exclusively municipalities with relatively large

populations, because the municipalities with a population of over 50,000 account for more than 50% of the Spanish population (Fundación La Caixa, 2013) and, in these municipalities, the demographic effects on local government finance are apparent, and a broader range of stakeholders are involved (EU, 2012a). Also, the information content of the financial statements of large local authorities is expected to be more useful for measuring sustainability because the accounting model used by these governments is considerably more complete and detailed than the simplified version used by small municipalities.

Under this rationale, the present empirical study is based on a sample of large Spanish municipalities, defined as those with a population of over 50,000 inhabitants, together with those which are classified as 'large population' under Article 121 of Local Government Regulatory Act 7/1985 (Law 7/1985, 2nd April 1985), amended by the Local Government Modernization Act 57/2003 (provincial capitals, regional capitals or municipalities with headquarters of regional institutions).

In total, 148 Spanish municipalities meet these conditions, and account for 51.60% of total population of Spain and disburse 11.18% of the total national budget. However, we analysed a sample of 110 Spanish municipalities with over 50,000 inhabitants, the only ones for which financial information and the complete budget from 2008 to 2011, inclusive, were available (in total, 440 observations, for 4 years). This sample corresponds to 74.32% of the valid municipalities for the study and represents over 44% of the total Spanish population and over 9% of the total national budget.

3.2. Dependent variables

In line with the aim of this paper, the dependent variable discussed is the financial sustainability. Although there is no consensus about the definitions of financial

sustainability of local government, in our paper we understand that it is determined by local governments' ability to manage expected financial risks and shocks over the long-term financial planning period without needing to introduce substantial or disruptive revenue (and expenditure) adjustments. In brief, financial sustainability could be defined as the ability to meet service delivery and financial commitments, applying current policies and maintaining them in the future without causing the debt to rise continuously (CICA, 2009; EC, 2011; EU, 2012a; IFAC, 2012b, 2013b).

One of the crucial issues pertaining to sustainability is that of intergenerational equity (Brundtland, 1987), or 'inter-period equity' (IFAC, 2011; Pezzy & Toman, 2002). In public sector accounting, this concept is closely linked to the income (International Federation of Accountants (GASB, 1990; IFAC, 2011, 2012b), which refers to all items of revenue and expense, based on the accrual basis, recognised in a period that shall be included in surplus or deficit (IFAC, 2012b). Therefore, the income statement plays a fundamental role in assessing financial sustainability, by enabling users to assess, on the one hand, the capacity of the entity to continue providing at least the same volume of goods and services and, on the other, the level of resources that will be needed in the future to continue to fulfil its public services delivery obligation (IFAC, 2012b; Rodríguez, Navarro, & Alcaide, 2014). In fact, according to the IFAC (2013a) the financial sustainability is composed by three inter-related dimensions (revenues, services and debt), and the information content of the income statement reflects a direct approach to two dimensions of fiscal sustainability (revenue and service) and, indirectly, to the debt dimension, due to its link with the volume of expenditure (IFAC 2013a). Therefore, according to international organisations (GASB, 1990; IFAC, 2011, 2012b) and prior research (Rodríguez, Navarro, & Alcaide, 2014), we understand the adjusted income as the more comprehensive standpoint to measure the financial sustainability.

However, prior research has confirmed the debt as a key element of the financial condition of public administration (Zafra-Gómez, López-Hernández, & Hernandez-Bastida, 2009a). In this regard, the debt could be used as an approach to the financial sustainability. Bearing in mind the importance of the debt as a component for the financial sustainability and as an indicator for the financial condition, it would be interesting to analyse it as an approach to the financial sustainability in our study.

Therefore, in this paper, we use the term financial sustainability to name the approach of the adjusted income to the concept of financial sustainability advocated by the IFAC, whereas we use 'net debt' to name the second approach to this concept.

Regarding the measurement of financial sustainability, we use the adjusted income since the government financial statements currently produced do not seem to be sufficient to assess the financial sustainability or otherwise of public administrations (Williams, Wilmshurst, & Clift, 2010), because they include extraordinary activities which are not expected to be repeated in the foreseeable future within the environment in which the organisation operates. Accordingly, what must be corrected in the income statement is the effect of revenues and expenses deriving from extraordinary activities, given that they lack any future scope. This modification would make the income a more reasonable measure of the size of intergenerational equity, and one more in accordance with the concept of financial sustainability. Therefore, we have adjusted the annual income sampled in accordance with the purposes of this paper, in order to maximise their utility for assessing financial sustainability. Thus, the dependent variable is represented by the total amount of the adjusted income, as shown in Table 4.1.

Table 4.1. Adjusted income statement

Concept	Amount
Income statement for the financial year obtained by applying the current IPSAS	(1)
+ Negative entries for extraordinary activities	(2)
- Positive entries for extraordinary activities	(3)
Corrected income statement: Financial Sustainability (intergenerational equality)	(1)+(2)–(3)

Source: Rodríguez Bolívar, Navarro Galera, and Alcaide Muñoz (2014).

Finally, we should distinguish between the concepts of budget expenditure and revenue and financial expenditure and revenue. The former are part of the budget and provide the annual budget results, whereas the latter fall within the area of financial accounting and constitute the income statement as already analysed. The differences between these concepts arise, on the one hand, from their content, and on the other, from the criteria applied for their allocation. Thus, some items are defined as budget expenditures or revenues and are not considered financial expenditures or revenues. Therefore, there are some differences between financial and budget expenditures, and these differences are reflected too in the particular case of budget revenues with respect to financial revenue.

Furthermore, in countries like Spain, while expenses and revenues are allocated to the income statement in accordance with the accrual basis of financial accounting, the allocation of budget expenditure and revenue is primarily cash based or follows a mixed cash-accrual criterion in determining the budget results, and these criteria are clearly divergent.

In summary, in measuring financial sustainability, this paper follows the recommendations of the main international organisations (EU, 2012a) and the pronouncements of international accounting bodies such as IFAC (2012), FASB (2012) and GASB (1990) and prior research (Rodríguez, Navarro, & Alcaide, 2014). Accordingly, as a first approach to the concept of financial sustainability, our dependent

variable is the measure of financial sustainability reflected in the income (adjusted for extraordinary results), which is an accounting measurement based on the accrual basis (IFAC, 2013a). Under this approach, financial sustainability can be measured from a much more comprehensive standpoint than that of budget information, as it includes the consumption of capital investments, estimates of future costs and expenses incurred but pending allocation to the budget, among other items. These concepts effectively represent the organisation's capacity to maintain its financial well-being in the future.

On the other hand, this paper adopts, as a second approach to the measurement of financial sustainability, the variable net debt. In measuring net debt, we follow the line of international organisations (CICA, 2009; IFAC, 2013b) and prior research (Zafra-Gómez, López-Hernández, & Hernandez-Bastida, 2009a) that conclude that the debt dimension must be measured by net debt per capita. It considers debt levels over the period of the projections, given current policy assumptions on the provision of services and revenue.

3.3. Independent variables

Taking into account the foregoing sections, highlighting the significant influence of demographic and economic variables on the public finances of local authorities, we selected 11 variables as factors that may influence the level of financial sustainability in the local governments under study, namely (1) population size (POP); (2) population density (PD); (3) population aged over 65 years (DP65); (4) population aged under 16 years (DP16); (5) unemployment rate (UR); (6) immigrant population (IP); (7) education level among the population (EDU); (8) budget results (BRpc); (9) GDP (GDPpc); (10) touristic activity (TA); (11) firm concentration (FC).

In the case of population size, the evidence from previous studies is contradictory; on the one hand, Choi et al. (2010) reported a positive relationship between population

and public borrowing and spending, respectively. Meanwhile, Guillamón, Bastida, and Benito (2011) found evidence of the positive influence of population size on financial transparency of local governments. However, these studies do not show empirical evidence of the influence of this variable on financial sustainability. In brief, prior research has demonstrated that population size has a negative influence on public finances. Therefore, it is expected population size to be a risk factor for financial sustainability.

As regards population density, prior research concluded that there is a positive relationship between this factor and public debt (Guillamón, Benito, & Bastida, 2011) as well as between this factor and public spending (Choi et al. 2010). Since the latter forms an important part of government financial sustainability, it seems logical to incorporate population density as a possible explanatory risk factor of financial sustainability.

With respect to the dependent population, Zafra, López, and Hernández (2009b) concluded that there is no significant relationship with the financial condition. However, others, such as Khola, Weissert, and Kleine (2005), believe that the size of the population aged over 65 years and under 16 years is inversely related to government revenue and expenditure and has a significant influence on increased fiscal distress. In addition, international reports, such as the Fiscal Sustainability Report (EU, 2012b), Sustainability Framework 2.0, Sustainability Report 2009 (EC 9/2009) and Reporting on the Long-Term Sustainability of a Public Sector Entity's Finances (IFAC, 2012b), recognise that the existence of an ageing population may influence financial sustainability. Therefore, these variables are expected to be inversely related to the financial sustainability of local government and then to be risk factors for financial sustainability.

Regarding the unemployment rate, the evidence is uneven. Khola, Weissert, and Kleine (2005) argue there is a positive relationship with fiscal distress, but Zafra, López,

and Hernández (2009b) observed a negative relationship with financial capacity. According to the Financial Sustainability Report (EU, 2012a), a higher rate of unemployment also has a negative influence on the country's productivity and on the revenues of the social security system. In this line, the unemployment rate could be included as a possible risk factor for financial sustainability, since its influence on two of three components of the financial sustainability (revenues and services) is negative.

In addition to the above, previous studies (Guillamón, Benito, & Bastida, 2011) have concluded that the level of the immigrant population is positively associated with public debt. Zafra, Lopez-Hernandez, and Hernandez-Bastida (2009a) consider this to be a decisive factor in calculating the financial performance of local governments, whereas Benito, Bastida, and Muñoz (2010) argue that it is positively associated with the tax burden. So, it is expected that the immigrant population is a risk factor for financial sustainability because prior research has concluded its negative influence on public debt and tax revenues – two components included in the financial sustainability.

According to Caba, Rodríguez, and López (2008), the level of education is positively related to the online disclosure of financial information, because the higher the education level, the more likely that this information will be disclosed on the internet (Evans & Yen, 2005). This evidence leads us to believe that the education level of the population might also influence financial sustainability as a driver, since these previous studies show that when the education level is higher, citizens demand more information regarding sustainability, and this leads government to pay particular attention to this question.

The budget results factor was considered by Balaguer (2002) to be a variable that influences local authority debt. Both the Stability and Growth Pact and the Fiscal Sustainability Report (EU, 2012a) consider the budget surplus/deficit to be a key variable

for financial sustainability, and recommended that studies be made of its impact on financial sustainability. Although Guillamón, Bastida, and Benito (2011a) found no evidence of the influence of the financial result on financial transparency of local governments, we judge it interesting to follow the recommendation of the EU and to investigate if this variable could be a driver for financial sustainability.

As regards prior research has concluded that the GDP is positively related to tax revenues (Easterly & Rebelo, 1993). In addition, Feld and Kirchgässner (1999) concluded that mean income has a strong negative impact on public debt.

Therefore, the GDP could influence financial sustainability, due to its influence on public finances. Nevertheless, it is not clear if the variable is a driver or a risk factor for financial sustainability.

On the other hand, touristic activity, a high touristic rate can generate employment and increase the collection of taxes in local government. According to Zafra, Lopez-Hernandez, and Hernandez-Bastida (2009a) and Wong (1996), one of the variables with greater positive influence on the financial indicators is the level of tourism-based activity. Therefore, it is expected that a high touristic activity could promote better financial sustainability due to its positive influence on the generation on higher revenues and lower unemployment rate and then the variable touristic activity is expected to be a driver in our study.

Finally, the firm concentration index could have also influence on financial sustainability. Two reasons support this analysis. First, the greater concentration of companies implies an increase in the number of jobs and consequently a decrease in the unemployment rate (Rogers et al., 1978; Sutaria & Hicks, 2004). Second, the local tax base could be higher due to the contribution of the firms (Rogers et al., 1978). So, this variable could be a driver for financial sustainability.

Most of the variables analysed in previous research are not controllable by local entities, especially the size of the population, the dependent population or immigrants. Nonetheless, their study is interesting according to the following reasons. First, the uncertainty is a key aspect of sustainability reporting for local governments (Greco, Sciulli, & D'onza, 2012). Second, IFAC (2013b), EU (2012) have recommended politicians and public managers to control and maintain sustainability of public services across time. Third, these international bodies and the NAO (2013) have recommended central governments to monitor demographic and economic variables to keep financial sustainability positive.

3.4. Statistical tool

With respect to the aims of the present study, it seems interesting to analyse the influence of the independent variables on two dependent variables previously mentioned: financial sustainability (FS) and net debt (ND). In addition, this analysis is made under different approaches: (a) static situation using discrete/ stock variables – FS, ND; and (b) dynamic situation using continuous variables in relative terms – ΔFS, ΔND and the annual change of the independent variables (Ashford 1975). In brief, we analyse the following four equation models in this research study (Table 4.2).

According to our database, diverse statistical instruments have been proposed (Choi et al., 2010), including the pooled OLS regression model and panel data – fixed effects model and the random effects model.

We applied all three statistical instruments (pooled OLS regression, fixed effects, and random effects) for each equation model (FS, ND, ΔFS, ΔND) to the study variables, applying the statistical methodology, in order to perform hypothesis tests and to decide which instrument best fits the data in our sample.

Table 4.2. Equation models

(1)	$FS_{it} = \alpha + \beta_1 LNPO_{it} + \beta_2 PDt + \beta_3 DP16it + \beta_4 DP65_{it} + \beta_5 UR_{it} + \beta_6 IP_{iit} + \beta_7 EDU_{it} + \beta_8 BRpc_{it} + \beta_9 GDPpc_{it} + \beta_{10} TA_{it} + \beta_{11} FC_{it} + e_i$
(2)	$NDit = \alpha + \beta_1 LNPO_{it} + \beta_2 PDt + \beta_3 DP16it + \beta_4 DP65_{it} + \beta_5 UR_{it} + \beta_6 IP_{iit} + \beta_7 EDU_{it} + \beta_8 BRpc_{it} + \beta_9 GDPpc_{it} + \beta_{10} TA_{it} + \beta_{11} FC_{it} + e_i$
(3)	$\Delta FS_{it} = \beta_1 \Delta LNPO_{it} + \beta_2 \Delta PD_t + \beta_3 \Delta DP16_{it} + \beta_4 \Delta DP65_{it} + \beta_5 \Delta UR_{it} + \beta_6 \Delta IP_{iit} + \beta_7 \Delta EDU_{it} + \beta 8 \Delta BRpcit + \beta 9 \Delta GDPpcit + \beta 10 \Delta TAit + \beta 11 \Delta FCit + ei$
(4)	$\Delta ND_{it} = \beta_1 \Delta LNPO_{it} + \beta_2 \Delta PD_t + \beta_3 \Delta DP16_{it} + \beta_4 \Delta DP65_{it} + \beta_5 \Delta UR_{it} + \beta_6 \Delta IP_{iit} + \beta_7 \Delta EDU_{it} + \beta 8 \Delta BRpcit + \beta 9 \Delta GDPpcit + \beta 10 \Delta TAit + \beta 11 \Delta FCit + ei$

Notes: i, ith transversal unit (municipality); t, time (year); FS, financial sustainability; ND, net debt; POP, natural logarithm population; PD, population density; DP16, dependent population 16 years; DP65, dependent population 65 years; UR, unemployment rate; IP, immigrant population; EDU, level of education; BRpc, budget results per capita; GDP, economic level; TA, touristic activity; FC, firm concentration; Δ, variation rate. See full description of variables in

Table 4.4.

According to the tests shown in Table 4.3, pooled OLS regression should be used in three equation models of those proposed: FS, ΔFS, ΔND. However, in the case of the model of stock net debt (ND) it should be used as a fixed effect model because it is consistent and efficient. In addition, we check the instrument chosen for each model (Table 4.3). According to the data displayed in Table 4.3, the pooled OLS regression should use the robust estimator of covariance matrices, due to the presence of heteroscedasticity (Huber 1967; White 1980). On the other hand, the fixed effects model should use the feasible generalised least squares (FGLS) model due to the presence of heteroscedasticity and serial correlation (Drukker, 2008; Kohler & Kreuter, 2005).

The GMM model could have been used in all equation models proposed in this research and it is a more powerful tool as it solves the endogeneity problems, but it needs five or more years to be used because the consistency of the GMM estimator requires a lack of second order serial correlation in the residuals of the differenced specification and the validity of instruments (Bouayad-Agha & Védrine, 2010). In this regard, as our database is 4 years period, the GMM have not been able to be used. Nevertheless, to

achieve the robustness of our empirical results, we have used the DWH (Durbin, 1954) and Hausman tests (Hausman, 1978) to solve the endogeneity problems of variables and to make efficient and consistent equation models (Table 4.3).

Table 4.3. Hypothesis Testing

Test	Model	Null Hypothesis	Financial Sustainability		Net Debt		Change of The Financial Sustainability		Change of The Net Debt	
Breusch-Pagan Test	Pooled OLS-Fixed Effects	$\Sigma^2_u=0$	**Not rejected**	$\chi^2(01)=0.07$ P=0.3987	**Rejected**	$\chi^2(01)=366.52$ P=0,0000	**Not rejected**	$\chi^2(01)=0.00$ Prob=1.000	**Not rejected**	$\chi^2(01)=0.00$ Prob=1.000
F-Restrictive	Pooled OLS-Random Effects	$v_1=v_2=v_3=\ldots.v_i=0$	**Not rejected**	F(109,319)=1.47 P>F=0.054	**Rejected**	F(109,319)=16.15 P>F=0.0000	**Not rejected**	F(109,178)=0.71 Prob>F=0.939	**Not rejected**	F(109,178)= 0.82 Prob>F=0.8771
Hausman Test	Fixed Effects Model-Random Effects	(b-B)'[(V_b-V_B)^(-1)](b-B)= not systematic	-	- -	**Rejected**	χ^2 (9)=21.03 P> χ^2=0.0125	-	- -	-	- -
Breusch-Pagan and Cook-Weisberg Test	Heteroscedasticity Pooled OLS	σ^2=const.	**Rejected**	$\chi^2(1)=2640.76$ P=0.0000	-	- -	**Rejected**	$X^2(1)=894.89$ P=0.0000	**Rejected**	$\chi^2(1)=245.82$ P=0.0000
Wald Test	Heteroscedasticity Fixed effects	σ_i^2 =σ^2 for all i	- -	- -	**Rejected**	χ^2 (110)=0.0001 P> X^2=0.0000	- -	- -	- -	- -
Pesaran's Test	Cross-sectional dependence Fixed effects	No cross-sectional independence	- -	- -	**Not rejected**	1.246 P=0.2127	- -	- -	- -	- -
Wooldridge Test	Autocorrelation Fixed effects	No first-order autocorrelation	- -	- -	**Rejected**	F(1,109)=7.821 P>F=0.0061	- -	- -	- -	- -
Hausman Test Endogeneity	Endogenous Model- No Endogenous Model	(b-B)'[(V_b-V_B)^(-1)](b-B)= not systematic	**Not rejected**	$\chi^2(9)=0.24$ P=1.0000	**Not rejected**	$\chi^2(8)=2.53$ P=0.9605	**Not rejected**	$X^2(9)=0.000$ P=1	**Not rejected**	$\chi^2(8)= 0.25$ P=0.9999
Endogeneity Test	DWH test (GMM C-statistic)	Variables are exogenous	**Not rejected**	$\chi^2(1)=-1.0317$ P=1.0000	-	- -	**Not rejected**	$\chi^2(1)= .9241$ P=0.3364	**Not rejected**	$\chi^2(1)=1.0954$ P=0.2953

Note: The following test are supported by the following literature: Breusch and Pagan Test (Wooldridge 2010) F restrictive (Wooldridge 2010) Hausman test (Hausm**jec**an 1978) Breusch-Pagan and Cook-Weisberg Test (Breusch and Pagan 1979; Cook and Weisberg 1983) Wald test (Greene 2012; Rabe-Hesketh and Skrondal 2012) Pesaran's test (Pesaran 2004) Wooldridge test (Wooldridge 2010; Drukker 2003) Hausman test endogeneity (Hausman 1978) Endogeneity test (Durbin 1954).
Source: Stata12, Own elaboration.

