

Puerto Rico Occupational Licenses Analysis Project

University of Puerto Rico

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Review of PR’s occupations under the scope of the US Institute for Justice License to Work National Study of Burdens from Occupational Licensing

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Acronyms

CJ	Comisión de Juegos	Game Commission
CT	Compañía de Turismo	Department of Tourism
DACO	Departamento de Asuntos del Consumidor	Department of Consumers Affairs
DE	Departamento de Estado	State Department
DF	Departamento de la Familia	Department of Family Affairs
DRD	Departamento de Recreación y Deportes	Department of Sports and Recreation
DRNA	Departamento de Recursos Naturales y Ambientales	Department of Natural and Environmental Resources
DS	Departamento de Salud	Health Department
DSP	Departamento de Seguridad Publica	Department of Public Safety
NTSP	Negociado de Transporte y otros Servicios Públicos	Office of Transportation and other Public Services

Abstract

This report was developed under an agreement between the University of Puerto Rico and Puerto Rico's Departamento de Estado (DE). The agreement is aligned with the Ease of Doing Business division of Puerto Rico's Financial Oversight & Management Board for Puerto Rico. This report provides an analysis of the occupations in Puerto Rico that have licensing requirements and are under the scope of the second edition of study titled: *License to Work: A National Study of Burdens from Occupational Licensing* (LTW) completed by the non-profit public interest law firm Institute for Justice.

1. Introduction

The following report presents the results of research conducted over a 9-week period¹ to characterize the licensing requirements of the commonwealth of Puerto Rico for a set of occupations as defined by the second edition of the report *License to Work* (abbreviated herein as LTW). The LTW was published by the Institute for Justice (www.ij.org) in 2017. The LTW study solely addresses the requirements placed on the individuals that want to pursue a particular set of lower-income occupations². It analyzes licensing requirements in the 51 largest jurisdictions of the United States³.

The LTW characterizes the burden placed on the workers by the licensing regulations. It specifically identifies six areas of burden: fees, exams, minimum age, minimum grade, experience requirements and educational requirements, with the last two being additionally combined into a single time lost measure. The analyses presented in this technical report

¹ July 5 – August 27

² 102 occupations are part of the LTW study

³ 50 US states and the District of Columbia

describes these measures of burden in terms of Puerto Rico's regulations and how they compare to the data available in the LTW report.

2. Methods

The research conducted on Puerto Rico's occupational licenses is based on the methods used by researchers from the *Institute for Justice*. The LTW report includes a section on methods that define what factors/elements should be considered in estimating burden including education and experience requirements. An emphasis is placed on selecting the requirement with the minimum burden when alternatives exist as not to overrepresent the requirement. It is noted that multiple meetings took place with Dr. Dick M. Carpenter II, project leader for the LTW study, to clarify issues and obtain recommendations on general methodology and particular cases.

Research into the requirements of licensing in Puerto Rico was conducted by students from the University of Puerto Rico's system under the supervision of one of three project investigators. Two of the researchers have PhD degrees (respectively, business and engineering) and the other researcher is a DrPH candidate with MPH in Epidemiology and JD degrees. Students reviewed licensing requirements from documents and websites publicly available and communicated with regulatory agencies to obtain and verify information. The information was entered into a template and then revised by one of the project investigators. Finally, the information was uploaded into a database and entered into the PR-LTW analysis spreadsheet.

3. The characteristics of Puerto Rico's licensed occupations under LTW

3.1 Description of the requirements

A total of 48 out of the 102 occupations in the LTW report have a license requirement in Puerto Rico. These 48 occupations are regulated by 27 licenses across 10 agencies. Table 1 presents the occupations, the title of the related license in Puerto Rico, and the regulatory agency. It is relevant to note that almost 1/3 of the occupations that require a license in Puerto Rico fall under a single license: the contractor (*contratista*) license, regulated by DACO. A few other licenses, such as *Especialista en Belleza* and *Empleado de Casino*, authorize work in multiple occupations.

Table 2 presents the burden associated with each of the occupations:

- Fees: this includes payments to the regulatory agency, fees for documents directly related to the application, and professional association fees⁴.
- Educ(d): this indicates the days required to obtain the necessary education to qualify for the license. For example, these could be academic degrees or professional short courses.
- Exp(d): this indicates the days required in professional/apprentice type experience to qualify for the license.
- CDL: this is a combined measure of time lost to qualify for the license and is the sum of Educ(d) + Exp(d).
- Exams: number of exams that must be passed to qualify for the license.