4. Analysis of results

As shown by the standard deviations in Table 4.4, for a total of 440 observations (counting all the municipalities in the sample and the four financial years in each case), the variables with the most uniform values are those for education level, unemployment rate and dependent population aged under 16 years. In contrast, population density, firm concentration, and GDP present the lowest levels of homogeneity.

Table 4.4. Summary statistics (descriptive statistics; obs = 440)

Variables	Acron	Description	Source	Calculation	Mean	Std. Dev.	Min.	Max.
Financial Sustainability	FS	Adjusted results per capita 2008-2010 (€)	LGFS	Corrected income statement for the financial year per capita	131.44	207.48	-518.1	2,960.52
Net Debt	ND	Net debt per capita	LGFS	Total debt[1] less financial assets[2] per capita	2285.66	1294.68	104.13	11553.68
Natural Logarithm population	POP (-)	Population residing in the municipality	INE	Neperian logarithm of the population	11.58	10.82	10.82	13.00
Population density	PD **(-)**	Population residing in the municipality per km^2	INE	Population divided by km^2	2,409.76	3,179.64	52.67	18,871.8
Dependent population 16 years	DP16 **(-)**	Population under 16 years residing in the municipality	INE	% Population aged under 16 years	23.17	2.71	16.06	27.65
Dependent population 65 years	DP65 **(-)**	Population over 65 years residing in the municipality	INE	% Population aged over 65 years	25.31	5.90	15.94	45.83
Unemployment rate	UR **(-)**	Unemployment rate in the municipality	SEPE	% Unemployed population	8.95	2.52	2.36	16.51
Immigrant population	IP **(-)**	Immigrant population residing in the municipality	INE	% Immigrant population	13.07	10.94	0.02	64.48
Level of Education	EDU **(+)**	University graduates	INE	% University graduates	0.44	1.48	0.01	26.00
Budget results per capita	BRpc **(+)**	Budget results per capita 2008-2010 (€).	MFPA	Budget Operating revenues (chapter 1-7) less operating expenditures (chapter 1-7)[3]	17.13	240.76	-657.52	2,826.95
Economic Level	GDPpc **(+)**	GDP per capita	INE	GDP / work force	40723.1	15206.81	16623	166284
Touristic activity	TA **(+)**	Index Touristic activity	"La Caixa"	Municipal Business activities/ total Business activities x 100.000	266.48	932.4646	0	16554
Firm Concentration	FC **(+)**	Firm Concentration	"Caja Duero"; INE	Firms /1000 inhabitants	5099.82	3716.071	1317	20338

Note*:* LGFS: Local Government Financial Statement
INE:Statistic Institute of Spain→ www.ine.es
SEPE: Public Employment Service of Spain → www.sepe.es
MFPA: Ministry of Finance and Public Administration →www.minhap.gob.es
"La Caixa": Economic Yearbook
1.- Total liabilities
2.- Financial claim of the entity and the treasury
3.- No financial assets and liabilities
Note: Signs in parentheses: Expected Sign
Source: Own elaboration

Table 4.5. Models

		Stock		Change	
		Financial Sustainability	Debt	Δ Financial Sustainability	Δ Debt
Variable	**Acron.**	**POOL robust**	**FGLS**	**POOL robust**	**POOL robust**
Natural logarithm population	POP	−99.3429***	−4.2976	2.0676	−0.1332
Population density	PD	0.0019	−0.0024	−0.0276	−0.0023
Dependent population 16 years	DP16	−8.6222**	165.7641***	−34.9501*	−2.2312**
Dependent population 65 years	DP65	−2.9661	68.2691***	16.9387	0.0961*
Unemployment rate	UR	−7.8056***	38.7722***	−2.2730***	0.0153*
Immigrant population	IP	0.3914	−22.3629***	−2.3274	0.0003
Level of education	EDU	8.2562***	3.6866	−0.1613	0.0024
Budget results per capita	BRpc	0.4075*	−0.0259	0.0119***	0.0001
GDP	GDPpc	0.029	−0.0338***	−2.8987	−0.2665
Touristic activity	TA	0.0060	0.0083*	−0.0004	−0.0001
Firm concentration	FC	0.099**	−0.0438	−10.5511	−1.6024
Constant	const	1,545.8175***	−0.0341*	−0.6929	0.0867
R2		0.2741		0.1302	0.00933
Number of observation		440	440	330	330

Notes: The estimates were made using Stata12, where *p < 0.1, **p < 0.05, ***p < 0.01.Δ, rate of change of the dependent and independent variables. See full description of variables in Table 4.4.

In relation to financial sustainability, Table 4.5 identifies drivers (+β) – when these variables raise, financial sustainability increases – and risk factors (–β) – when variables raise, the financial sustainability decreases. We identify two variables that influence negatively on financial sustainability (risk factors). These variables are the dependent population under 16 (p,DP16 < 0.032 FS; p,DP16 < 0.107 ΔFS) and the rate of unemployment (p,UR < 0.005 FS; p,UR < 0.023 ΔFS). Moreover, we identify the budgetary result as a driver factor with a positive influence on financial sustainably (p,BRpc < 0.059 FS; p,BRpc < 0.000 ΔFS).

In the analysis of demographic variables, our empirical results show only a negative relation between the population size and the stock of financial sustainability (risk factor). Nevertheless, our findings could extend the results of Choi et al. (2010), by

showing that an increase in population may limit financial sustainability, in terms of reduced balance in the income statement. Furthermore, this conclusion is consistent with the previous studies, as both rising debt and a worsening financial condition generate financial costs that reduce financial sustainability (Cabaleiro, Buch, & Vaamonde, 2013). On the other hand, our study shows no evidence regarding the influence of the population density in accordance with Benito, Bastida, and Muñoz (2010).

With respect to the dependent population, Table 4.5 shows a significant and conclusive negative influence of dependent population under 16 on financial sustainability (risk factor), whereas no such influence was recorded for the population aged over 65. Our results further develop the conclusions of previous studies regarding the negative impact of this variable on financial condition (Zafra-Gómez, López-Hernández, & Hernandez-Bastida, 2009a) and positive effect on fiscal stress (Benito, Bastida, & Muñoz, 2010).

The results of this empirical study represent advancement on previous research findings, since they corroborate the negative impact of rising unemployment on financial sustainability (risk factor). In the same way, there is a positive relationship between unemployment and fiscal stress and the tax burden (Benito, Bastida, & Muñoz, 2010).

An immigrant population does not have any effect on the financial sustainability of local governments and, therefore, we cannot confirm its influence on financial sustainability.

Regarding the levels of education among the population, Table 4.5 shows that this variable could benefit the stock of local government's financial sustainability. This seems to mean that the higher education level, the higher population demand for information (Caba Pérez, Rodríguez Bolívar, & López-Hernández, 2008) and it could encourage local governments to adopt a more sustainable behaviour.

Therefore, the results of our empirical study corroborate the recommendations of international organisations and the findings of previous studies that highlight the influence of demographic variables on the financial sustainability of governments (Choi et al., 2010; EU, 2012a; USAID, 2011; Williams, Wilmshurst, & Clift, 2010), by analysing its effect on the particular case of local governments.

Concerning economic variables, the signs of the coefficients in Table 4.5 show that budgetary result is positively related to the financial sustainability of the local governments studied (driver). Governments which maintain positive levels in this respect would be contributing to preserving their ability to provide services over time. This result represents new knowledge about prior research (Zafra-Gómez, López-Hernández, & Hernandez-Bastida, 2009a, 2009b). Thus, when spending is properly balanced with revenue, this can contribute to maintaining financial sustainability, as an expression of the intergenerational equity reflected in the income.

Regarding GDP, our study does not show an evidence of its influence on financial sustainability, although prior research shows its positive relation with tax revenues (Easterly & Rebelo, 1993) or with strong negative impact on public debt (Feld & Kirchgässner, 1999).

Prior research has concluded the positive influence of touristic activity on financial condition (Zafra-Gómez, López-Hernández, & Hernandez-Bastida, 2009b) and on taxes (Wong, 1996); however, our findings do not obtain evidence regarding the influence of this factor on financial sustainability.

Finally, regarding firm concentration, there is no conclusive result due to the fact that it affects only the stock of financial sustainability. However, its positive influence on the stock of financial sustainability could confirm the results obtained by Rogers et al. (1978).

Regarding the net debt, Table 4.5 shows drivers (−β) − when variables raise, net debt decreases − and risk factors (+β) − when variables raise, the net debt increases. So, three risk factors are identified in our study: dependent population under 16 (p,DP16 < 0.000 ND; p,DP16 < 0.047 ΔND), dependent population over 65 (p,DP65 < 0.000 ND; p,DP65 < 0.069 ΔND) and unemployment rate (p,UR < 0.000 ND; p,UR < 0.081 ΔND).

In this respect, our findings are in accordance with those of Benito, Bastida, and Muñoz (2010), since these authors show no significant influence between population size or population density and debt. However, our paper reveals a positive influence of dependent population under 16 on the stock of net debt and a negative effect on its change. We consider that this variable is closer to have a positive influence than a negative one on net debt, since its significance and coefficient about the net debt stock is higher than that on net debt change. Nevertheless, this result is not robust.

Furthermore, the dependent population over 65 has a positive effect on net debt (stock and change). This indicates that an increase in the number of the population over 65 years old can produce a loss in financial sustainability. The aforementioned is consistent with its negative effect on financial condition (Zafra-Gómez, López-Hernández, & Hernandez-Bastida, 2009a) and its positive influence on fiscal stress (Benito, Bastida, & Muñoz, 2010).

Regarding unemployment rate, Table 4.5 identifies a positive association with net debt and its change. Results are consistent with prior research about its negative influence on fiscal distress (Zafra-Gómez, López-Hernández, & Hernandez-Bastida, 2009a), on the country's productivity and on the revenue of the social security system (EU, 2012a).

Our findings about the immigrant population show a negative influence on the stock of net debt. Other authors have reported a positive relationship between the

immigrant population and debt, fiscal stress and volume of spending (Choi et al., 2010; Guillamón, Benito, & Bastida, 2011) and with the tax burden (Benito, Bastida, & Muñoz, 2010). By contrast, the level of education seems not to have influence on the net debt.

Regarding economic variables, Table 4.5 indicates no influence of budgetary results on net debt. Furthermore, our results indicate that GDP influences negatively only on the stock of net debt. Therefore, our study cannot confirm prior research (Feld & Kirchgässner, 1999).

Also, our study identifies the positive influence of the touristic activity only on the stock of net debt. In this regard, prior research has found a positive influence of this variable on financial independence, budgetary sustainability, solvency (Zafra-Gómez, López-Hernández, & Hernandez-Bastida, 2009b) and income taxes (Wong, 1996).

As for the firm concentration, this variable does not seem to affect net debt. Due to this fact, our findings cannot confirm prior research (Rogers et al., 1978; Sutaria & Hicks, 2004).

5. Conclusions

Based on an empirical study of large Spanish local governments, our results identify driver factors and risk factors that may influence the financial sustainability and net debt of these governments. In this regards, our empirical results show that increases in the rate of unemployment and the population aged under 16 years are all risk factors that may endanger the financial sustainability and net debt of local government, in the sense of its financial capability to maintain present services over time. In parallel, our results identify the budget result (as an indicator of good management of the budget) as factors that may contribute to the financial sustainability of these governments.

On the other hand, this study demonstrates that the population aged over 65 affects net debt of the local governments. In addition, our findings do not identify the population density as a risk factor for the financial sustainability and the net debt. However, regarding the population size, immigrant population, education level of the population, GPD, touristic activity and the firm concentration, our study was unable to conclude their influence on financial sustainability.

Knowledge of these factors can help policy-makers and managers to assessing the impact of their financial decisions, to improving the management of risks and opportunities provided by their financial policies and can alert them to warning signs enabling them to prevent and/or resolve problems of sustainability in their policies and to undertake actions to promote this sustainability.

These empirical results highlight the existence of control variables of great importance to local governments that wish to improve the net debt and maintain the financial sustainability of their policies. The main risk factors to the latter are especially significant in municipalities with a high unemployment rate and those with a high proportion of young people, although the preventive control of the budget deficit may counteract the negative effect of these factors. Regarding net debt, the main risk factors are especially significant in municipalities with high unemployment rate and those with a high proportion of dependent population (under 16 and over 65 years). These conclusions represent an advance on prior research and on international pronouncements, as they are based on empirical evidence of the effect of socio-demographic and accounting variables on the financial sustainability and net debt of governments, with particular regard to local government.

Although previous studies had emphasised the negative influence of dependent population size and the rate of unemployment on public expenditure, financial condition,

and financial health, our findings indicate that both a rising dependent population and an increasing rate of unemployment may threaten financial sustainability and increase the net debt, possibly because of their effect on the generation of current costs, especially financial expenses. Nonetheless, the fact that the behaviour of these two variables may generate further costs does not necessarily mean that it undermines financial sustainability, since not all costs are charged to the income statement, but only accrued current costs.

Therefore, when we deepen into the study of the influence of variables of uncertainty about the sustainability and the net debt (raised by Greco, Sciulli, and D'onza 2012), we obtained evidence of the relationship of uncontrollable factors on it, such as unemployment and dependent population.

In relation to the dependent population, too, our empirical results have led to a new finding, providing evidence that an increase in the population aged under 16 years is a risk factor for the financial sustainability and net debt of local government. Our results suggest that a growth of dependent population aged under 16 years could affect negatively the financial sustainability due to the fact that they generate public cost when they use public good and services, but they do not generate revenues to the local government. In contrast, no such evidence was obtained regarding any influence by the population aged over 65 years old on financial sustainability, although this variable could affect net debt, which introduces new insights in the analysis of the dependent population variable. Therefore, age-related programs may be individually modelled (IFAC, 2012a), which means the need of introducing tools for efficient management of these programs into the local governments.

Local governments could take actions to reduce the negative effects of these risk factors on financial sustainability and net debt. Thus, our empirical results indicate that

public policies aimed at action to maintain the balance between revenue and expenditure could enhance the financial sustainability and net debt of local governments.

On the other hand, we found no influence of population density on financial sustainability and on net debt. Whereas previous research concluded that population density may be associated with higher levels of government spending, our results suggest that the latter is more concentrated in the area of capital investments which are consumed over time.

Furthermore, we do not find conclusive empirical evidence of any influence of the population size, the level of the immigrant population, the level of education of the population, GDP, touristic activity and firm concentration on financial sustainability and on net debt. Regarding population size, we have identified a negative influence on the stock of financial sustainability, thus, an increase in population may limit financial sustainability, in terms of a reduced balance in the income statement.

As for the size of the immigrant population, in our study, it is inversely related to debt. Therefore, our results seem to indicate that an increase in the number of immigrants is generally associated with higher levels of taxation and thus higher government revenues, which could benefit financial sustainability.

In addition, our results show that high levels of education among the population could benefit the stock of local government's financial sustainability, since citizens demand more information regarding sustainability, and this could encourage local governments to pay particular attention to this question and to adopt a more sustainable behaviour.

Regarding GDP, our findings could be consistent with prior research (Feld & Kirchgässner, 1999) because this variable influences negatively on the stock of net debt, although its influence on financial sustainability is not significant. Likewise, touristic

activity, although prior research has demonstrated an influence of this variable on the increase of revenues and on the lower unemployment rate in municipalities (Wong, 1996), our results show a positive influence of this variable on the stock of net debt and do not support its influence on greater financial sustainability. Finally, firm concentration influences positively on the stock of financial sustainability, although its influence on the net debt is not demonstrated. These results seem to confirm the findings of prior research (Rogers et al., 1978) which conclude that (a) the local tax base could be higher due to the contribution of the firms; and (b) the unemployment rate could decrease due to the increase of companies.

This uncertainty about the influence of some variables such as population size, immigrant population, education level of the population, GDP, touristic activity and firm concentration on financial sustainability and on net debt could be due to the limitations of our database (4 years period) that does not allow us to use others statistic methods like the GMM. Therefore, future research should analyse in-depth the influence of these variables on financial sustainability, extending the data over a longer period and using other statistic methods that could solve this uncertainty influence.

Finally, our conclusions highlight the value of undertaking further research in areas such as the influence of other accounting and socio-economic variables on financial sustainability and risk factors in other countries and/or levels of government. Furthermore, our conclusions corroborate prior research which identifies financial sustainability as fundamental for overall, social and environmental sustainability (Bebbington, Higgins, & Frame, 2009). Therefore, future research should analyse whether higher financial sustainability entities show greater social and environmental sustainability. In addition, nowadays the participation of stakeholders is an emergent

topic, therefore future research should analyse the influence of the stakeholders on the financial sustainability of public administrations (Foo et al., 2011; Greco, Sciulli, & D'Onza, 2015).

References

Bank of Spain. (2012). *Boletín Estadístico 03/2012*. Madrid: Banco de España.

Bastida, F., & Benito, B. (2006). Financial reports and decentralization in municipal governments. *International Review of Administrative Sciences*, *72*(2), 223–238. DOI: 10.1177/0020852306064611

Bebbington, J., Higgins, C., & Frame, B. (2009). Initiating sustainable development reporting : evidence from New Zealand. *Accounting, Auditing & Accountability Journal*, *22*(4), 588–625.

Benito, B., Bastida, F., & Muñoz, M. J. (2010). Explanatory Factors of the Municipal Fiscal Burden. *Revista de Contabilidad*, *13*(2), 239–283.

Bouayad-Agha, S., & Védrine, L. (2010). Estimation Strategies for a Spatial Dynamic Panel using GMM. A New Approach to the Convergence Issue of European Regions. *Spatial Economic Analysis*, *5*(2), 205–227. DOI: 10.1080/17421771003730711

Brundtland, G. H. (1987). *Report of the World Commission on environment and development:" our common future.". United Nations, 1987.* (WCED, Ed.). United Nations. DOI: 10.1002/jid.3380010208

Burritt, R. L., & Schaltegger, S. (2010). Sustainability accounting and reporting: Fad or trend? *Accounting, Auditing & Accountability Journal*, *23*(7), 829–846. DOI: 10.1108/09513571011080144

Caba Pérez, C., Rodríguez Bolívar, M. P., & López-Hernández, A. M. (2008). e-Government process and incentives for online public financial information. *Online Information Review*, *32*(3), 379–400. DOI: 10.1108/14684520810889682

Cabaleiro, R., Buch, E., & Vaamonde, A. (2013). Developing a method to assessing the municipal financial health. *The American Review of Public Administration*, *43*(6), 729–751. DOI: 10.1177/0275074012451523

Choi, S. O., Bae, S.-S., Kwon, S.-W., & Feiock, R. (2010). County Limits: Policy Types and Expenditure Priorities. *The American Review of Public Administration*, *40*(1), 29–45. DOI: 10.1177/0275074008328171

CICA. (2009). *Public sector statements of recommended practice (SORP) 4.Indicators of Financial Condition*. Toronto: CICA.

Drukker, D. M. (2008). Econometric analysis of dynamic panel-data models using Stata. In *Summer North American Stata Users Group meeting. Gleacher Center, University of Chicago*.

Durbin, J. (1954). Errors in Variables. *Review of the International Statistical Institute*, *22*, 23–32.

Easterly, W., & Rebelo, S. (1993). Fiscal Policy and Economic Growth. *Journal of Monetary Economics*, *32*(3), 417–458.

EC. (2011). *Council Directive 2011/85/EU of 8th November 2011 on requirements for budgetary frameworks of the Member States*. Brussels: EC.

EU. (2012a). *Fiscal Sustainability Report*. Brussels: European Union. https://doi.org/10.2765/19669

EU. (2012b). *Stability and Growth Pact*. Strasbourg: European Union.

Evans, D., & Yen, D. C. (2005). E-government: An analysis for implementation: Framework for understanding cultural and social impact. *Government Information Quarterly*, *22*(3), 354–373. DOI: 10.1016/j.giq.2005.05.007

Feld, L. P., & Kirchgässner, G. (1999). Public debt and budgetary procedures: top down or bottom up? Some evidence from Swiss municipalities. In J. M. Poterba & J. Von Hagen (Eds.), *Fiscal institutions and fiscal performance* (pp. 151–180). Chicago: University of Chicago Press.

Foo, L.-M., Asenova, D., Bailey, S., & Hood, J. (2011). Stakeholder Engagement and Compliance Culture. *Public Management Review*, *13*(5), 707–729. DOI: 10.1080/14719037.2010.532961

Fundación La Caixa. (2013). *Informe anual Obra Social "La Caixa" 2013*. Barcelona: Fundación "la Caixa".

Gallego, R., & Barzelay, M. (2010). Public Management Policymaking in Spain: The Politics of Legislative Reform of Administrative Structures, 1991-1997. *Governance*, *23*(2), 277–296. DOI: 10.1111/j.1468-0491.2010.01479.x

GASB. (1990). *Concepts Statement No. 11: Measurement Focus and Basis of Accounting –Government Fund Operating Statements*. Norwalk: GASB.

Greco, G., Sciulli, N., & D'onza, G. (2012). From Tuscany to Victoria: Some Determinants of Sustainability Reporting by Local Councils. *Local Government Studies*, *38*(March 2015), 681–705. DOI: 10.1080/03003930.2012.679932

Greco, G., Sciulli, N., & D'Onza, G. (2015). The Influence of Stakeholder Engagement on Sustainability Reporting: Evidence from Italian Local Councils. *Public Management Review*, *17*(4), 465–488. DOI: 10.1080/14719037.2013.798024

Guillamón, M. D., Bastida, F., & Benito, B. (2011). The Determinants of Local Government's Financial Transparency. *Local Government Studies*, *37*(4), 391–406. DOI: 10.1080/03003930.2011.588704

Guillamón, M. D., Benito, B., & Bastida, F. (2011). Evaluación de la deuda pública local en España. *Revista Española de Financiación Y Contabilidad*, *XL*(150), 251–285.

Hausman, J. A. (1978). Specification Tests in Econometrics. *Econometrica*, *46*(6), 1251–1271.

IFAC. (2011). *Handbook of International Public Sector Accounting Pronouncements*. New York: IFAC.

IFAC. (2012a). *Reporting on the Long-Term Sustainability of a Public Sector Entity's Finances*. New York: IFAC.

IFAC. (2012b). *Sustainability Framework 2.0.Professional Accountants as Integrators*. New York: IFAC.

IFAC. (2013a). *Accountability, sustainability, and growth recommendations for the G-20 leaders*. New York: IFAC.

IFAC. (2013b). *Recommended Practice Guideline. Reporting on the Long-Term Sustainability of an Entity ' s Finances*. New York: IFAC.

Kloha, P., Weissert, C. S., & Kleine, R. (2005). Someone to Watch Over me: State Monitoring of Local Fiscal Conditions. *The American Review of Public Administration*, *35*(3), 236–255. DOI: 10.1177/0275074005277435

Kohler, U., & Kreuter, F. (2005). *Data Analysis Using Stata* (3th ed.). Texas: Stata Press.

Muñoz-Cañavate, A., & Hípola, P. (2011). Electronic administration in Spain: From its beginnings to the present. *Government Information Quarterly*, *28*(1), 74–90. DOI: 10.1016/j.giq.2010.05.008

NAO. (2013). Financial sustainability of local authorities, (January).

Pallot, J. (2001). Transparency in local government: antipodean initiatives. *European Accounting Review*, *10*(3), 645–660. DOI: 10.1080/09638180126794

Pezzy, J., & Toman, M. (2002). Making Sense of Sustainability. *Resources for the Future, Issue Brie*(02–25).

Pirtea, M. G., Nicolescu, A. C., & Mota, P. R. (2013). An empirical study on public debt's determinants: Evidence from Romania. *Transylvanian Review of Administrative Sciences*, *9*(38), 144–157.

Rodríguez, M. P., Navarro, A., & Alcaide, L. (2014). New development: The role of accounting in assessing local government sustainability. *Public Money & Management*, *34*(3), 233–236. DOI: 10.1080/09540962.2014.908035

Rogers, D. L., Pendleton, B. F., Goudy, W. J., & Richards, R. O. (1978). Industrialization, income benefits and the rural community. *Rural Sociology*, *43*(2), 250–264.

Sáiz, M. P. (2011). La Ley de Economía sostenible: la sostenibilidad financiera del sector público. *Revista de Contabilidad Y Dirección*, *13*, 21–41.

Smith, K. A. (2004). Voluntarily Reporting Performance Measures to the Public: A test of Accounting Reports From U.S. Cities. *International Public Management Journal*, *7*(1), 19–48.

Sutaria, V., & Hicks, D. a. (2004). New firm formation: Dynamics and determinants. *The Annals of Regional Science*, *38*(2), 241–262. DOI: 10.1007/s00168-004-0194-9

USAID. (2011). *Fundamentals of NGO Financial Sustainability*. Washington, DC: USAID.

Watt, P. (2004). Financing Local Government. *Local Government Studies*, *30*(4), 609–623. DOI: 10.1080/0300393042000318012

Williams, B., Wilmshurst, T., & Clift, R. (2010). The Role Of Accountants In Sustainability Reporting – A Local Government Study. In *Sixth Asia Pacific*

Interdisciplinary Research in Accounting Conference (pp. 1–18). Sydney: University of Sydney, Australia.

Wong, J. D. (1996). The impact of tourism on local government expenditures. *Growth and Change*, *27*, 313–326.

Zafra-Gómez, J. L., López-Hernández, A. M., & Hernandez-Bastida, A. (2009a). Developing an alert system for local governments in financial crisis. *Public Money & Management*, *29*(3), 175–181. DOI: 10.1080/09540960902891731

Zafra-Gómez, J. L., López-Hernández, A. M., & Hernandez-Bastida, A. (2009b). Evaluating financial performance in local government: maximizing the benchmarking value. *International Review of Administrative Sciences*, *75*(1), 151–167. DOI: 10.1177/0020852308099510

Chapter 5:

Analyzing Forces to the Financial Contribution of Local Governments to the Sustainable Development

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1. Introduction

At international level, the economic crisis has undermined the capacity of Local Governments to continue provided public services to society. Under this delicate financial situation, the unequal economic development created significant imbalances between regions and municipalities especially vulnerable to problems like the budget deficit and public debt (Méndez, Abad, & Echaves, 2015; Rodríguez et al., 2016).

In Spain, the disproportional increase in spending relative to revenues evolution has caused high levels of deficit and debt in the public sector, challenging the size and financial viability of public services. In fact, the *Fiscal Sustainability Report* (EU, 2012a) states that countries such as Spain, Portugal, Italy or Greece have sustainability gap above the average of the European Union, in the short, medium and long term. Indeed, since 2008 in these countries a strong imbalance in development and economic growth has led to a greater imbalance between regions (Government of Spain, 2012) (see Table 5.1), jeopardizing the ability of governments to continue to provide services in the future (Bank of Spain, 2014; Guillamón, Benito, & Bastida, 2011; Ruiz-Huerta & García, 2012).

This worrying financial situation has attracted the policymakers' attention, specifically regarding local governments, whose high debt levels and budget deficits, together with its harmful effects on the economic development, have caused a process of policy reforms aimed at promoting efficiency, balanced budgets and, mainly, the financial sustainability of public services (Cabaleiro, Buch, & Vaamonde, 2013; Guillamón, Benito, & Bastida, 2011; *Organic Law 2/2012 of 27 April 2012 on Fiscal Stability and Financial sustainability.*, 2012).

Table 5.1. Differences between Regions

Regions	Debt/Pc[1*]	Gdp/Pc[2]	Budget Result/Pc[3]	Expenditures/Pc[3]	Immigrant Population[2]	Dependent Population Rate[2]	Unemployment Rate[4]
Andalucía	20.90	16,577	-223.39	3,016.67	7.87	49.93	34.23
Aragón	18.30	24,713	-445.91	3,577.07	11.26	55.33	18.65
Principado de Asturias	16.70	19,727	-252.41	3,643.96	4.25	54.27	20.78
Islas Baleares	29.50	23,498	-416.88	3,928.62	18.41	45.71	18.88
Canarias	14.80	19,238	-180.54	3,226.41	12.69	42.76	31.08
Cantabria	20.50	20,237	-336.36	3,985.35	5.91	51.92	18.42
Castilla y León	17.90	21,063	-238.50	3,404.70	5.88	57.78	20.28
Castilla-La Mancha	35.30	17,636	-321.85	3,147.78	9.43	52.74	28.50
Cataluña	32.70	26,624	-718.99	3,987.68	14.49	52.58	19.88
Comunitat Valenciana	38.40	19,693	-485.13	3,334.17	14.78	51.81	23.48
Extremadura	18.30	15,457	-386.49	3,927.68	3.43	53.28	29.96
Galicia	18.50	19,661	-195.00	3,416.53	3.57	56.80	20.87
Comunidad de Madrid	12.60	30,755	-416.92	3,453.44	13.63	49.01	18.00
Región de Murcia	25.50	18,325	-524.95	3,354.88	14.72	50.45	27.26
C. Foral de Navarra	18.10	27,709	-234.09	5,688.29	9.29	54.48	14.92
País Vasco	14.10	29,277	-292.83	4,478.33	6.46	54.98	16.60
La Rioja	16.80	24,601	-304.07	3,749.19	12.54	54.46	17.17

Source: [1]Bank of Spain; [2]INE (Statistic Institute of Spain –www.ine.es); [3]Ministry of Finance and Public Administration (www.minhap.gob.es); [4]Public Employment Service of Spain (www.sepe.es)

Note: * Debt/GDPx100 Following the Protocol of Excessive Deficit. Year 2014

Indeed, the international situation of the financial crisis has led financial sustainability to become a key concept in governmental entities even more important than the other dimensions for Public Sector management, which has attracted the attention of researchers (Afonso & Jalles, 2015; Rodríguez et al., 2014). In parallel, international organizations such as EU (European Union) (EU, 2012a, 2012b), EC (European Commission) (EC, 2011), IMF (International Monetary Fund) (IMF, 2014) and NAO (National Audit Office) (NAO, 2014) have recommended governments to adopt strategies for the financial sustainability of public policies.

For this purpose, international bodies (EU, 2012a, 2012b, IFAC, 2012, 2013; NAO, 2014) and previous research have recognized the usefulness of government financial statements for reporting on the sustainability of public policies. More

concretely, following the pronouncements of the IFAC (IFAC, 2012, 2014) and findings of previous studies (Navarro-Galera et al., 2015; Rodríguez et al., 2016), the income statement, which includes the revenues and expenditures in accrual basis, enables users to assess, on the one hand, the capacity of the governments to continue providing at least the same volume of goods and services and, on the other hand, the level of resources that will be needed in the future to continue to fulfil its public services delivery obligation.

Therefore, in line with the findings of previous research (Batabyal, 2016; Carrion-I-Silvestre, 2016; De la Fuente, 2015; Navarro-Galera et al., 2015), an analysis of risk or drivers factors for financial sustainability can help public managers and policymakers to monitor and maintain financial sustainability

Previous research has studied the influence of political and socioeconomic factors on the financial transparency of local governments (Alcaide-Muñoz & Rodríguez-Bolívar, 2015; Guillamón, Benito, & Bastida, 2011), while other studies have addressed the motivations of governments to publish sustainability reports. In parallel, other studies have analyzed factors influencing the tax burden (Kloha, Weissert, & Kleine, 2005; Zafra-Gómez, López-Hernández, & Hernández-Bastida, 2009), and public debt (Guillamón, Benito, & Bastida, 2011; Pirtea, Nicolescu, & Mota, 2013). Although, to date, previous literature (Levine, Justice, & Scorsone, 2013) highlighted the continuing effects of the economic crisis on the financial local governments health and some studies have tried to measure it (Chaney, Mead, & Schermann, 2002; Hendrick, 2004; Rivenbark, Roenigk, & Allison, 2010; Xiao Wang, Dennis, & Tu, 2007), the analysis of the explanatory variables of financial sustainability of local governments requires more attention (Rodríguez et al., 2016; Williams, Wilmshurst, & Clift, 2010), especially about variables such as human capital, companies' developments, unemployment, economic level or population structure, which motivates the opportunity and interest of this study.

This paper aims to identify factors that may influence the financial sustainability of the local governments. Given that the local governments manage a huge volume of budgets, provide a great variety and quality of public services, and the financial crisis influence on the quality and amount of public services delivery.

The local governments are obliged by the Law 7/1985 to provide different services (such as street lighting, waste collection, public parks, social services, cultural services and environmental protection), and for this reason their revenues involve their own taxes (such as property taxes and motor vehicle taxes) as well as transfers received from national and regional governments (the participation of local government in national and regional taxes). The own taxes of local governments are regulated by national rules and each local government is only allowed to choose the tax rate, which has to be between a minimum and maximum for each tax (*Royal Legislative Decree 2/2004 of 5 March, approving the revised text of the Law Regulating Local Tax Authorities*, 2004).

In this paper, we analyze the impact of demographic and socioeconomic variables in the evolution of financial sustainability, taking a sample of 148 large Spanish Local Government during the period 2006-2014. Our findings have identified variables such as unemployment rate by sector, economic level, the dependent population, which may influence the financial sustainability of Local Governments, whose knowledge is very relevant to managers, policymakers, users of public services, voters and others stakeholders interested in public service sustainability.

2. Research questions

In line with the conclusions of international bodies (EC, 2011; EU, 2012b; IFAC, 2013; IMF, 2014) and previous research (Batabyal, 2016; Carrion-I-Silvestre, 2016; De la Fuente, 2015; Navarro-Galera et al., 2015; Rodríguez, Navarro, & Alcaide, 2014), it is

interesting and timely to consider whether the behavior of demographic and socioeconomic variables can affect the financial sustainability of local governments. Consequently, with the objective of this study in mind, we propose the following research questions, along with their academic support.

1) Does the human capital formation influence on the financial sustainability of Local Governments?

Previous research has shown that one of the main important stimulants in the development and economic growth of a region is the educational level of the population (Agiomirgianakis, Asteriou, & Monastiriotis, 2002; Barro, 1991; Florida, Mellander, & Stolarick, 2008; Hansen & Winther, 2014; Taşel & Bayarçelik, 2013). According to prior research (Agiomirgianakis, Asteriou, & Monastiriotis, 2002; Breton, 2013; Florida, Mellander, & Stolarick, 2008; Hansen & Winther, 2014; Psacharopoulos & Patrinos, 2004; Taşel & Bayarçelik, 2013), a higher educational level of the population could mean higher wages and thus, higher amounts of direct and indirect taxes, increasing the resources of Local Governments, and therefore, their financial capacity of promoting economic development.

2) Does the companies concentration affect the financial sustainability of Local Governments?

Baptista *et al.* (Baptista, Escária, & Madruga, 2007) concluded that higher levels of entrepreneurship promote economic development and job creation. In this sense, following Sutaria and Hicks (Sutaria & Hicks, 2004) implies an increase in tax revenues and private consumption, promoting financial capability the governments. However, authors such as Fritsch and Mueller (Fritsch & Mueller, 2007) show that the companies' concentration in a region can have both positive and negative consequences on their development. In the early years, the creation of enterprises will have a positive effect,

especially in the creation of regional employment. Instead, after the first years, this positive effect tends to decrease depending on the situation where the company is located.

3) Does the unemployment rate influence on financial sustainability of Local Governments?

The influence of the unemployment rate on the financial sustainability should be analyzed, especially in the crisis times when this rate has substantially increased at European level, although its effect has been different between countries due to the level of economic development, labor market stability and policies adopted (Aceleanu, Serban, & Burghelea, 2015). According to the *Fiscal Sustainability Report* (EU, 2012a), a higher rate of unemployment has a negative influence on the country's production and income received by the different levels of government (central, regional and local). In parallel, the preliminary investigation revealed that the increase in unemployment has adverse effects on social spending (Benito, Bastida, & Muñoz, 2010), indebtedness (Guillamón, Benito, & Bastida, 2011) and government revenues (Zafra-Gomez, Lopez-Hernandez, & Hernandez-Bastida, 2009). In addition, due to the economic crisis, in Spain, the unemployment rate has had an uneven behavior between the different economic sectors (agriculture, industry, building and services) (Public State Employment Service –SEPE-). So, considering the above mentioned and the three dimensions of sustainability (IFAC, 2013), it is interesting to analyze the influence of the unemployment rate by sector on the financial sustainability of local governments.

4) Does the economic level of a region impact on the financial sustainability of Local Governments?

Due to the state regulation, Spanish local governments are only able to set a rate (between a minimum and maximum) in five specific taxes (property tax, tax on motor vehicles, tax on the increase in value of urban land, tax on building, installations and other

work and luxury tax) and to participate in the national taxes such as PIT (Personal Income Tax) or VAT (Value Added Taxes). Therefore, this limited capacity of local governments does not allow them to create new taxes or to directly benefit from an increase of GDP, since the GDP depends on the consumption of the population and does not provoke a direct increase in the municipal collection taxes.

In this regard, authors such as Capalbo and Grossi (Capalbo & Grossi, 2014) found that an increase in GDP could lead to an increase in regional per capita income, increasing the capacity of the population to finance municipal services. This partnership would promote public revenues (Gupta, 2007) and decreased debt (Feld & Kirchgässner, 1999), which would cause a positive effect on the finances of local governments. In the same vein, Ghosh *et al*. (Ghosh et al., 2013) and Potrafke and Reischmann (Potrafke & Reischmann, 2014) concluded that the economic level of a region is a key to analyze the financial viability of it, to the extent that it affects the ability of local governments to provide public services element and thus boosting the sustainability of regional development. It is, therefore, interesting to analyze the effect of changing the economic level of a territory on the financial sustainability of Local Governments.

5) Does the population structure affect financial sustainability of Local Governments?

Previous studies have highlighted that the population structure, especially population growth, dependent population, and immigrant population, could affect the economic wealth of Local Governments. In this sense, population growth increases new demands of resources and services (Balatsky, Balatsky, & Borysov, 2015; Conard, 2013; XiaoHu Wang & Liou, 2009) that involve an increase in expenditures but do not always involve an increase in public revenues, since the increase of the tax collection does not depend only on the population growth, but also on the financial capacity of the population and of the economic activity. Indeed, the uneven population growth between regions

affects differently in the regional needs of providing services such as water services, garbage collection, energy, food, healthcare or education (Conard, 2013), influencing the regional economic development. So, an increase in the population could bring an increase in the public borrowing and spending (Choi et al., 2010), increasing the public debt of local authorities (Guillamón, Benito, & Bastida, 2011). Therefore, the population growth is expected to be a negative factor for the ability of local government to contribute to sustainable development because it could lead to new needs in the provision of public services increasing local governments' debt and expenditures (Lago-Peñas & Fernández-Leiceaga, 2013; Ruiz-Huerta & García, 2012).

On the other hand, Kloha *et al*. (Kloha, Weissert, & Kleine, 2005) believe that the size of the population aged over 65 years and under 16 years is inversely related to government revenue and expenditure and has a significant influence on increased fiscal distress, and hence, could affect the sustainable economic development. The elderly population is growing faster than the rest, and thus could influence on the population balances, which is the main demographic component (Lutz, Sanderson, & O'Neill, 2004), and on financial sustainability (Eurostat, 2015; IFAC, 2012). The needs of the dependent population (under 16 and over 65) lead to increase the public services provided. So, this population has a negative influence on the per capita spending and taxation, and therefore on the budget balance (Choi et al., 2010; Gonçalves Veiga & Veiga, 2007) and the financial capacity of local authorities (Carr & Karuppusamy, 2009; Zafra-Gómez, López-Hernández, & Hernández-Bastida, 2009). In addition, international reports, such as the *Fiscal Sustainability Report* (EU, 2012a), *Sustainability Report 2009* (EC, 2009) and *Reporting on the Long-Term Sustainability of a Public Sector Entity's Finances* (IFAC, 2012), recognize that the existence of an ageing population may influence financial sustainability. Therefore, these variables are expected to be inversely related to the

financial sustainability of local government and hence, they could jeopardize to provide public services and economic development.