⁴ Fees in the LTW report typically do not include association fees as membership is rarely required in US jurisdictions.

- Min Grade: educational level required to qualify for the license. For example, 10th grade (10), high school diploma (12) or a bachelor's degree (16). This is sometimes not defined (0 value)
- Min Age: minimum age required to qualify for the license. This is sometimes not defined (0 value).

3.2 Comparison versus the averages per measure of burden

Values in Table 2 are shaded in orange and green. The orange shading indicates a value that is 25% or more above the average burden for that occupation, while the green shading indicates a value that is 25% or less under the average burden. No shading indicates values that are in the $\pm 25\%$ range from the average burden for that occupation. The averages per occupation were calculated using the data from all 52 jurisdictions, including Puerto Rico. For completeness, Appendix A has the average values per burden measure for each occupation licensed in Puerto Rico.

As can be observed in Table 2, 26 occupations have at least one measure that is 25% or more above the average burden, while 43 occupations have at least one measure that is 25% or less under the average burden. A total of 76 values are 25% or more above the average, while 160 are 25% or less under the average; therefore 22.6% of the burden measures are significantly above the average, while 47.6% are significantly below the average, and the remaining 29.7% are within the average requirements. Overall, it is concluded that Puerto Rico's licensing requirements are below the average for the occupations it regulates when compared to all other 51 jurisdictions.

Table 1. Occupations (under the scope of LTW) with licensing requirements in Puerto Rico.

Occupation	License Name in Puerto Rico	PR Regulatory Agency
Athletic Trainer	Aptitud Física	DRD
Barber	Barbero y Estilista en Barbería	DE
Bill Collection Agency	Agencia de Cobro	DACO
Bus Driver, City/Transit	Operador para Transporte de Pasajeros – Comercial	NTSP
Carpenter/Cabinet Maker Contractor (Residential)	Contratista	DACO
Cement Finishing Contractor (Residential)	Contratista	DACO
Child Care Home, Family	Hogar de Cuidado	DF
Cosmetologist	Especialistas en Belleza	DE
Dental Assistant	Asistente Dental	DS
Door Repair Contractor (Residential)	Contratista	DACO
Drywall Installation Contractor (Residential)	Contratista	DACO
Electrical Helper	Ayudante Electricista	DE
Emergency Medical Technician	Técnico de Emergencias Médicas	DS
Fisher, Commercial	Pescador Comercial	DRNA
Floor Sander Contractor (Residential)	Contratista	DACO
Gaming Cage Worker	Empleado de Casino	CJ
Gaming Dealer	Empleado de Casino	CJ
Gaming Supervisor	Supervisor de Casino	CJ
Glazier Contractor (Residential)	Contratista	DACO
HVAC Contractor (Residential)	Técnico de Refrigeración y Aire Acondicionado	DE
Insulation Contractor (Residential)	Contratista	DACO
Interior Designer	Diseñadores-Decoradores de Interiores	DE
Iron/Steel Contractor (Residential)	Contratista	DACO
Landscape Contractor (Residential)	Contratista	DACO
Makeup Artist	Especialistas en Belleza	DE
Manicurist	Especialistas en Belleza	DE
Mason Contractor (Residential)	Contratista	DACO
Massage Therapist	Terapeuta del Masaje	DS
Optician	Óptico	DS
Painting Contractor (Residential)	Contratista	DACO
Paving Contractor (Residential)	Contratista	DACO
Pharmacy Technician	Técnico de Farmacia	DS
Pipelayer Contractor	Contratista	DACO
School Bus Driver	Operador para Transporte de Pasajeros – Comercial	NTSP
Security Guard, Unarmed	Guardia de Seguridad	DSP
Shampooer	Especialistas en Belleza	DE
Sheet Metal Contractor, HVAC (Residential)	Contratista	DACO
Sheet Metal Contractor, Other (Residential)	Contratista	DACO
Skin Care Specialist	Especialistas en Belleza	DE
Slot Supervisor	Empleado de Casino	CT
Taxi Driver/Chauffeur	Operador de Pasajeros - Menor Cabida	NTSP
Terrazzo Contractor (Residential)	Contratista	DACO
Travel Agency	Agencia de Viaje	CT
Travel Guide	Guía Turístico	CT
Truck Driver, Other	Operador para Transporte de Carga Liviana	NTSP
Truck Driver, Tractor-Trailer	Operador para Transporte de Carga Comercial	NTSP
Veterinary Technician	Tecnólogo Veterinario	DS
Weigher	Pesador Público Autorizado	DACO

Table 2. Puerto Rico's licensing burden per occupation and their relation to the average for all 51 jurisdictions.