Likewise, immigration could affect the financial sustainability since this population could soften the negative effect of the great increase of elderly population, helping to maintain the population balance and the sustainability of pension system (Eurostat, 2015, 2016). However, an increase in the immigrant population leads to new demands for public services and this could turn into a tendency to raise the level of accumulated debt (Guillamón, Benito, & Bastida, 2011; Schultz & Sjostrom, 2004) and public expenditures (Chapman, 2008; Choi et al., 2010). Moreover, prior research has identified that immigrants have a negative influence on the financial performance of public administrations (Zafra-Gomez, Lopez-Hernandez, & Hernandez-Bastida, 2009), and it positively associated with the tax burden (Benito, Bastida, & Muñoz, 2010). Therefore, immigration cause an additional load on social welfare, education and health systems, which could be non-covered by their taxes, increasing the pressure on public services and influencing negatively on the financial performance. In this line, it could exist a negative influence of the immigrant people on the financial sustainability of local entities.

3. Methodology

3.1. Sample Selection

The worrying financial situation has attracted the policymakers' attention, specifically regarding local governments together with its harmful effects on the economic development, have caused a process of policy reforms aimed at promoting efficiency, balanced budgets and, mainly, the financial sustainability of public services (*Organic Law 2/2012 of 27 April 2012 on Fiscal Stability and Financial sustainability.*,

2012). In fact, the financial effort carried out by the Spanish local governments has allowed them to achieve the budgetary stability objective, since the whole of the local governments has a surplus of 5.938 millions of Euros in 2014 (Ministry of Finance and Public Administration, 2014).

Our sample is composed of 148 Spanish municipalities, those cataloged as large population municipalities by the Law 57/2003, of measures for the modernization of local government, during the period 2006-2014. As noted previously, these local governments have to provide the most variety of public services involve their own taxes jointly with their participation in national and regional taxes.

However, the availability of the information has allowed us to analyze only data for 139 municipalities (93.91%). The reasons of this sample respond to the following detail. First, because local governments are the public level closest to citizen due to the legislative and political reforms in Spain and the successive process of decentralization of public services (Benito, Bastida, & Muñoz, 2010; Gallego & Barzelay, 2010; Navarro-Galera et al., 2015). Second, during crisis years, the local governments became the main concern of the central and regional governments due to their high deficit and debt. In this regard, the Spanish local governments have a limited capacity to collect taxes, since due to the state regulation they can only set a rate of taxes. So, a significant proportion of their budget is based on the participation in the national taxes such as PIT or VAT. Therefore, the high deficit and debt together with this limited capacity of tax collection could provoke a considerable loss of their financial sustainability.

Third, according to numerous previous studies on finances of local governments (Benito, Bastida, & Muñoz, 2010; Guillamón, Benito, & Bastida, 2011; Navarro-Galera et al., 2015; Rodríguez et al., 2016; Zafra-Gomez, Lopez-Hernandez, & Hernandez-Bastida, 2009; Zafra-Gómez, López-Hernández, & Hernández-Bastida, 2009)

municipalities with a large population have been chosen for two reasons. These municipalities cover more than 50% of the Spanish population, so the effects of local government policies on sustainable growth include a large number and variety of stakeholders (EU, 2012a; Fundación La Caixa, 2013). In addition, the accounting system of these municipalities is more developed and similar to those advocated by the International Financial Reporting Standards for agencies public (Benito, Brusca, & Montesinos, 2007). So, they are more appropriate to measure the financial sustainability of public services than the accounting system used by the municipalities of smaller dimension.

3.2. Variables

Dependent Variable

Previous research has highlighted that the financial sustainability is a complex and multidimensional concept by definition (Chaney, Mead, & Schermann, 2002; Hendrick, 2004; Levine, Justice, & Scorsone, 2013; Rivenbark, Roenigk, & Allison, 2010; Xiao Wang, Dennis, & Tu, 2007). In this sense, Wang et al. (Xiao Wang, Dennis, & Tu, 2007) tried to measure financial condition, using four dimensions in cash, budget, long-run and service-level solvencies and eleven financial condition indicators. Similarly, Hendrick (Hendrick, 2004) and Rivenbark et al. (Rivenbark, Roenigk, & Allison, 2010) presented a framework for assessing the financial health and financial condition of local governments, developed different indices for some dimensions of the framework. In addition, recent studies (Levine, Justice, & Scorsone, 2013) have continued to analyze how to measure the financial sustainability. Therefore, to date, we can find a plethora of measures available in the academic doctrine, all of them with support on accounting information, which keeps the debate alive.

In our empirical analysis, the dependent variable is the financial sustainability of the local government. Following the pronouncements of EC (EC, 2011) and EU (EU, 2012b) and according to the Law 2/2012, about the budgetary stability and financial sustainability, financial sustainability can be defined as the ability to finance public services without compromising the future capacity or incurring risks of spending cuts or tax increases. More specifically, IFAC (IFAC, 2013) and CICA (CICA, 2009) define the financial sustainability as the ability to meet service delivery and financial commitments, applying current policies and maintaining them in the future without causing the debt to rise continuously. In this line, according to IFAC (IFAC, 2012, 2013), the financial sustainability of governments is a broad concept linked to the concept of inter-period equity or intergenerational equity, which covers three dimensions: debt, revenues, and services.

In this regard, several international organizations (EU, 2012a, 2012b; IFAC, 2013; NAO, 2014) have pointed out that the financial statements of governments are called to play an essential role in the measurement and management of financial sustainability of services public, especially the performance statement, also named as income statement (IPSAS nº1 (IFAC, 2014)). This financial statement includes all the revenues and expenditures under accrual basis. Under the accounting model provided by IPSAS (IFAC, 2014) the balance of income statement is obtained by the difference between total revenues and total expenditures, including taxes, funding received, wages, current expenditures, financial expenditures and government subsidies, among others. In fact, IFAC (IFAC, 2012) and some previous studies (Navarro-Galera et al., 2015; Rodríguez et al., 2016) indicate that the analysis of the income statement based on the accrual basis allows to assesses, on the one hand, the capacity of governments to continue providing at least the same current level of public services and, on the other hand, the level of resources

that will be needed in the future to meet the obligations. So, the accounting information provided by the income statement adequately meets the scope of the definition of financial sustainability proposed by EC, EU, IFAC and CICA.

Following IFAC (IFAC, 2013), EU (EU, 2012a), EC (EC, 2011) and previous studies (Benito, Vicente, & Bastida, 2015; Rodríguez et al., 2014), the information contented in the income statement reflects a direct approach to two dimensions of financial sustainability (revenues and services) and, indirectly, to the debt dimension, due to its strong link with the volume of expenditure. In fact, the income statement involves the effect of the debt, since it includes the financial expenditures which are a magnitude strongly associated with the volume of debt because of a higher volume of debt, higher loan interest. According to the accounting model of IPSAS (IFAC), the income statement includes the accrued financial expenditures on short-term debt and long-term debt.

However, the current income statement is not sufficient to assess the financial sustainability of governments, since it includes revenues and expenditures from extraordinary activities that will not be repeated in the future. Therefore, an adequate measurement of the financial sustainability of local governments could be the adjusted income statements which do not include the revenues and expenditures whose probability of future occurrence is very low, in order to enhance its usefulness as a measure of ability to maintain public services over time to encourage a sustainable economic development.

Therefore, as the Table 5.2 shows, the dependent variable of our study is calculated using the income statement adjusted, i.e., elimination the effect of the extraordinary revenues and expenditures, following the recommendations of international organizations (EU, 2012a, 2012b; IFAC, 2013) and previous research (Burritt & Schaltegger, 2010; Cabaleiro, Buch, & Vaamonde, 2013; Rodríguez, Navarro, & Alcaide, 2014; Williams, Wilmshurst, & Clift, 2010). So, we understand the adjusted income as

the most comprehensive standpoint to measure the financial sustainability of the public services, in the same line that previously mentioned international organizations and academic studies.

Table 5.2. Dependent variable. Financial sustainability: Adjusted Income Statement

Concept	Amount
Income statement for the financial year obtained by applying the current IPSAS	(1)
Negative entries for extraordinary activities	(2)
Positive entries for extraordinary activities	(3)
Corrected income statement for the financial year (intergenerational equity for financial sustainability)	(1)+(2)–(3)

Source: own elaboration

Independent Variables.

Different international organizations (EC, 2009; EU, 2012a; IFAC, 2012) and prior research (Benito, Bastida, & Muñoz, 2010; Choi et al., 2010; Guillamón, Benito, & Bastida, 2011; Navarro-Galera et al., 2015) maintain that there are two types of factors which can affect public debt and financial health of government entities, in particular, demographic and socioeconomic factors.

In this line, taking into account the three dimensions of financial sustainability proposed by the IFAC (debt, income, and demand) (IFAC, 2013) and the research questions explained in section 2, we selected 3 demographic variables (population growth, dependent population, immigrant population) and 4 socioeconomic variables (human capital, unemployment rate, corporate concentration and economic level) which are expected to be explanatory variables of the financial sustainability of local governments. In this sense, Table 5.3 shows the dependent and independent variables used, their definition, source, and measurement, based on the explanation provided in Section 2.

Table 5.3. Dependent and Independent Variables

Variables	Acron.	Description	Source	Measurement
Financial Sustainability	FS	Adjusted Income Statement	Local government financial statement	Corrected income statement* for the financial year per capita
Population Growth	GPOP	Population residing in the municipality	INE (www.ine.es)	(Population t/ Population (t-1))*100; t=year
Dependent Population under 16	DP16	Population aged under 16 years residing in the municipality	INE (www.ine.es)	Population aged under 16 years/labor force
Dependent Population over 65	DP65	Population aged over 65 years residing in the municipality	INE (www.ine.es)	Population aged over 65 years/labor force
Immigrant Population	INM	Immigrant population residing in the municipality	INE (www.ine.es)	% Immigrant population
Labor force with higher education	EDU_s	Percentage of labor force with higher education	IVIE (www.ivie.es)	labor force with higher education/labor force
Labor force with intermediate education	EDU_m	Percentage of labor force with intermediate education	IVIE (www.ivie.es)	labor force with intermediate education/labor force
Companies concentration	CC	Companies concentration	Caja Duero; INE (www.ine.es)	Companies/1000 inhabitants
Unemployment rate in Agricultural sector	AGRI	Unemployment rate in Agricultural sector	SEPE (www.sepe.es)	Unemployed people in the agricultural sector/labor force
Unemployment rate in the Industrial sector	IND	Unemployment rate in the Industrial sector	SEPE (www.sepe.es)	Unemployed people in the industrial sector/ labor force
Unemployment rate in the building sector	BUIL	Unemployment rate in the building sector	SEPE (www.sepe.es)	Unemployed people in the building sector/labor force
Unemployment rate in the services sector	SERV	Unemployment rate in the services sector	SEPE (www.sepe.es)	Unemployed people in the services sector/labor force
GDPpc	GDP	Gross Domestic product	INE (www.ine.es)	GDP in thousands €/labor force

* Following IPSAS nº1 (IFAC, 2014), the income statement includes the accrual-based revenues and expenditures

3.3. Statistic Methodology

In order to empirically test whether the behavior of the demographic and socioeconomic variables can influence the evolution of the financial capacity of local governments to contribute to sustainable development, we use the methodology panel data, which has been the technique most used for the latest research in public finance (Benito, Vicente, & Bastida, 2015; Navarro-Galera et al., 2015; Rodríguez et al., 2016; Zhu, 2013), since it reduces multicollinearity and improves efficiency of the model

(Wooldridge, 2009). So, our sample is composed by a vector of variables of N individuals (139 municipalities) for T periods (2006-2014). So, we used the following equation:

$$FS_{it} = \beta_0 + \beta_1 GPOP_{it} + \beta_2 DP16_{it} + \beta_3 DP65_{it} + \beta_4 INM_{it} + \beta_5 EDU\_s_{it} + \beta_6 EDU\_m_{it} + + \beta_7 CC_{it} + \beta_8 AGR_{it} + \beta_9 IND_{it} + \beta_{10} CONSw_{it} + \beta_{11} SER_{it} + \beta_{12} GDP_{it}\, \alpha_i + u_{it}$$

where "i" is the i-th unit cross (Spanish municipalities) and "t" is the time (year).

In this technique, the error (u_{it}) is composed by e_{it} (the error term) and α_i (unobservable heterogeneity) designed to measure the unobservable characteristics of the local governments that have a significant impact on financial sustainability.

In order to determine the specific model to be followed, we consider the possible existence of endogeneity, which is an important concern in testing the effects of some independent variables, such as financial ones, on financial sustainability. Models that do not consider this possibility could fail to represent financially sustainable policy within local governments (Prillaman & Meier, 2014).

Therefore, we estimate our model with the robust system-generalized method of moments (SGMM) (Arellano & Bover, 1995; Blundell & Bond, 1998), which is the most powerful tool to control for the possible endogeneity between the variables and the error term (Baltagi, 2008; Prillaman & Meier, 2014; Wooldridge, 2009). This technique uses the lagged levels of the endogenous regressors as instrumental variables and combines the moment conditions for the equations in first-differences with additional moment conditions implied for equations in level to improve efficiency (Oto-Peralías, Romero-Ávila, & Usabiaga, 2013). Furthermore, in order to take into account the heteroscedasticity problems, we applied the two-step estimation.

Furthermore, we perform the Arellano–Bond test (test m) to check the existence of serial correlation, and the Hansen test to verify that the instruments used to control the endogeneity are adequate (Arellano & Bond, 1991) (Table 5.4). In our analysis, the Arellano–Bond test (p = 0.442) and Hansen test (p = 0.289) confirm the consistency of our model (Table 5.4). Therefore, we have obtained robust results that allow us to properly support the findings related to the purpose of the paper, controlling for any type of endogeneity and multicollinearity that may exist between the variables.

Table 5.4. Hypothesis Testing

Test			
Arellano-Bond test	Ar(1)	z= -3.27	Pr>z=0.001
	Ar(2)	z= 0.77	Pr>z= 0.442
Hansen test	Test $chi^2(80)$	86.56	Pr>chi2=0.289
Sample	N=1242	n=139	T=8
Instruments	102		

Source: Stata and own elaboration
Note: collapse option was used in order to reduce the instruments (Roodman, 2009)

4. Empirical Results

Table 5.5 shows that the most heterogeneous variable is the financial sustainability followed by the GDPpc. Moreover, the descriptive statistic indicates that the economic crisis has caused the behavior of the financial sustainability was more homogeneous between municipalities (between) than within the same municipality over time (within), suggesting a strong effect of the uncontrollable factors of local governments on their ability to contribute to sustainable development. This same behavior, it can be observed in the unemployment rate in the building and services sector and in the population growth, although with less intensity. However, the behavior of the rest of variables is different, since their evolution is more uniform within each municipality over time (within) than between municipalities (between).

Regarding demographic variables, the population grows an average of 0.89% per year (Table 5.5). In addition, the Table 5.5 shows that there is more dependent population under 16 (23.89%) than those over 65 (21.82%), but together they represent nearly the 50% of the labor force. Moreover, the behavior of the dependent population under 16 is more homogeneous than those over 65.

Finally, the mean of the immigrant population is 12.89%, i.e., the 12.89% of the population are foreigners. However, it is a heterogeneous variable since the standard deviation is 9.52 and it could be different between municipalities (9.45). Thus, in our sample, there is a municipality which has only a 1.22% of foreigners (minimum) while there is a municipality which has 51.63% of foreigners (maximum).

Following with the socioeconomic variables, specifically the human capital, the Table 5.5 displays that the 16.49% of the labor force has a higher education (at least one degree) meanwhile the 27% of the labor force has an intermediate education (Secondary Bachelor, FP I or FP II). So, the most of the labor force is between illiterates and people with primaries studies.

Regarding the companies concentration, the statistic descriptive shows that, although the mean of this indicator is 26.55 (26.55 companies each mill inhabitants), the differences between municipalities are wide, since the municipality which has the minimum indicator has only 7.19 companies meanwhile the municipality with the higher indicators has 60.60 companies.

Analyzing the unemployment rate, the highest unemployment rate is in the service sector (7.73), followed by the unemployment rate in the building sector (1.91), industry (1.36) and, finally, unemployment in agriculture (0.28). The unemployment rate in the building and services sector are the only independent variables that have greater homogeneity between municipalities than within the same municipality over time. This

similar behavior between regions could have been provoked by financial problems of the burst of the housing bubble.

Table 5.5. Descriptive statistic

Variable	category	mean	Stander Des.	Min.	Max.
FS	overall	112.3424	217.1185	-1040.9525	2517.8884
	between		113.8477	-258.4299	625.4617
	within		187.5232	-869.6793	2004.7692
GPOP	overall	0.8929	1.9433	-13.1100	11.1600
	between		1.1481	-1.0133	5.6878
	within		1.5706	-13.2971	8.9596
DP16	overall	23.8924	3.3564	15.4426	33.6056
	between		3.2366	16.8928	33.1235
	within		0.9262	19.5583	27.7212
DP65	overall	21.8223	6.5546	5.2089	43.1236
	between		6.3509	6.0774	36.7379
	within		1.6998	15.5009	29.0517
INM	overall	12.8916	9.5200	0.9416	53.5426
	between		9.4573	1.2198	51.6375
	within		1.3294	4.9366	16.6981
EDU_S	overall	16.4939	4.9083	7.8842	28.9134
	between		4.7873	10.1453	26.9107
	within		1.1494	13.2710	19.2946
EDU_m	overall	27.0080	3.3426	14.8614	35.6537
	between		3.1479	17.9469	32.2113
	within		1.1522	22.4142	30.6586
COMP	overall	26.5570	9.9558	5.3237	72.7403
	between		9.0958	7.1929	60.5994
	within		4.1123	13.5947	40.1703
AGRI	overall	0.2801	0.3681	0.0087	3.2464
	between		0.3263	0.0225	1.8879
	within		0.1723	-0.6933	1.8963
IND	overall	1.3662	1.0860	0.1150	9.7473
	between		1.0179	0.2135	8.2985
	within		0.3870	-0.8007	3.6968
BUIL	overall	1.9134	1.1454	0.1163	6.8437
	between		0.7562	0.3716	4.6983
	within		0.8624	-1.1028	4.0588
SERV	overall	7.7295	3.0206	1.9816	17.2598
	between		1.7078	4.2028	12.5013
	within		2.4953	1.6251	13.3423
GDPpc	overall	56.8810	94.6511	2.0075	778.5317
	between		94.8475	2.1972	764.1077
	within		4.5574	5.1160	97.2092

Source: Stata 12 and own elaboration

Finally, the GDP is the most heterogeneous independent variable, which has a stronger difference between municipalities than within each municipality over time,

showing the inequalities and imbalances in the economic development of the different territories.

Considering the statistic model, our empirical results (Table 5.6) display two types of influences on the financial sustainability of local governments. Firstly, we have identified three variables whose increase can influence positively on the financial sustainability: the financial sustainability of the previous year (0.000), the labor force with intermediate education (0.002) and the companies concentration (0.000).

On the other hand, our results show some factors whose increase could reduce the financial sustainability of local governments. These factors are the dependent population under 16 (0.002), the dependent population over 65 (0.052), the immigrant population (0.022), the labor force with higher education (0.005), the unemployment rate in the agricultural sector (0.047), in the building sector (0.014) and in the service sector (0.018).

However, we have been unable to find an evident influence of the population growth (0.219), the unemployment rate in the industrial sector (0.891) and the GDPpc (0.351) on the financial sustainability of local governments,

Taking into account the socioeconomic variables, our study suggests that the intermediate education has a positive effect ($\beta = 9.73$) on the financial sustainability, meanwhile, the higher education has a negative effect ($\beta = -4.90$). Also, our results show that the companies concentration has a positive and statistically significant relationship with financial sustainability ($\beta = 2.32$).

In addition, we have confirmed that the unemployment rate has a negative influence on the finances of local governments, which is significant in the case of the agricultural sector, the building sector, and services sector. Finally, we have found no significant influence of GDPpc on the financial sustainability of local governments.

Table 5.6. The Model

Variable	Acronym	Coefficient	Std. Error
Financial Sustainability previous year	FS	0.3219***	0.0207809
Population Growth	GPOP	-4.674077	4.313791
Dependent Population under 16	DP16	-12.68625***	4.080064
Dependent Population over 65	DP65	-4.353538*	2.243429
Immigrant Population	INM	-1.532509**	0.6675593
Labor force with higher education	EDU_s	-4.90164***	1.392481
Labor force with intermediate education	EDU_m	9.730358***	3.133862
Companies concentration	CC	2.324703***	0.4986177
Unemployment rate in Agricultural sector	AGRI	-34.42532**	17.3073
Unemployment rate in the Industrial sector	IND	-0.7780327	5.666835
Unemployment rate in the building sector	BUIL	-20.16096**	8.218348
Unemployment rate in the services sector	SERV	-8.16308**	3.44417
GDPpc	GDPpc	-0.0364974	0.0391285
Constant	Cons	312.0584	201.9892

Source: Own elaboration based on the test performed in STATA12
Note: Wald chi2(21)= 3518.34***
Significant at 1%***; Significant at 5%**; Significant at 10% level*.
Fixed effect of time considered; All variables are treated as endogenous, except for the year dummies

5. Discussions

This study has carried on an empirical research with 139 Spanish Local Governments in order to identify factors that may influence the financial sustainability of these organizations. This study contributes to previous research with important and appropriate findings, for which we answer the following research questions:

RQ 1 – Does the human capital formation influence on the financial sustainability of Local Governments?

We have found a positive and statistically significant relationship between intermediate education and financial sustainability, although the higher education has a negative effect. In this sense, the intermediate education could influence on the financial

sustainability through its positive influence on productivity (Breton, 2013; Psacharopoulos & Patrinos, 2004), on the wealth of the economy (Agiomirgianakis, Asteriou, & Monastiriotis, 2002; Breton, 2013; Florida, Mellander, & Stolarick, 2008; Hansen & Winther, 2014; Psacharopoulos & Patrinos, 2004; Taşel & Bayarçelik, 2013), and hence, on the regional sustainable development and economic growth (Agiomirgianakis, Asteriou, & Monastiriotis, 2002; OECD, 2001; Taşel & Bayarçelik, 2013; Wilson, Tyedmers, & Pelot, 2007). This positive effect could respond to the entry age in the labor market, which is lower for intermediate graduates than for higher graduates since the duration of their studies is shorter. This fact could provoke a higher volume of intermediate graduates which are working and generating revenues which could contribute to the financial sustainability of the municipalities where they are working.

A possible explanation of this negative effect of the population with higher education could be due to both the great unemployment rate of this population during the years under study and to the high number of graduates who are hired with a similar remuneration to the intermediate educational levels.

RQ 2 – Does the companies concentration affect the financial sustainability of Local Governments?

Our findings achieved shown a positive and statistically significant relation with the companies concentration and it confirms prior research. So, we can confirm that the companies concentration influence positively on the financial sustainability, through the taxes collected (Sutaria & Hicks, 2004).

This favorable repercussion on the financial sustainability could be due to the invoiced revenues by companies implies an increase of national taxes such as the VAT and PIT, and based on the Spanish funding model, local governments have the right to

receive a partition of these national taxes. However, Spanish local governments do not bear the possible expenditures derived from the installation of companies, such as subventions and unemployment allowance, which are borne by regional or national budget.

RQ 3 – Does the unemployment rate influence on financial sustainability of Local Governments?

In this case, the unemployment rate has a negative influence on the financial of local governments, as the findings of previous literature and international organizations had shown (Benito, Bastida, & Muñoz, 2010; EU, 2012a; Zafra-Gomez, Lopez-Hernandez, & Hernandez-Bastida, 2009). However, our findings represent an advance because they support that the unemployment rate could affect specifically on the financial capacity of local governments to contribute to sustainable development.

In addition, we have found that unemployment rates, which most affect the municipal sustainability, are those related to the agricultural sector, followed by the unemployment rate in the building and services sector. However, we have found no evidence of the influence of the unemployment rate in the industrial sector.

These findings are consistent with the structure of economic sector in Spain. Firstly, the agricultural sector is supported by strong contributions from EU grants and subsidies and Spanish Governments (State, Regional or Local). On the other hand, nowadays, the building and services sector is taken into a severe economic crisis, when this sector was the main motor of the Spanish economy in 2004 and 2005 (INE, 2013). Finally, the weight of industrial sector in the Spanish economy has been falling over time (INE, 2013), and although it is showing improvement, it still has not influenced on economic growth.

Moreover, the unemployment allowances are not borne by local government but by regional and national governments. Therefore, the negative effect of the unemployment rate on local government financial sustainability could be due to the unemployed people pay fewer taxes and buy fewer houses and vehicles, and this fact causes a decrease in the participation in national taxes and in local taxes.

RQ 4 – Does the economic level of a region impact on the financial sustainability of Local Governments?

Regarding the economic level of a region we have found no significant influence of GDP on the financial sustainability, although previous studies showed a positive relationship with the public revenues and could help local governments to reduce the debt (Feld & Kirchgässner, 1999; Ghosh et al., 2013; Gupta, 2007; Potrafke & Reischmann, 2014). This result could be due to an increase in GDP does not always imply an increase in the national taxes that local governments participate. The increase in companies' invoicing does not always involve greater recruitment of personnel, but greater inversion in technologies which provokes that there is not an increase in revenues derived by PIT.

RQ 5 – Does the population structure affect financial sustainability of Local Governments?

Regarding the demographic factors, due to the insignificance effect of the population growth on the financial sustainability, our findings cannot confirm the findings of prior research. Therefore, although previous studies have pointed out that the population growth could increase the demand for services (Balatsky, Balatsky, & Borysov, 2015; Conard, 2013; XiaoHu Wang & Liou, 2009), and thus, it could provoke an increase in public borrowing and spending (Choi et al., 2010) and debt (Guillamón, Benito, & Bastida, 2011), we could affirm that this variable do not affect the financial sustainability and, therefore, the capacity of the local governments to the contribution to

the sustainable development. Therefore, the effect of the increase in population on financial sustainability could depend on its influence on national taxes (that local governments participate) and on the local taxes, which depend on the shopping behavior of citizens, such as property tax or tax on motor vehicles.

However, our findings regarding the dependent population are in the same line than previous studies and international organizations. Firstly, we can confirm the worry of the international organizations regarding this population (Eurostat, 2015; IFAC, 2012) because it has become a risk factor for the financial sustainability. Secondly, according to prior research this type of population could influence negatively on the financial sustainability through the negative influence on public expenditures and revenues (Choi et al., 2010; Gonçalves Veiga & Veiga, 2007), which are two dimensions of the financial sustainability (Carr & Karuppusamy, 2009; Zafra-Gómez, López-Hernández, & Hernández-Bastida, 2009).

In this regards, the influence of dependent population under 16 is higher than population over 65, because the Spanish education system is public, and the education is compulsory up to age 16, where the primary and high schools are financed with public funds, and the students received grants and subsidies. Hence, it has a negative influence on public financial expenditures and revenues, and finally, on financial sustainability.

Likewise, our finding about the immigrant population suggests that the negative effect of the increase of the public services demanded which could raise the accumulated debt (Guillamón, Benito, & Bastida, 2011; Schultz & Sjostrom, 2004) and public expenditures (Chapman, 2008; Choi et al., 2010) are higher than the positive effect that this population could imply regarding the population balance (Eurostat, 2015, 2016) or the public revenues.

Ultimately, our results show that the negative influence of the dependent population and immigrant population could be due to the expenditures associated with this type of population (subsidies, subventions, aids, childcare services…) are higher than their contribution to national and local taxes.

6. Conclusions

Prior research and international organizations (IMF, EU, OECD, UN) have concluded that the crisis of government finances caused serious imbalances between the objectives of the economic growth, which has led the financial sustainability of public services to become an issue of particular concern to researchers, policymakers, public managers, citizens and other stakeholders. In this context, the link between the efficiency of public management and regional economic development has led to both, prior research and international organizations, to recognize that governments are called to play a key role in promoting sustainable development, through environmental, economic and social policies based on the financial sustainability of public services.

Based on an empirical research on 139 local governments of a large population during the period 2006-2014, we have identified some factors that can influence on the financial sustainability in these governments.

Firstly, our findings show variables whose increase could favor the financial sustainability, specifically the population with intermediate educational level, the companies' concentration and the financial sustainability of the previous year. In parallel, we have obtained empirical evidence that supports the harmful effect of the increase of other variables on the financial sustainability, namely: population aged under 16, unemployment rate in agricultural, building and service sector, immigrant population, population with higher education and, to a lesser extent, population over 65 years.

These findings are unpublished and contribute to prior research regarding specific influencing factors on the financial sustainability of local governments. Indeed, several previous studies concluded the negative impact of some variables (dependent population, immigration, unemployment rate) on the budget deficit, debt or tax burden, but none of them analyzed their impact on the financial sustainability of public services. However, our findings have identified factors whose evolution over time (increase or decrease) could affect, in particular, to the financial sustainability of local governments.

In concordance with this, the possible explanations for our findings could be due to the entry age of young people to the labor market, as well as, the influence of population factors, unemployment, and dependent and immigrant population on the evolution of local public revenues derived from their participation in national and regional taxes and on the local direct taxes.

These findings are relevant to policymakers and public managers interested in promoting the financial sustainability in local governments. Firstly, our findings indicate that the behavior of some variables (mainly population under 16, immigrant population, companies concentration and unemployment rate by sector) could display alerting signals to take financial decisions that prevent any risk to the sustainability of public services.

Secondly, the influencing factors which we have identified can guide governmental policies aimed at promoting the financial sustainability, such as the promotion of employment in certain sectors, the incentives for business creation and the contribution to the educational level of the population.

In summary, our findings identify socioeconomic factors that affect the financial sustainability, revealing that the educational level of the population, the evolution of unemployment by sector of activity, the immigrant population and the dependent

population, are determining factors to be taken into account to assess, manage and enhance the financial sustainability of public services.

Finally, these findings have revealed the opportunity and interest for future research such as: a) comparative analysis of the effect of political factors on different administrative cultures; b) study of the influence of political factors on local government with smaller size, to determine the size effect; c) comparative analysis of the impact of political factors and socioeconomic factors in municipalities of different sizes.

References

Aceleanu, M., Serban, A., & Burghelea, C. (2015). "Greening" the Youth Employment—A Chance for Sustainable Development. *Sustainability*, *7*(3), 2623–2643. DOI: 10.3390/su7032623

Afonso, A., & Jalles, J. T. (2015). Fiscal sustainability: a panel assessment for advanced economies. *Applied Economics Letters*, *22*(11), 925–929. DOI: 10.1080/13504851.2014.987913

Agiomirgianakis, G., Asteriou, D., & Monastiriotis, V. (2002). Human capital and economic growth revisited: A dynamic panel data study. *International Advances in Economic Research*, *8*(3), 177–187. DOI: 10.1007/BF02297955

Alcaide-Muñoz, L., & Rodríguez-Bolívar, M. P. (2015). Determining Factors of Transparency and Accountability in Local Governments: A Meta-Analytic Study. *Lex Localis - Journal of Local Self-Government*, *13*(2), 129–160. DOI: 10.4335/13.2.129-160(2015)

Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The Review of Economic Studies*, *58*(2), 277. DOI: 10.2307/2297968

Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of Econometrics*, *68*(1), 29–51. DOI: 10.1016/0304-4076(94)01642-D

Balatsky, A., Balatsky, G., & Borysov, S. (2015). Resource Demand Growth and Sustainability Due to Increased World Consumption. *Sustainability*, *7*(3), 3430–3440. DOI: 10.3390/su7033430

Baltagi, B. H. (2008). *Econometric analysis of Panel Data* (4th ed.). Chichester, UK: John Wiley & Sons, Ltd.

Bank of Spain. (2014). *Boletín Estadístico 12/2014*. Madrid: Bank of Spain.

Baptista, R., Escária, V., & Madruga, P. (2007). Entrepreneurship, regional development and job creation: the case of Portugal. *Small Business Economics*, *30*(1), 49–58. DOI: 10.1007/s11187-007-9055-0

Barro, R. J. (1991). Economic Growth in a Cross Section of Countries. *The Quarterly Journal of Economics*, *106*(2), 407–443. DOI: 10.2307/2937943

Batabyal, A. A. (2016). Sustainable Growth and Development in a Regional Economy. *Regional Studies*, *50*(5), 922–923. DOI: 10.1080/00343404.2015.1117731

Benito, B., Bastida, F., & Muñoz, M. J. (2010). Explanatory factors of the municipal fiscal burden. *Revista de Contabilidad*, *13*(2), 239–283.

Benito, B., Brusca, I., & Montesinos, V. (2007). The harmonization of government financial information systems: the role of the IPSASs. *International Review of Administrative Sciences*, *73*(2), 293–317. DOI: 10.1177/0020852307078424

Benito, B., Vicente, C., & Bastida, F. (2015). The impact of the Housing Bubble on the growth of municipal debt: Evidence from Spain. *Local Government Studies*, *41*(6), 997–1016. DOI: 10.1080/03003930.2015.1048231

Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, *87*(1), 115–143. DOI: 10.1016/S0304-4076(98)00009-8

Breton, T. R. (2013). The role of education in economic growth: Theory, history and current returns. *Educational Research*, *55*(2), 121–138. DOI: 10.1080/00131881.2013.801241

Burritt, R. L., & Schaltegger, S. (2010). Sustainability accounting and reporting: Fad or trend? *Accounting, Auditing & Accountability Journal*, *23*(7), 829–846. DOI: 10.1108/09513571011080144

Cabaleiro, R., Buch, E., & Vaamonde, A. (2013). Developing a method to assessing the municipal financial health. *The American Review of Public Administration*, *43*(6), 729–751. DOI: 10.1177/0275074012451523

Capalbo, E., & Grossi, G. (2014). Assessing the influence of socioeconomic drivers on Italian municipal financial destabilization. *Public Money & Management*, *34*(2), 107–114. DOI: 10.1080/09540962.2014.887518

Carr, J. B., & Karuppusamy, S. (2009). Reassessing the Link Between City Structure and Fiscal Policy: Is the Problem Poor Measures of Governmental Structure? *The American Review of Public Administration*, *40*(2), 209–228. DOI: 10.1177/0275074009334641

Carrion-I-Silvestre, J. L. (2016). Fiscal Deficit Sustainability of the Spanish Regions. *Regional Studies*, *50*(10), 1702–1713. DOI: 10.1080/00343404.2015.1051017

Chaney, B. A., Mead, D. M., & Schermann, K. R. (2002). The new governmental financial reporting model: What if means for Analyzing Government Financial Condition. *Journal of Government Financial Management*, *51*(1), 26–31.

Chapman, J. I. (2008). State and Local Fiscal Sustainability: The Challenges. *Public Administration Review*, *68*, S115–S131. DOI: 10.1111/j.1540-6210.2008.00983.x

Choi, S. O., Bae, S.-S., Kwon, S.-W., & Feiock, R. (2010). County Limits: Policy Types and Expenditure Priorities. *The American Review of Public Administration*, *40*(1), 29–45. DOI: 10.1177/0275074008328171

CICA. (2009). *Public sector statements of recommended practice (SORP) 4.Indicators of Financial Condition*. Toronto: CICA.

Conard, B. (2013). Some Challenges to Sustainability. *Sustainability*, *5*(8), 3368–3381. DOI: 10.3390/su5083368

De la Fuente, Á. (2015). *Las finanzas autonómicas en 2014 y entre 2003 y 2014* (No. 1417). *Fundación de Estudios de Economía Aplicada (FEDEA) e Instituto de Análisis Económico (CSIC)*.

EC. (2009). *Sustainability Report 2009* (European Economy series). Luxembourg. https://doi.org/10.2765/87726

EC. (2011). *Council Directive 2011/85/EU of 8th November 2011 on requirements for budgetary frameworks of the Member States*. Brussels: EC.

EU. (2012a). *Fiscal Sustainability Report*. Brussels: European Union. https://doi.org/10.2765/19669

EU. (2012b). *Stability and Growth Pact*. Strasbourg: European Union.

Eurostat. (2015). *Sustainable development in the European Union*. Luxembourg: Publications Office of the European Union. DOI: 10.2785/999711

Eurostat. (2016). Migration and Migrant Population Statistics. In *Eurostat, Statistics Explained* (pp. 1–13).

Feld, L. P., & Kirchgässner, G. (1999). Public debt and budgetary procedures: top down or bottom up? Some evidence from Swiss municipalities. In J. M. Poterba & J. Von

Hagen (Eds.), *Fiscal institutions and fiscal performance* (pp. 151–180). Chicago: University of Chicago Press.

Florida, R., Mellander, C., & Stolarick, K. (2008). Inside the black box of regional development--human capital, the creative class and tolerance. *Journal of Economic Geography*, *8*(5), 615–649. DOI: 10.1093/jeg/lbn023

Fritsch, M., & Mueller, P. (2007). The effect of new business formation on regional development over time: the case of Germany. *Small Business Economics*, *30*(1), 15–29. DOI: 10.1007/s11187-007-9067-9

Fundación La Caixa. (2013). *Informe anual Obra Social "La Caixa" 2013*. Barcelona: Fundación "la Caixa".

Gallego, R., & Barzelay, M. (2010). Public Management Policymaking in Spain: The Politics of Legislative Reform of Administrative Structures, 1991-1997. *Governance*, *23*(2), 277–296. DOI: 10.1111/j.1468-0491.2010.01479.x

Ghosh, A. R., Kim, J. I., Mendoza, E. G., Ostry, J. D., & Qureshi, M. S. (2013). Fiscal Fatigue, Fiscal Space and Debt Sustainability in Advanced Economies. *The Economic Journal*, *123*(566), F4–F30. DOI: 10.1111/ecoj.12010

Gonçalves Veiga, L., & Veiga, F. J. (2007). Political business cycles at the municipal level. *Public Choice*, *131*(1–2), 45–64. DOI: 10.1007/s11127-006-9104-2

Government of Spain. (2012). *La programación regional y sus instrumentos. Informe anual 2010*.

Guillamón, M. D., Benito, B., & Bastida, F. (2011). Evaluación de la deuda pública local en España. *Revista Española de Financiación Y Contabilidad*, *XL*(150), 251–285.

Gupta, A. (2007). *Determinants of Tax Revenue Efforts in Developing Countries*. *IMF Working Papers* (Vol. 7). https://doi.org/10.5089/9781451867480.001

Hansen, H. K., & Winther, L. (2014). Regional development and the impact of the public sector in Denmark: employment growth and human capital. *Geografisk Tidsskrift-Danish Journal of Geography*, *114*(2), 156–168. DOI: 10.1080/00167223.2014.952750

Hendrick, R. (2004). Assessing and Measuring the Fiscal Heath of Local Governments: Focus on Chicago Suburban Municipalities. *Urban Affairs Review*, *40*(1), 78–114. DOI: 10.1177/1078087404268076

IFAC. (2012). *Reporting on the Long-Term Sustainability of a Public Sector Entity's Finances*. New York: IFAC.

IFAC. (2013). *Recommended Practice Guideline. Reporting on the Long-Term Sustainability of an Entity's Finances*. Toronto.

IFAC. (2014). *Handbook of International Public Sector Accounting Pronouncements*. New York: IFAC.

IMF. (2014). *De la estabilización a un crecimiento sostenido: Informe Anual 2014 del Fondo Monetario Internacional*. Washington, DC: IMF.