Occupation	Fees	Educ(d)	Exp(d)	CDL	Exams	Min Grade	Min Age
Athletic Trainer	\$ 125	25	105	130	1	12	18
Barber	\$ 320	273	0	273	2	0	18
Bill Collection Agency	\$ 600	0	0	0	0	0	0
Bus Driver, City/Transit	\$ 125	0	0	0	0	0	21
Carpenter/Cabinet Maker Contractor (Res)	\$ 245	0	0	0	0	0	0
Cement Finishing Contractor (Residential)	\$ 245	0	0	0	0	0	0
Child Care Home, Family	\$ 35	2	0	2	0	0	21
Cosmetologist	\$ 310	234	0	234	2	8	0
Dental Assistant	\$ 40	252	0	252	1	14	18
Door Repair Contractor (Residential)	\$ 245	0	0	0	0	0	0
Drywall Installation Contractor (Residential)	\$ 245	0	0	0	0	0	0
Electrical Helper	\$ 165	117	0	117	1	12	18
Emergency Medical Technician	\$ 425	260	0	260	1	13	18
Fisher, Commercial	\$ 25	0	0	0	0	0	18
Floor Sander Contractor (Residential)	\$ 245	0	0	0	0	0	0
Gaming Cage Worker	\$ 100	35	0	35	0	0	18
Gaming Dealer	\$ 100	35	0	35	0	0	18
Gaming Supervisor	\$ 180	35	0	35	0	0	18
Glazier Contractor (Residential)	\$ 245	0	0	0	0	0	0
HVAC Contractor (Residential)	\$ 300	187	0	187	1	12	18
Insulation Contractor (Residential)	\$ 245	0	0	0	0	0	0
Interior Designer	\$ 310	730	0	730	2	15	18
Iron/Steel Contractor (Residential)	\$ 245	0	0	0	0	0	0
Landscape Contractor (Residential)	\$ 245	0	0	0	0	0	0
Makeup Artist	\$ 310	234	0	234	2	8	0
Manicurist	\$ 310	234	0	234	2	8	0
Mason Contractor (Residential)	\$ 245	0	0	0	0	0	0
Massage Therapist	\$ 429	252	0	252	1	13	18
Optician	\$ 245	476	0	476	1	14	21
Painting Contractor (Residential)	\$ 245	0	0	0	0	0	0
Paving Contractor (Residential)	\$ 245	0	0	0	0	0	0
Pharmacy Technician	\$ 305	375	233	608	1	14	18
Pipelayer Contractor	\$ 245	0	0	0	0	0	0
School Bus Driver	\$ 125	0	0	0	0	0	21
Security Guard, Unarmed	\$ 102	28	0	28	0	0	21
Shampooer	\$ 310	234	0	234	2	8	0
Sheet Metal Contractor, HVAC (Residential)	\$ 245	0	0	0	0	0	0
Sheet Metal Contractor, Other (Residential)	\$ 245	0	0	0	0	0	0
Skin Care Specialist	\$ 310	234	0	234	2	8	0
Slot Supervisor	\$ 100	35	0	35	0	0	18
Taxi Driver/Chauffeur	\$ 100	0	0	0	0	0	0
Terrazzo Contractor (Residential)	\$ 245	0	0	0	0	0	0
Travel Agency	\$ 200	0	0	0	0	0	18
Travel Guide	\$ 105	93	730	823	2	12	18
Truck Driver, Other	\$ 100	0	0	0	0	0	18
Truck Driver, Tractor-Trailer	\$ 135	0	0	0	0	0	21
Veterinary Technician	\$ 185	462	0	462	1	14	21
Weigher	\$ 125	0	0	0	1	0	18

Orange shading: 25% ≥ average burden

Green shading: 25% ≤ average burden

No shading: =± 25% range from the average burden

3.3 Occupations with an overburden

Of the 26 occupations that have at least one burden measure that is 25% or more above the average, 12 have significantly above average fees and 15 have significantly above average educational requirements. The associated licenses and the overburden areas are listed in Table 3 organized by the agency that regulates the occupation. A relevant follow up to this analysis is the evaluation of the licensing requirements in other jurisdictions as to determine if the requirements in Puerto Rico should be modified.

Table 3. Puerto Rico’s licenses with an overburden for fees, experience, education, and exams, based on all jurisdictions by agency.