INE. (2013). Spanish Statistical Office. Retrieved July 29, 2016, from www.ine.es

Kloha, P., Weissert, C. S., & Kleine, R. (2005). Someone to Watch Over me: State Monitoring of Local Fiscal Conditions. *The American Review of Public Administration*, *35*(3), 236–255. DOI: 10.1177/0275074005277435

Lago-Peñas, S., & Fernández-Leiceaga, X. (2013). La finanzas autonómicas: Expansión y crisis, 2002-2012. *Papeles de Economía Española*, *138*, 129–146.

Levine, H., Justice, J. B., & Scorsone, E. A. (Eds.). (2013). *Handbook of Local Government Fiscal Health*. United States: Jones & Bartlett Learning.

Lutz, W., Sanderson, W. C., & O'Neill, B. C. (2004). Conceptualizing Population In Sustainable Development: From "Population Stabilization" To "Population

Balance." In *The End Of World Population Growth In The 21st Century: New Challenges For Human Capital Formation And Sustainable Development*. London: Earthscan.

Méndez, R., Abad, L. D., & Echaves, C. (2015). *Atlas de la crisis. Impactos socioeconómicos y territorios vulnerables en España*. Valencia: Tiranch Lo Blanch, Colección Crónica.

Ministry of Finance and Public Administration. (2014). *Report on the Compliance of the Objective of Budget Stability, and Public Debt and the Rule of Expenditures of FY2014*.

NAO. (2014). *Financial sustainability of local authorities. Department for Communities and Local Government*. London: The Stationery Office.

Navarro-Galera, A., Rayo-Cantón, S., Lara-Rubio, J., & Buendía-Carrillo, D. (2015). Loan price modelling for local governments using risk premium analysis. *Applied Economics*, *47*(58), 6257–6276. DOI: 10.1080/00036846.2015.1068924

OECD. (2001). *The Well-being of Nations. The Role of Human and Social Capital*. French: OECD.

Organic Law 2/2012 of 27 April 2012 on Fiscal Stability and Financial sustainability. (2012). Government of Spain.

Oto-Peralías, D., Romero-Ávila, D., & Usabiaga, C. (2013). Does fiscal decentralization mitigate the adverse effects of corruption on public deficits? *European Journal of Political Economy*, *32*, 205–231. DOI: 10.1016/j.ejpoleco.2013.07.005

Pirtea, M. G., Nicolescu, A. C., & Mota, P. R. (2013). An empirical study on public debt's determinants: Evidence from Romania. *Transylvanian Review of Administrative Sciences*, *9*(38), 144–157.

Potrafke, N., & Reischmann, M. (2014). *Fiscal Transfers and Fiscal Sustainability* (Public Finances No. 4716). *CESifo*. Munich.

Prillaman, S. A., & Meier, K. J. (2014). Taxes, Incentives, and Economic Growth: Assessing the Impact of Pro-business Taxes on U.S. State Economies. *The Journal of Politics*, *76*(2), 364–379. DOI: 10.1017/S0022381613001345

Psacharopoulos, G., & Patrinos, H. A. (2004). Returns to investment in education: a further update. *Education Economics*, *12*(2), 111–134. DOI: 10.1080/0964529042000239140

Rivenbark, W. C., Roenigk, D. J., & Allison, G. S. (2010). Conceptualizing Financial Condition in Local Government. *Journal of Public Budgeting, Accounting and Financial Management*, *22*(2), 149–177.

Rodríguez, M. P., Navarro, A., & Alcaide, L. (2014). New development: The role of accounting in assessing local government sustainability. *Public Money & Management*, *34*(3), 233–236. DOI: 10.1080/09540962.2014.908035

Rodríguez, M. P., Navarro, A., Alcaide, L., & López, M. D. (2014). Factors Influencing Local Government Financial Sustainability: An Empirical Study. *Lex Localis*, *12*(1), 31–54. DOI: 10.4335/12.1.31-54(2014)

Rodríguez, M. P., Navarro, A., Alcaide, L., & López, M. D. (2016). Risk Factors and Drivers of Financial Sustainability in Local Government: An Empirical Study. *Local Government Studies*, *42*(1), 29–51. DOI: 10.1080/03003930.2015.1061506

Roodman, D. (2009). How to xtabond2: An introduction to difference and system GMM in Stata. *The Stata Journal*, *9*(1), 86–136.

Royal Legislative Decree 2/2004 of 5 March, approving the revised text of the Law Regulating Local Tax Authorities. (2004). Government of Spain.

Ruiz-Huerta, J., & García, M. A. (2012). El endeudamiento de las Comunidades Autónomas: límites y problemas en el contexto de la crisis económica. *Revista D'estudis Autonòmics I Federals*, *15*, 124–162.

Schultz, C., & Sjostrom, T. (2004). Public Debt, Migration, and Shortsighted Politicians. *Journal of Public Economic Theory*, *6*(5), 655–674. DOI: 10.1111/j.1467-9779.2004.00185.x

Sutaria, V., & Hicks, D. a. (2004). New firm formation: Dynamics and determinants. *The Annals of Regional Science*, *38*(2), 241–262. DOI: 10.1007/s00168-004-0194-9

Taşel, F., & Bayarçelik, E. B. (2013). The Effect of Schooling Enrolment Rates on Economic Sustainability. *Procedia - Social and Behavioral Sciences*, *99*, 104–111. DOI: 10.1016/j.sbspro.2013.10.476

Wang, X., Dennis, L., & Tu, Y. S. (jeff). (2007). Measuring Financial Condition: A Study of U.S. States. *Public Budgeting & Finance*, *27*(2), 1–21. DOI: 10.1111/j.1540-5850.2007.00872.x

Wang, X., & Liou, K. T. (2009). Assessing the Change in Financial Condition: An Analysis of Panel Data From U.S. States. *Journal of Public Budgeting, Accounting and Financial Management*, *21*(2), 165–197.

Williams, B., Wilmshurst, T., & Clift, R. (2010). The Role Of Accountants In Sustainability Reporting – A Local Government Study. In *Sixth Asia Pacific Interdisciplinary Research in Accounting Conference* (pp. 1–18). Sydney: University of Sydney, Australia.

Wilson, J., Tyedmers, P., & Pelot, R. (2007). Contrasting and comparing sustainable development indicator metrics. *Ecological Indicators*, *7*(2), 299–314. DOI: 10.1016/j.ecolind.2006.02.009

Wooldridge, J. M. (2009). *Introductory econometrics: A modern approach* (4th ed.). Canada, USA: Paraninfo Cengage Learning.

Zafra-Gomez, J. L., Lopez-Hernandez, A. M., & Hernandez-Bastida, A. (2009). Evaluating financial performance in local government: maximizing the benchmarking value. *International Review of Administrative Sciences*, *75*(1), 151–167. DOI: 10.1177/0020852308099510

Zafra-Gómez, J. L., López-Hernández, A. M., & Hernández-Bastida, A. (2009). Developing an alert system for local governments in financial crisis. *Public Money & Management*, *29*(3), 175–181. DOI: 10.1080/09540960902891731

Zhu, L. (2013). Panel Data Analysis in Public Administration: Substantive and Statistical Considerations. *Journal of Public Administration Research and Theory*, *23*(2), 395–428. DOI: 10.1093/jopart/mus064

Part IV:

The

Financial Sustainability

in other

Governments

Chapter 6:

A Comparative Analysis of Drivers and Risk Factors for Financial Sustainability in different Administrative Cultures and in Governmental Levels

1. Introduction

International Organizations have pointed out that the financial and economic crisis has undermined the capacity of governments to continue providing public services at any level of government. Indeed, the unsustainable tendency of all the governmental levels to spend more than they collect (Bailey, Valkama, & Salonen, 2014) has created significant imbalances in the economic growth among the levels of governments and regions (Méndez, Abad, & Echaves, 2015).

The previous chapters analyse the financial sustainability and its influential factors in Spanish local governments since Spain has been a country which suffered strongly the consequences of the crisis and it has been reflected more intensively in the local government (Benito, Vicente, & Bastida, 2015; EU, 2012a). However, considering that the global financial and economic crisis has hit not only this country and the critical financial situation of other Spanish governmental levels, a further analysis should be carried out. In this regard, the analysis of the financial sustainability and its influential factors in regions with another administrative culture and in the other levels of public administrations, has become essential to determine whether the influential factors for financial sustainability are the same regardless the specific characteristics of each public administration.

Therefore, following the concerns of the International Organizations about the influence of the socio-demographic structure on public finances (Eurostat, 2015, 2016; FASAB, 2014; IFAC, 2016) we will try to identify if the socio-demographic factors such as the population size, the population density, the dependent population (under 16 and over 65), the foreign population, and the unemployment rate, influence in the same way on English local authorities and/or on the regional governments as on the Spanish local governments.

According to the above mentioned, the first stage of this study will be focused on the comparative analysis of the different patterns that follows each potential factor of local governments' financial sustainability considering the administrative culture. In this respect, the European countries, not only Spain, have suffered the consequences of the global financial and economic crisis (EU, 2012a, 2015). However, the measures established in each country to bear the critical financial situation of the public administration has been different. The different measures taken could be influenced by the differences in the administrative culture or because the influential factors for the financial sustainability are different. Therefore, a comparative analysis between these factors in different countries could help determine if the administrative culture is an influential factor for the financial sustainability.

In this regard, a country with a similar management of public administration but with a different administrative culture from Spain could be The United Kingdom. The management model of Spain based on the 'New Public Management' (NPM) is closely associated with the Westminster model implemented in the United Kingdom which concentrates executive power (Laffin, 2016). Moreover, it could be related to the legislative reforms of administrative structures carried out in the 1990s (Gallego & Barzelay, 2010) and the managerial devolution process implemented in Spain (Bastida & Benito, 2006).

In addition, the administrative cultures of these countries belong to the Anglo-Saxon and the Southern European culture, respectively, which have great differences (Ortiz-Rodriguez, Navarro-Galera, & Alcaraz-Quiles, 2015). In fact, the difference of their organizational culture could influence in aspects of their administrative behaviour such as patterns of inter-organizational interaction and reform (Ban, 1995),

implementation (Ginger, 1998), and entrepreneurship (Moon, 1999), which could influence the policies taken and the way they face difficult situations.

So, a comparative analysis between the influential factors of Spanish local governments and English unitary local authorities could help determine the influence of the administrative culture on the management of the financial sustainability, answering this research question:

RQ 3.1 Are the incentives for the financial sustainability the same regardless the administrative culture?

Moreover, analysing the behaviour of each potential factor for the financial sustainability taking into account the different governmental levels, it has become interesting to understand the financial position of a whole country. In this regard, the Spanish public sector is divided into three levels: The State, 17 Regional Governments and 8,124 municipalities. The relation between them is based on competencies, thus, each governmental level must meet their competencies and they are not hierarchised. We will consider regional governments to be compared with local governments because they are in charge of managing regional public policies and providing the public services set out in their competencies, and even they have to fund some public services at the local level.

Spain has suffered a duplication in the delivery of services between these governments, oversizing the public sector size and increasing the public revenues and expenditures (Bank of Spain, 2014). Also, due to their economic gaps, different targets of deficit, debts, and expenditures have been stipulated for the both governmental levels through the Law 2/2012, Stability and Financial Sustainability (Stability and Growth Pact of European Commission) (EU, 2012b). However, despite the regulatory reform on the size and volume of services provided, only local governments have met their objectives in the recent years (Ministry of Finance and Public Administration, 2014b).

So, it could be of interest to analyse whether the factors which affect local government are the same that are affecting regional ones trying to respond to this question:

RQ 3.2 Are the incentives for the financial sustainability the same regardless the competencies and the funding model of each governmental level?

The rest of the chapter is organised as follows. The next section explains the sample, the variables used in each analysis, and the methodology. The third section describes the preliminary results of each comparative analysis. And the final section refers to the main conclusions of the results obtained.

2. Empirical Research

2.1. Sample

Regarding local governments and in accordance with the numerous prior empirical studies about local public finance (Benito, Bastida, & Muñoz, 2010; Guillamón, Benito, & Bastida, 2011; Rodríguez et al., 2016), we have chosen to examine exclusively local governments with a relatively large population (over 50,000 inhabitants, capitals, regional capitals, or municipalities with headquarters of regional institutions are located - Article 121 of Local Government Regulatory Act 7/1985, amended by the Local Government Modernization Act 57/2003). As mentioned in the previous chapters, among the other reasons, these local governments represent more than 50 % of Spanish population (Fundación La Caixa, 2013), thus a broader range of stakeholders are involved (EU, 2012b, 2015).

Therefore, regarding Spanish local governments, both research questions, ***RQ 3.1*** and ***RQ 3.2*** consider 138 local governments during the period from 2006 to 2014.

Although there are 148 local governments in total that meet these conditions, only 138 had the available data.

In addition, to resolve the ***RQ 3.1*** we have collected data from the English unitary local authorities. This type of organizations provide the highest amount of services (Local Government Association, 2011) and, according to prior research, seems to improve the financial sustainability (Andrews, 2015). So, our sample includes 55 English unitary authorities (excluding Welsh and Scottish ones).

Finally, with the aim at analysing the ***RQ 3.2***, we have also considered the 17 Spanish regional governments in the same period, since we have been able to obtain data from all of them. So, our sample is composed of 17 RGs during the period 2006-2014.

2.2. Variables

Dependent variable

As we have explained during the previous chapters the dependent variable is the financial sustainability measured through the adjusted income statement which is made on an accrual basis. Indeed, following International Organizations (EC, 2011; EU, 2012a; IFAC, 2013) and previous studies (Navarro-Galera et al., 2016; Rodríguez et al., 2016), the information included in the income statement reflects a direct approach to two dimensions of financial sustainability (revenues and services). Moreover, it reflects indirectly the debt dimension since it involves the financial expenditure such as the interests of the debt and there is a link between the debt and the volume of expenditure.

However, the governmental income statements include extraordinary activities which are not expected to be repeated in the foreseeable future within the environment in which the organization operates (Rodríguez et al., 2014; Williams, Wilmshurst, & Clift, 2010). Therefore, the effect of revenues and expenditures deriving from extraordinary

activities must be corrected to make the income statement a more reasonable measure of the financial sustainability (Table 6.1).

Hence, our indicator to measure the financial sustainability is calculated as follows (Table 6.1):

Table 6.1. Financial sustainability indicator: Adjusted income statement

Concept	Amount
Income statement for the financial year obtained by applying the current IPSAS	(1)
Negative entries for extraordinary activities	(2)
Positive entries for extraordinary activities	(3)
Corrected income statement for the financial year (intergenerational equity for financial sustainability)	(1) +(2)–(3)
Source: (Rodriguez et al 2014, 2016; Navarro-Galera 2016)	

In addition, in order to address the ***RQ 3.1*** and to make comparable the Spanish local governments financial sustainability with the English ones, we have removed the revenues and expenditures of the services that only English local authorities provide (Public Health, Education and Children, and Pension services).

Therefore, following the recommendations of the main International Organizations (EU, 2015; IFAC, 2011, 2013), we have quantified the financial sustainability to maximize its utility using the adjusted annual income statements.

Independent variables

Our independent variables are based on variables that have been supported and described in the previous chapters, concretely in chapters 4 and 5. Therefore, we are going to mention in this chapter only the definition of the independent variables used as well as their measurement through the Table 6.2.

Table 6.2. Variables

Variables	Acronym	Description	Source	Calculation
Financial Sustainability	FS	Adjusted Income Statement results per capita	Government financial statement[1 2 3]	Corrected income statement for the financial year per capita
Population	LN_POP	Population residing in the region of the government considered	INE[1]; ONS[2]	Neperian logarithm of the population
Population density	PD	Population residing in the region of the government considered per km^2	INE[1] ; ONS[2]	Population divided by km^2
Dependent population 16 years	DP16	Population aged under 16 years residing in the region of the government considered	INE[1]; ONS[2]	Population aged under 16 years/Labour force
Dependent population 65 years	DP65	Population aged over 65 years residing in the region of the government considered	INE[1]; ONS[2]	Population aged over 65 years/Labour force
Foreign population	IP	Foreign population residing in the region of the government considered	INE[1]; ONS[2]	% Immigrant population
Unemployment rate	UR	Unemployment rate in the region of the government considered	SEPE[1]; ONS[2];Nomis[2]	Unemployed population /Labour force

Note: INE: Statistic Institute of Spain (www.ine.es)
SEPE: Public Employment Service of Spain (www.sepe.es)
ONS: Office for National Statistics (www.ons.gov.uk)
Nomis: official labour market statistics (www.nomisweb.co.uk)
Note: 1: Spanish data source; 2: English data sources; 3: Data obtained from the website of each government; * We used the English Local Authorities GVA per capita as a proxy of the GDP.
Source: Own elaboration

2.3. Statistical Model and Methodology

To achieve the aim of our research we used a panel data methodology which has been the technique more frequently used by the latest research in public finances (Zhu, 2013). It reduces multicollinearity and improves the efficiency of the model (Wooldridge, 2009). So, we propose in our work the following models:

RQ 3.1 Models

$$(1)\ FS_{it} = \alpha + \beta_1 LNPO_{it} + \beta_2 PD_t + \beta_3 DP16_{it} + \beta_4 DP65_{it} + \beta_5 FP_{it} + \beta_6 UR_{it} + u_i$$

$$(2)\ FS_{kt} = \alpha + \beta_1 LNPO_{kt} + \beta_2 PD_t + \beta_3 DP16_{kt} + \beta_4 DP65_{kt} + \beta_5 FP_{kt} + \beta_6 UR_{kt} + u_k$$

where “i” and “k” are the i-th/k-th transversal units (Spanish local governments and English ones, respectively) and “t” is the time (year).

RQ 3.2 Models

$$(1)\ FS_{it} = \alpha + \beta_1 LNPO_{it} + \beta_2 PD_t + \beta_3 DP16_{it} + \beta_4 DP65_{it} + \beta_5 FP_{it} + \beta_6 UR_{it} + u_i$$

$$(2)\ FS_{kt} = \alpha + \beta_1 LNPO_{kt} + \beta_2 PD_t + \beta_3 DP16_{kt} + \beta_4 DP65_{kt} + \beta_5 FP_{kt} + \beta_6 UR_{kt} + u_k$$

where "i" and "k" are the i-th/k-th transversal units (local and regional governments, respectively) and "t" is the time (year).

The error (u_{it}) is composed by e_{it} (the error term) and α_i (unobservable heterogeneity) designed to measure unobservable characteristics of the local governments that have a significant impact on financial sustainability.

Following prior research, the GMM estimator developed by Arellano and Bover (1995) and Blundell and Bond (1998) considers the possible endogeneity problems that could be presented in the dependent and independent variables (Wooldridge, 2009). Furthermore, we applied the two-step estimation with the Windmeijer's correction which is asymptotically efficient and robust to whatever patterns of heteroscedasticity and cross-correlation (Roodman, 2009; Windmeijer, 2005).

Moreover, we have performed the respective test (Table 6.3) which confirms the consistency and robustness of our four models. Therefore, we obtained robust results that allow us to properly support the findings related to the purpose of this chapter, controlling any type of endogeneity that could exist between the variables (Arellano and Bond, 1991; Hansen, 1982).

Table 6.3. Statistical tests

Test		RQ 4.2 Spanish Local Governments	RQ 4.2 English Local Governments	RQ 4.1 Local Governments	RQ 4.1 Regional Governments
Arellano test (1)	**z**	-6.53	-2.66	-6.53	-3.32
	Pr	0.002	0.005	0.002	0.001
Arellano test (2)	**z**	-0.03	0.3	-0.03	0.15
	Pr	0.973	0.764	0.973	0.882
Hansen test	**chi**	46.321	77.77	46.321	41.23
	Pr	0.228	0.391	0.228	0.417

Note: The Arellano–Bond test checks the serial correlation in the first-differenced errors.
The Hansen test checks the overidentifying restrictions which tests the validity of the instruments
Source: Stata 12

3. Analysis of results

3.1. Analysis of results of the *RQ 3.1*

This analysis allows us to corroborate, as mentioned in the previous chapters that the population size, the population under 16, the foreign population, and the unemployment rate could be considered as risk factors for Spanish local governments. Moreover, we could identify that the population size, the population under 16, and the unemployment rate could be considered as risk factors for English local authorities too. In addition, we have found that the population density and the dependent population over 65 have no influence on neither Spanish nor English local governments (Table 6.4).

Analysing this first research question, our study has been able to identify the population size, the dependent population under 16, and the unemployment rate as a variable with a general influence in local governments.

Moreover, it should be considered in this analysis that for all studied governments (Spanish local governments and English local ones) the financial sustainability of the previous year has a positive effect on the financial sustainability of the current year (Table 6.4).

This positive effect could have a twofold meaning. First, we can consider that if the financial sustainability of the previous year was positive, the expectations are to maintain or to improve the financial sustainability for the following year. So, regardless the administrative culture, there are more possibilities that a government with a positive financial sustainability maintains and/or improves it in the coming years.

However, if the financial sustainability of the previous year was negative, it could be more difficult to recover a positive financial sustainability of the coming years. That means a government, regardless its administrative culture, could find more difficulties to recover it from a negative financial sustainability in the coming years when its financial sustainability in the current year is negative.

Table 6.4. *RQ 3.1* Model

	Spanish Local Governments		**English Local Authorities**	
Financial sustainability lagged one period	0.16	***	0.10	**
Population	-132.45	**	-81.33	**
Population Density	0.01		0.02	
Dependent population under 16	-7.25	**	-61.78	***
Dependent population over 65	-1.08		-6.29	
Foreign population	-12.42	**	-11.24	
Unemployment rate	-6.22	***	-49.54	*
Constant	2026.21	**	2899.37	***

Note: (1) GMM-Dynamic Panel data–Two Step
(2) Fixed effect of time considered; All independent variables are considered as endogenous variables
(3) We used the option collapse to reduce the instruments (Roodman, 2009)
(4) Stata 12:*P-value<0.10,** P-value <0.05,*** P-value <0.01

3.2. Analysis of results of the *RQ 3.2*

Through this study, we have been able to identify socio-demographic factors which could be considered as a driving or risk factors for the financial sustainability of these public entities (Table 6.5). Firstly, as previously mentioned, we have corroborated that the population size, the dependent population under 16, the foreign population, and the unemployment rate have a negative influence on the financial sustainability of the local governments. Moreover, the population size, the dependent population over 65, and

the foreign population are factors with a negative influence on the financial sustainability of regional governments. However, the population density only has a positive influence on the financial sustainability of regional governments.

So, we have been able to confirm that the population and the foreign population could be considered as risk factors in the local and regional governments.

In addition, the same as the prior model, for both governmental levels (Spanish local and regional governments) the financial sustainability of the previous year has a positive effect on the financial sustainability of the current year (Table 6.5).

Table 6.5. *RQ 3.2* Model

	Local Governments		Regional Governments	
Financial sustainability lagged one period	0.1693	***	0.2086	***
Population	-132.4505	**	-12398.8	**
Population Density	0.0111		12.7726	***
Dependent population under 16	-7.2512	**	40.0704	
Dependent population over 65	-1.0822		-117.5854	**
Foreign population	-6.2275	**	-112.1973	***
Unemployment rate	-9.0988	***	-15.0761	
Constant	2026.21	**	180631.7	**

Source: Own elaboration based on the test performed in STATA12
Note: (1) GMM-Dynamic Panel data–Two Step
(2) Fixed effect of time considered;
(3) We used the option collapse to reduce the instruments of the model (Roodman, 2009)
(4) Stata 12: *P-value<0.10, ** P-value<0.05, *** P-value<0.01

4. Discussions and Conclusions of this preliminary study

4.1. Discussions and Conclusions *RQ 3.1*

This research investigates whether the influential factors for financial sustainability depend on the administrative culture of each government or those factors which affect financial sustainability are the same regardless the administrative culture of each government. Therefore, we have analysed the drivers and risk factors for the

financial sustainability in local governments of two European countries (The UK and Spain) in a comparative analysis.

Our findings indicate that there are demographic variables such as population size, the population under 16, and the unemployment rate that influence financial sustainability regardless the administrative culture of the local government. Moreover, there are some variables such as the population density and the dependent population over 65 that are not influencing factors for financial sustainability of local governments. That means that these variables will influence or not the financial sustainability regardless the country that each local government belongs to.

Our findings also identified that the other variables, such as foreign people (for Spanish local governments), could be considered as risk factors for financial sustainability related to the administrative culture. The difference between the influence of the % of the foreign population could be explained by the type of foreign people that visit each country. While foreigners in Spain use to be vacationers who only reside in Spain for a short period, people who arrive in the UK have the intention to find a job and to reside for a long period. This means that the foreign people in the UK could create new businesses which implies an increase of public taxes. However, the possible benefit that vacationers could bring to Spain, could be compensated by the public services that they use. Moreover, it could be interesting to highlight that the immigrants in the UK (631,991 people in 2014) are twice that in Spain (305,454 people in 2014). On the other hand, the emigrants in Spain (400,430 people in 2014) were considerably higher than in the UK (312,905 people in 2014). This way, we can determinate that there are variables that influence on financial sustainability considering their specific characteristics.

4.2. Discussions and Conclusions *RQ 3.2*

This study tries to identify whether the influential factors for financial sustainability depend on the competencies of each governmental level or those factors which affect financial sustainability are the same regardless the level of the public administration.

According to our findings, there are demographic variables that are considered as risk factors for financial sustainability regardless the level of government such as population size and foreign population. However, there are specific variables that only influence financial sustainability depending on the specific characteristic and competencies of each governmental level. For example, the dependent population, population density or unemployment rate.

Regarding the dependent population, while dependent population under 16 is a risk factor for local governments, dependent population over 65 is a risk factor for regional ones. The difference on the effect of the dependent population between levels of governments is perhaps produced by the types of services that each level of government is providing. In this regard, local governments are responsible for providing services which could be more used by young people such as the participation in monitoring the compulsory schooling and the promotion of parks and public gardens, of sports and leisure facilities, and of culture and cultural facilities. Following the data provided by the Ministry of Finance and Public Administration website, local governments dedicate around the 13% of their budgets to services such as education, culture and sport which are more demanding for youth people, while approximately 7% of their budgets are associated with the Social Healthcare and the Social Protection and Social Safety.

So, this corroborates that the expenditure of local governments for youth population is usually greater than for elderly population and it could be reasonable that

dependent population under 16 affects negatively on local governments public finances while there is an insignificant influence of the dependent population over 65.

On the other hand, although the regional governments are responsible for providing the mandatory education, their other two main competencies are the Social Assistance and the Health Care, which are probably more used by elderly people. Indeed, while approximately 35% and 10% of the regional governments' budget (excluding EAGF funds and Local Financial Intermediation) are dedicated to the Social Healthcare and Social Protection and Social Safety, respectively, 20% are dedicated to the Educational Service needs (Ministry of Finance and Public Administration, 2014a).

So, taking into account these figures, we can consider that the regional governments spend more on the elderly population than on the youth population. Thus, the dependent population over 65 affects negatively on RGs public finances while there is an insignificant influence of the dependent population under 16.

On the other hand, while the population density seems to be a driver for the financial sustainability of regional governments, the unemployment rate is considered as a risk factor for the financial sustainability of local ones.

Regarding the population density, it seems that this variable is more heterogeneous in local than in regional governments. That means that in our sample there are local governments with a high population density and municipalities with a low population density but all of them must provide the same services to citizens. So, the possible benefit of the most populous municipalities could be compensated for the effort that the less populous municipalities have to make to provide the same services to citizens.

However, it can be observed that in regional governments the fact of being more populous has a positive effect on the financial sustainability. In this regard, taking into account that the population density in the level is more homogeneous, regional

governments could take higher advantages of the economies of scale and reduce the expenditures per capita (Andrews, 2015), since those which have to provide the same public services have approximately the same population density. Therefore, the impact of these benefits could be the clearest and the most significant in the regional governments.

Analysing the unemployment rate, the employed people use the services provided by the local governments which are the closest to citizens (such as street lighting, waste collection, public parks, social services, cultural services and environmental protection). However, employed people, as well as the dependent people, fail to finance collectively the public services that they receive from the local governments.

Although regional governments provide unemployed people with some specific services such as the access to the job offers and training courses, the cost of these services is lower than the services provided by the local governments. For instance, the facilities and the staff needed in the provision of this type of services are less in comparison with the infrastructure and the public employees that are necessary to maintain all the public services provided by the local governments. That could be the reason why the employed people affect negatively only in local governments.

4.3. General Conclusions

In the current context of the financial and economic crisis, which has led to large public budget gaps and an increase of public debt levels (EU, 2015), the discussions and the assessment of the financial sustainability of public entities has become a relevant issue in all levels of governments and regions (EU, 2015).

Having considered two comparative analyses, one refers to the administrative culture and the other to the governmental level, our findings allow us to identify that there

are several factors that influence financial sustainability regardless the governmental level or the country that the local government belongs to.

In this regard, the population size could be identified as a risk factor for financial sustainability regardless the country or the level of government, since we can confirm its negative influence on Spanish local governments, English local authorities, and Spanish regional governments.

Moreover, our analysis confirms that there are some specific factors which influence financial sustainability considering the administrative culture of the government. In this regard, our findings have identified that the foreign population only affects on Spanish governments (both local and regional governments). That means this is an influential factor for financial sustainability depending on the country that the studied government belongs to.

On the other hand, there are influential demographic factors for financial sustainability associated with the governmental level, i.e., they could be influential factors or not depending on the competencies that each governmental level has. Whereas the dependent population over 65 (risk factor) and the population density (driving factor) are associated with the specific competencies of the regional governments, the unemployment rate (risk factor) and the dependent population under 16 (risk factor) are related to the competencies of local governments.

In conclusion, although financial sustainability is a vigorous debate nowadays in the public area, few studies have been focused on a comparative analysis of drivers and/or risk factors that could explain this issue in different administrative cultures and/or in different levels of government.

In this regard, our results confirm the International Organizations assertions about the influence of demographic variables on financial sustainability (EU, 2012a, 2012b;

IFAC, 2013). The current demographics changes are new challenges for social policy which likely become even more important in the future (Eurostat, 2015) regardless the administrative culture of a country and/or the governmental level since population size is a risk factor for all the governments analysed.

Moreover, there are specific demographic factors that influence financial sustainability depending on the level of government and the administrative culture of a country. So, the model of the public administration funding, the management of the public administration and the established public policies should consider the demographic factors.

In addition, although the demographics factors are expected to be variables beyond the control of the local government, policymakers and public managers should take actions considering information about their evolution and their effect on financial sustainability. That could help adopt the most appropriated policies with the aim at achieving the financial sustainability in all the governments.

References

Andrews, R. (2015). Vertical consolidation and financial sustainability: evidence from English local government. *Environment and Planning C: Government and Policy*, *33*(6), 1518–1545. DOI: 10.1177/0263774X15614179

Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of Econometrics*, *68*(1), 29–51. DOI: 10.1016/0304-4076(94)01642-D

Bailey, S., Valkama, P., & Salonen, S. (2014). The EU's public finance crisis: causes, consequences and cure. *Public Money & Management*, *34*(2), 83–90. DOI: 10.1080/09540962.2014.887514

Ban, C. (1995). *How Do Public Managers Manage? Bureaucratic Constraints, Organizational Culture, and the Potential for Reform*. San Francisco: Jossey-Bass.

Bank of Spain. (2014). *Boletín Estadístico 12/2014*. Madrid: Bank of Spain.

Bastida, F., & Benito, B. (2006). Financial reports and decentralization in municipal governments. *International Review of Administrative Sciences*, *72*(2), 223–238. DOI: 10.1177/0020852306064611

Benito, B., Bastida, F., & Muñoz, M. J. (2010). Explanatory factors of the municipal fiscal burden. *Revista de Contabilidad*, *13*(2), 239–283.

Benito, B., Vicente, C., & Bastida, F. (2015). The impact of the Housing Bubble on the growth of municipal debt: Evidence from Spain. *Local Government Studies*, *41*(6), 997–1016. DOI: 10.1080/03003930.2015.1048231

Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, *87*(1), 115–143. DOI: 10.1016/S0304-4076(98)00009-8

EC. (2011). *Council Directive 2011/85/EU of 8th November 2011 on requirements for budgetary frameworks of the Member States*. Brussels: EC.

EU. (2012a). *Fiscal Sustainability Report*. Brussels: European Union. https://doi.org/10.2765/19669

EU. (2012b). *Stability and Growth Pact*. Strasbourg: European Union.

EU. (2015). *Fiscal Sustainability Report*. Brussels: European Union.

Eurostat. (2015). *Sustainable development in the European Union*. Luxembourg: Publications Office of the European Union. DOI: 10.2785/999711

Eurostat. (2016). Migration and Migrant Population Statistics. In *Eurostat, Statistics Explained* (pp. 1–13).

FASAB. (2014). *FASAB Handbook of Federal Accounting Standards and Other Pronouncements, as Amended*.

Fundación La Caixa. (2013). *Informe anual Obra Social "La Caixa" 2013*. Barcelona: Fundación "la Caixa".

Gallego, R., & Barzelay, M. (2010). Public Management Policymaking in Spain: The Politics of Legislative Reform of Administrative Structures, 1991-1997. *Governance*, *23*(2), 277–296. DOI: 10.1111/j.1468-0491.2010.01479.x

Ginger, C. (1998). Interpreting Roads in Roadless Areas:Organizational Culture, Ambiguity, and Change in Agency Responses to Policy Mandates. *Administration & Society*, *29*(6), 723–757. DOI: 10.1177/009539979802900610

Guillamón, M. D., Benito, B., & Bastida, F. (2011). Evaluación de la deuda pública local en España. *Revista Española de Financiación Y Contabilidad*, *XL*(150), 251–285.

IFAC. (2011). *Reporting on the Long-Term Sustainability of a Public Sector Entity's Finances*. New York: IFAC.

IFAC. (2013). *Recommended Practice Guideline. Reporting on the Long-Term Sustainability of an Entity's Finances*. Toronto: IFAC.

IFAC. (2016). *Handbook of International Public Sector Accounting Pronouncements*. New York: IFAC.

Laffin, M. (2016). Planning in England: New Public Management, Network Governance or Post-Democracy? *International Review of Administrative Sciences*, *82*(2), 354–372. DOI: 10.1177/0020852315581807

Local Government Association. (2011). *The LGA quick guide to local government*. UK: Local Government Association Public Affairs and Campaigns Team.

Méndez, R., Abad, L. D., & Echaves, C. (2015). *Atlas de la crisis. Impactos socioeconómicos y territorios vulnerables en España*. Valencia: Tiranch Lo Blanch, Colección Crónica.

Ministry of Finance and Public Administration. (2014a). *Proyecto Presupuestos Generales de las Comunidades Autónomas - 2014 -*. Spain: Ministry of Finance and Public Administration.

Ministry of Finance and Public Administration. (2014b). *Report on the Compliance of the Objective of Budget Stability, and Public Debt and the Rule of Expenditures of FY2014*. Spain: Ministry of Finance and Public Administration.

Moon, M. J. (1999). The Pursuit of Managerial Entrepreneurship: Does Organization Matter? *Public Administration Review*, *59*(1), 31. DOI: 10.2307/977477

Navarro-Galera, A., Rodríguez-Bolívar, M. P., Alcaide-Muñoz, L., & López-Subires, M. D. (2016). Measuring the financial sustainability and its influential factors in local governments. *Applied Economics*, *48*(41), 1–15. DOI: 10.1080/00036846.2016.1148260

Ortiz-Rodriguez, D., Navarro-Galera, A., & Alcaraz-Quiles, F. J. (2015). The Influence of Administrative Culture on Sustainability Transparency in European Local Governments. *Administration & Society*. DOI: 10.1177/0095399715616838

Rodríguez, M. P., Navarro, A., Alcaide, L., & López, M. D. (2014). Factors Influencing Local Government Financial Sustainability: An Empirical Study. *Lex Localis*, *12*(1), 31–54. DOI: 10.4335/12.1.31-54(2014)

Rodríguez, M. P., Navarro, A., Alcaide, L., & López, M. D. (2016). Risk Factors and Drivers of Financial Sustainability in Local Government: An Empirical Study. *Local Government Studies*, *42*(1), 29–51. DOI: 10.1080/03003930.2015.1061506

Roodman, D. (2009). How to xtabond2: An introduction to difference and system GMM in Stata. *The Stata Journal*, *9*(1), 86–136.

Williams, B., Wilmshurst, T., & Clift, R. (2010). The Role Of Accountants In Sustainability Reporting – A Local Government Study. In *Sixth Asia Pacific Interdisciplinary Research in Accounting Conference* (pp. 1–18). Sydney: University of Sydney, Australia.

Windmeijer, F. (2005). A finite sample correction for the variance of linear efficient two-step GMM estimators. *Journal of Econometrics*, *126*(1), 25–51. DOI: 10.1016/j.jeconom.2004.02.005

Wooldridge, J. M. (2009). *Introductory econometrics: A modern approach* (4th ed.). Canada, USA: Paraninfo Cengage Learning.

Part V:

Conclusions

and

Future Research

Chapter 7:

Final Conclusions and Future Research

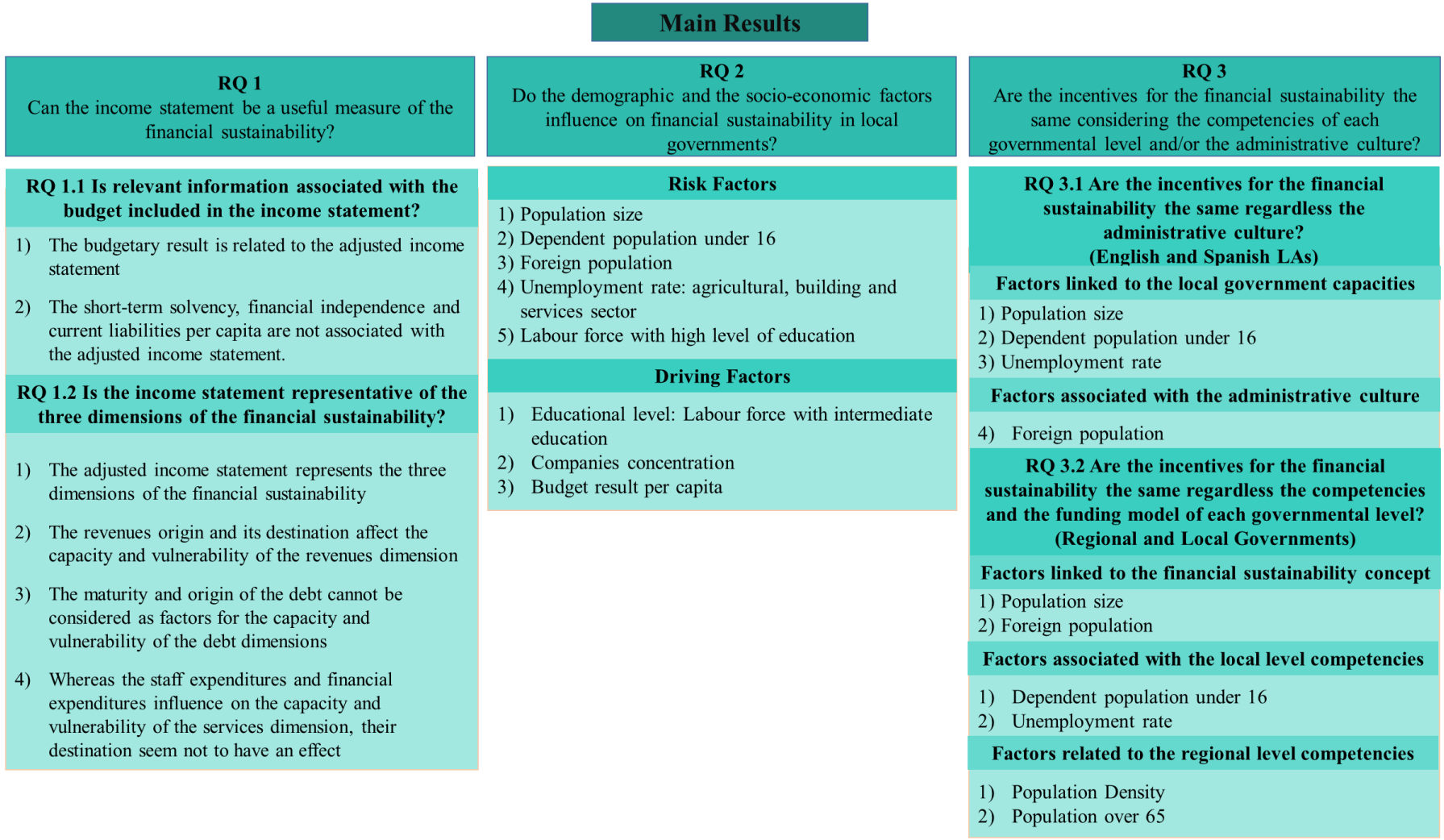
1. Conclusions

The financial crisis that hit strongly Spain in 2008, has led public administrations to a difficult financial position. As it has been described in chapter 1, significant changes in the financial position and in the socio-demographic structure of the governments have been detected in the crisis period. In this regard, the financial position of public entities has been compromised when the expenditures reached the revenues and, even exceeded them. That made public entities to be involved in deficit and in order to meet their obligations, public entities were pushed to incur additional debt.

Under this framework, the concern of the International Organizations (EU, 2012a; IFAC, 2013; IMF, 2014; LGA, 2015) and prior research (Afonso & Jalles, 2015; Andrews, 2015; Navarro-Galera et al., 2016; Rodríguez et al., 2016) about public finances increased and public entities felt more pressure in order to disclose high-quality and transparent information (Pina, Torres, & Royo, 2010). In this sense, although there were different indicators to know the public entity financial position, these indicators were unable to predict the coming difficulties. So, International Organizations and prior research have emphasised the necessity to assess the financial sustainability focused on providing useful information about future projections. This new concept can help public managers and policymakers make appropriated decisions to keep providing future generations with the same quality and amount of public services. This information will allow public managers and policymakers establish the necessary policies and actions to anticipate and solve the potential risks and to benefit from the opportunities.

So, the main reason of this thesis is, through the Research Questions, to analyse the concept of the financial sustainability seeking a representative indicator and its influential factors. The main findings of each chapter could be identified in **Figure** 7.1.

Figure 7.1. Main Result



1.1. Conclusion for the RQ 1: Can the income statement be a useful measure of the financial sustainability?

We have found that the adjusted income statement could be an adequate indicator representative of the financial sustainability.

In this regard, the previous studies have used several indicators based on the information obtained from the budget in order to assess the financial position of public entities. However, this information is based on historical events, and although they have the capacity to describe the present situation of a public entity, they cannot provide with the information about the future projections of a public entity. In this regard, International Organisations have pointed out that the budgetary information should be considered as the starting point to assess the public finances (EU, 2012b; IFAC, 2012a). In addition, they have highlighted that the financial sustainability is a broader concept that should provide information about future projection considering the intergenerational equity as well as its three dimensions (revenues, services, and debt) (IFAC, 2013). So, our first study (***RQ 1.1)*** has identified an indicator that, despite being associated with the budgetary result, represents a measurement of the financial sustainability linked to the intergenerational equity and includes the three main dimensions of the financial sustainability: revenues, services, and debt (IFAC, 2013) (Figure 7.2).

Our results have revealed that the financial sustainability measured through the income statement, apart from considering the budgetary result, is calculated on an accrual basis, which is a concept strongly linked to the intergenerational equity. That makes us consider the income statement as a possible approach for an indicator of the financial sustainability.

Therefore, the question which arises is if the income statement could be an adequate indicator for financial sustainability considering its three dimensions (***RQ 1.2***).

So, we have corroborated that this indicator meets the requirements of the International Organizations (EU, 2012a; IFAC, 2013; LGA, 2012; PwC, 2006) (Figure 7.2). First, following the pronouncements of International Organizations, we used the income statement as an indicator of the financial sustainability because is made on an accrual basis (GASB, 1990; IFAC, 2014). This makes the indicator closer to financial sustainability since it represents the intergenerational equity (Brundtland, 1987) or the inter-period equity (IFAC, 2014; Pezzy & Toman, 2002).

Moreover, our results show that this indicator represents the evolution of the three dimensions of the financial sustainability (IFAC, 2013) (revenues, services, and debt), following the same relationship suggested by the IFAC (2013) between these dimensions and the financial sustainability.

Finally, according to IFAC (2013; 2014), we have analysed the adequacy of the income statement to represent two key issues for each dimension: the capacity and the vulnerability. So, we have determined how they influence on financial sustainability measured through the income statement. We have found empirically that the income statement supplies information about the capacity of the entities to continue providing goods and services in the same volume and quality and the level of resources that will be needed to provide them in the future (the capacity aspect of the three dimensions) (Figure 7.2). Moreover, we have found that the income statement provides useful information for assessing the vulnerability of these dimensions, since it is able to predict vulnerability problems associated with the three dimensions and, also, with uncontrollable factors such as demographic trends and socio-economic factors.

So, regarding the ***RQ 1***, we have concluded (through the ***RQ 1.1*** and ***RQ 1.2***) that the income statement (the adjusted income statement) is an adequate indicator to represent the financial sustainability.

1.2. Conclusion for the RQ 2: Do the demographic and the socio-economic factors influence on financial sustainability in local governments?

Apart from the requirements tested in Part II of this thesis, the indicator which represents financial sustainability should provide broader information about the driving and risk factors that could influence on financial sustainability (Dumay, Guthrie, & Farneti, 2010; Williams, Wilmshurst, & Clift, 2010). Moreover, it should be considered the International Organizations' concern about the influence of the demographic structure and the socio-economic position on the public finances (EU, 2012a; Eurostat, 2015; FASAB, 2009; IFAC, 2012b).

Therefore, the ***RQ 2*** emerges with the aim at discovering the possible influential factors, both demographic and socio-economic, which could influence financial sustainability. In this regard, we have concluded that, while there are demographic and socio-economic factors which could influence negatively or positively on the financial sustainability of Spanish local governments, there are other factors that have an insignificant effect (**Figure** 7**.**1).

For instance, regarding the demographic structure, although the population size influence negatively on the financial sustainability of Spanish local governments, the population growth and the population density have an insignificant influence. Moreover, we have found that only the dependent population under 16 has a strong influence on the financial sustainability of Spanish local governments (**Figure** 7**.**1).

Regarding the foreign population, in a preliminary study, we concluded that this variable did not affect financial sustainability of Spanish local governments. However, in a further analysis of this variable with a wider sample increasing both, the number of municipalities and years analysed, we have concluded that this variable influences negatively on financial sustainability in Spanish local governments (Figure 7.1).

Considering the socio-economic variables, the educational level of the population could be considered as a driving factor for financial sustainability of Spanish local governments. However, when we separated this variable into higher and intermediate education, we discovered that whereas the population with intermediate education (Secondary Bachelor and Professional Education -FP I or FP II-) affects positively, the population with higher education (at least one degree) affects negatively on financial sustainability (**Figure** 7**.**1).

Furthermore, the unemployment rate is a variable that could be considered as a risk factor, since it influences negatively on the financial sustainability of Spanish local governments. In a further analysis, we have discovered that the unemployment in the agricultural sector is which strongest affect financial sustainability, following by the unemployment rate in the building and services sector. However, we detected that the unemployment rate in the industrial sector seems not to affect significantly financial sustainability (**Figure** 7**.**1).

On the other hand, the companies concentration and the budgetary result could be seen as a driving force since they affect positively financial sustainability of Spanish local governments. However, the GDP and the touristic activity seem not to have a significant influence on financial sustainability (**Figure** 7**.**1).

1.3. Conclusion for the RQ: Are the incentives for the financial sustainability the same considering the competencies of each governmental level and/or the administrative culture?

Once identified the factors that influence on financial sustainability in Spanish local governments through the research carried out in the Part III of this thesis, we performed a further study with the aim at identifying some influential factors associated with the common characteristics of the financial sustainability in all governmental levels,

with the administrative culture of each country, and with the specific characteristic of a public administrative level (***RQ 3***). This analysis allowed us to identify that the demographic structure, as suggested by International Organizations (Eurostat, 2015; FASAB, 2009; IFAC, 2012b), is a key influential factor for financial sustainability regardless the type of government. That means, our result found that population size is a factor which influences negatively financial sustainability (in both level and both countries) (**Figure** 7**.**1).

Moreover, we have identified several influential factors whose influence depend on the specific characteristic of the government analysed. This way, the foreign population could be interpreted as a risk factor which affects financial sustainability depending on the administrative culture of the government studied. Hence, while the rest of demographic variables studied influence in the same way on Spanish and English governments, this variable only affects negatively in financial sustainability of Spanish governments (both local and regional governments).

Furthermore, there are influential factors that are associated with the governmental level and its competencies. For instance, the dependent population over 65 (risk factor) and the population density (driving factor) are associated with the specific competencies of the regional governments. In addition, the unemployment rate (risk factor) and the dependent population under 16 (risk factor) are related to the competencies of local governments (these variables affect negatively Spanish and English municipalities) (**Figure** 7**.**1).

Therefore, through the development of this thesis, we have been able to fill up the literature gap regarding financial sustainability answering these ***RQ***s. Our finding could help not only to assess the public finances of a public entity but also to provide public manager and policymakers with useful information and future projections. This

information could help them to manage financial sustainability, i.e., to manage how their governments can keep providing future generations with the same quality and amount of public services. Thus, the information that the income statement provides regarding the financial sustainability and its influential driving and risk factors could serve to make the adequate decisions and actions to anticipate and solve the potential risks and to benefit from the opportunities.

Policymakers and public managers should take different actions and establish different policies considering how the influential factors influence on the financial sustainability of each governmental level and how the administrative culture affects financial sustainability. Therefore, the findings obtained in this thesis should encourage policymakers and public managers to seek useful information regarding the public entity managed which help them take appropriated actions so as to face the financial difficulties caused by the crisis and to reach the financial sustainability the coming years.

Moreover, the information provided by the income statement regarding the financial sustainability and its influential factors could be useful also for other stakeholders such as International Organizations and citizens. In this regard, International Organizations could obtain the necessary information to know how much they should demand from each country and/or how they should respond their requests. Regarding the citizens, this information could help them to know how their governments are facing the financial difficulties and if their governments are taking the appropriated decisions and establishing the appropriated policies to meet their obligations and/or their electoral promises regarding these issues. Furthermore, they could discuss if their governments are able to keep providing the same amount and quality of public services for future generations.

2. Limitations and future research

Despite the achievements reached, the studies presented in this thesis have some limitations. First, there are some economic conditions of the country (macroeconomic variables) that have not been considered in our research such as the interest rate, the credit ratings, the sovereign rating, the inflation risk premium, and/or the balance of payments.

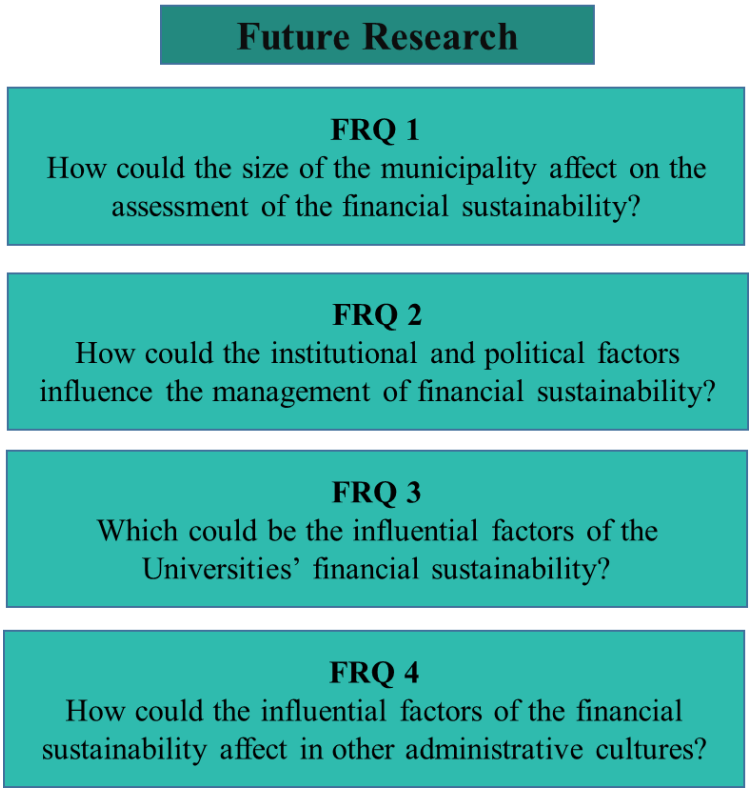
Second, the sample used has some restrictions. On the one hand, we have focused our studies in 148 municipalities which meet the requirement of being a municipality with relatively large population following the art. 121 of the Local Government Regulatory Act 7/1985 (Law 7/1985, 2nd April 1985), amended by the Local Government Modernization Act 57/2003 (provincial capitals, regional capitals or municipalities with headquarters of regional institutions). However, we have been unable to use the whole sample, since some information regarding the studied variables (dependent and independent) did not be available for some municipalities in the whole period studied.

In our first study, we used a sample of only 110 municipalities in the year 2010, which could seem a small sample. So, we tried to solve this problem extending or sample increasing both, the number of municipalities and the years analysed, always that the availability of the data allowed us. Hence, we could extend our sample twice. The firstly, we increased the sample to 116 municipalities in the period 2006-2011 and, secondly, in the most recent studies, we have used a sample of 139 municipalities in the period 2006-2014.

Moreover, another limitation of this research is that, as mentioned above, we have considered only the municipalities with a large population. So, we cannot determine the influence of the populational size effect on the financial sustainability. In this sense, it is possible that the driving and risk factors which influence on financial sustainability in local governments with a relative large population can differ from the driving and risk

factors that could affect the financial sustainability in smaller local governments. Therefore, in future investigations, our intention is to broaden our sample considering more municipalities and the most recent years (Figure 7.2).

Figure 7.2. Future Research



Therefore, we would like to extend our studies and analysis answering the question about ***how the size of the municipality could affect on the assessment of the financial sustainability***. In this regard, our first line of future investigation would be to analyse how the size of the municipality influences on the financial sustainability of Spanish local governments. it should be pointed out that the size of the municipality not only refers to the populational size effect but also involves several important questions such as which the different necessities of each type of municipality are and/or whether the abilities that public managers or policymakers need to manage financial sustainability are the same in each type of municipality.

Moreover, although we have studied how the demographic and socio-economic variables affect financial sustainability, we have not analysed the possible influence of the institutional and political factors yet. So, another future investigation line would be ***how institutional and political factors could influence the management of the financial sustainability*** (Figure 7.2). The institutional and political factors could be those such as political competition, the political strength, the political fragmentation and/or the composition of the government taking into account the gender. Moreover, it would be interesting also to analyse whether the preferences and abilities of the public managers and/or policymakers could influence the management of the financial sustainability.

Another issue of interest could be to extend the study to other types of public entities such universities. In this regard, universities also are suffering the consequences of the crisis since central, regional and local governments are reducing their financial support. Therefore, these public entities have seen compromised their capacity to keep providing the same amount of educational services and with the same quality for future generation. So, it would be interesting to ***analyse the financial sustainability of universities and its influential factors*** (Figure 7.2).

In addition, it would be a challenging option to carry out a ***comparative analysis between the financial sustainability of other administrative cultures*** (Figure 7.2). This way, several authors have identified five types of administrative culture in Europe: Anglo-Saxon, Central European, Germanic, Nordic, and Southern European (Kickert, Randma-Liiv, & Savi, 2015; Navarro & Rodríguez, 2011). Up to now, we have only carried out a comparative analysis between Anglo-Saxon (English local governments) and Southern European (Spanish local governments) public administration. It would be interesting to compare countries from other cultures and to discover influential factors associated with the specific characteristic of each culture. So, the future investigation line would be to

identify how the differences in the administrative cultures could influence the management of the financials sustainability and the resilience actions taken to face the consequences of the crisis.

References

Afonso, A., & Jalles, J. T. (2015). Fiscal sustainability: a panel assessment for advanced economies. *Applied Economics Letters*, *22*(11), 925–929. DOI: 10.1080/13504851.2014.987913

Andrews, R. (2015). Vertical consolidation and financial sustainability: evidence from English local government. *Environment and Planning C: Government and Policy*, *33*(6), 1518–1545. DOI: 10.1177/0263774X15614179

Brundtland, G. H. (1987). *Report of the World Commission on environment and development:“ our common future.”. United Nations, 1987.* (WCED, Ed.). United Nations. DOI: 10.1002/jid.3380010208

Dumay, J., Guthrie, J., & Farneti, F. (2010). Gri Sustainability Reporting Guidelines For Public And Third Sector Organizations. *Public Management Review*, *12*(4), 531–548. DOI: 10.1080/14719037.2010.496266

EU. (2012a). *Fiscal Sustainability Report*. Brussels: European Union. https://doi.org/10.2765/19669

EU. (2012b). *Specifications on the Implementation of the Stability and Growth Pact and Guidelines on the Format and Content of the Stability and Convergence Programes*. EU.

Eurostat. (2015). *Sustainable development in the European Union*. Luxembourg: Publications Office of the European Union. DOI: 10.2785/999711

FASAB. (2009). *Reporting Comprehensive Long-Term Fiscal Projections for the U.S. Government. Standards 36*. Washington, DC: FASAB.

GASB. (1990). *Concepts Statement No. 11: Measurement Focus and Basis of Accounting –Government Fund Operating Statements*. Norwalk: GASB.

IFAC. (2012a). *Reporting on the Long-Term Sustainability of a Public Sector Entity's Finances*. New York: IFAC.

IFAC. (2012b). *Sustainability Framework 2.0.Professional Accountants as Integrators*. New York: IFAC.

IFAC. (2013). *Recommended Practice Guideline. Reporting on the Long-Term Sustainability of an Entity ' s Finances*. New York: IFAC.

IFAC. (2014). *Handbook of International Public Sector Accounting Pronouncements*. New York: IFAC.

IMF. (2014). *World Economic and Financial Surveys Global Financial Stability Report*. Washington, DC: IMF.

Kickert, W. J. M., Randma-Liiv, T., & Savi, R. (2015). Politics of fiscal consolidation in Europe: a comparative analysis. *International Review of Administrative Sciences*, *81*(3), 562–584. DOI: 10.1177/0020852314564312

LGA. (2012). *Information Paper 1 Financial Sustainability*. Australia: LGA.

LGA. (2015). *South Australia Model Model Financial Statements*. Wagga Wagga: LGA.

Navarro-Galera, A., Rodríguez-Bolívar, M. P., Alcaide-Muñoz, L., & López-Subires, M. D. (2016). Measuring the financial sustainability and its influential factors in local governments. *Applied Economics*, *48*(41), 1–15. DOI: 10.1080/00036846.2016.1148260

Navarro, A., & Rodríguez, M. P. (2011). Modernizing governments in transitional and emerging economies through financial reporting based on international standards. *International Review of Administrative Sciences*, *77*(3), 609–640. DOI: 10.1177/0020852311407365

Pezzy, J., & Toman, M. (2002). Making Sense of Sustainability. *Resources for the Future*, *Issue Brie*(02–25).

Pina, V., Torres, L., & Royo, S. (2010). Is E-Government Promoting Convergence Towards More Accountable Local Governments? *International Public Management Journal*, *13*(4), 350–380. DOI: 10.1080/10967494.2010.524834

PwC. (2006). *National Financial Sustainability Study of Local Government*. Sydney: PwC.

Rodríguez, M. P., Navarro, A., Alcaide, L., & López, M. D. (2016). Analyzing Forces to the Financial Contribution of Local Governments to Sustainable Development. *Sustainability*, *8*(9), 925. DOI: 10.3390/su8090925

Williams, B., Wilmshurst, T., & Clift, R. (2010). The Role Of Accountants In Sustainability Reporting – A Local Government Study. In *Sixth Asia Pacific Interdisciplinary Research in Accounting Conference* (pp. 1–18). Sydney: University of Sydney, Australia.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