Agency	PR License Name	Overburden area
CJ	Empleado de Casino	Education
CT	Guía Turístico	Education, Experience & Exams
DACO	Pesador Público Autorizado	Fees & Exams
DE	Ayudante Electricista	Fees, Education & Exams
	Barbero y Estilista en Barbería	Fees
	Diseñadores-Decoradores de Interiores	Exams
	Especialistas en Belleza	Fees & Education*
	Técnico de Refrigeración y Aire Acondicionado	Education
DRD	Aptitud Física	Experience
DS	Asistente Dental	Education & Exams
	Técnico de Emergencias Médicas	Fees & Education
	Técnico de Farmacia	Fees, Education, Experience & Exams
	Terapeuta del Masaje	Education
DSP	Guardia de Seguridad	Education
NTSP	Operador de Pasajeros - Menor Cabida	Fees
	Operador para Transporte de Carga Comercial	Fees

* = depends on the occupation

3.4 Occupations licensed in less than half the jurisdictions

Seven of the occupations licensed in Puerto Rico are licensed by less than half the 51 jurisdictions, not including Puerto Rico. These occupations, the number of jurisdictions that require a license, and the associated percentage are presented in Table 4. The lack of a licensing requirement on these occupations by more than half the jurisdictions may indicate a need to revise the licensing requirements in Puerto Rico.

Table 4. Occupations with low levels of licensing in the overall set of 51 jurisdictions (not including Puerto Rico).

Occupation	Number (Percentage) of jurisdictions that license this occupation	Agency	PR License
Electrical Helper	2(4%)	DE	Ayudante Electricista
Interior Designer	4 (8%)	DE	Diseñadores-Decoradores de Interiores
Travel Agency	7 (14%)	CT	Agencia de Viaje
Dental Assistant	9 (18%)	DS	Asistente Dental
Taxi Driver/Chauffeur	16 (31%)	NTSP	Operador de Pasajeros - Menor Cabida
Optician	22 (43%)	DS	Optico
Weigher	25 (49%)	DACO	Pesador Público Autorizado

Table 5 presents the occupations licensed in PR that are regulated by 50-75% of the jurisdictions. These 25 occupations are regulated by 11 licenses, with the *Contratista* license regulating 15 occupations. To significantly reduce the number of occupations being licensed in Puerto Rico a review other approaches to the *Contratista* license may be in order, including voluntary registration and certification.

Table 5. Occupations with medium levels of licensing in the overall set of 51 jurisdictions (not including Puerto Rico).

Occupation	Number (Percentage) of jurisdictions that license this occupation	Agency	PR License
Floor Sander Contractor (Residential)	27 (52%)	DACO	Contratista
Pipelayer Contractor	27 (52%)	DACO	Contratista
Gaming Dealer	28 (54%)	CJ	Empleado de Casino
Painting Contractor (Residential)	28 (54%)	DACO	Contratista
Paving Contractor (Residential)	28 (54%)	DACO	Contratista
Slot Supervisor	28 (54%)	CJ	Empleado de Casino
Terrazzo Contractor (Residential)	28 (54%)	DACO	Contratista
Door Repair Contractor (Residential)	29 (56%)	DACO	Contratista
Gaming Cage Worker	29 (56%)	CJ	Empleado de Casino
Carpenter/Cabinet Maker Contractor (Res.)	30 (58%)	DACO	Contratista
Cement Finishing Contractor (Residential)	30 (58%)	DACO	Contratista
Drywall Installation Contractor (Residential)	30 (58%)	DACO	Contratista
Gaming Supervisor	30 (58%)	CJ	Empleado de Casino
Glazier Contractor (Residential)	30 (58%)	DACO	Contratista
Insulation Contractor (Residential)	30 (58%)	DACO	Contratista
Iron/Steel Contractor (Residential)	30 (58%)	DACO	Contratista
Bill Collection Agency	31 (60%)	DACO	Agencia de Cobro
Mason Contractor (Residential)	31 (60%)	DACO	Contratista
Sheet Metal Contractor, Other (Residential)	31 (60%)	DACO	Contratista
Security Guard, Unarmed	34 (66%)	DSP	Guardia de Seguridad
HVAC Contractor (Residential)	35 (68%)	DE	Tecnico de Refrigeracion y Aire Acondicionado
Sheet Metal Contractor, HVAC (Residential)	36 (70%)	DACO	Contratista
Veterinary Technician	36 (70%)	DS	Tecnólogo Veterinario
Shampooer	37 (72%)	DE	Especialistas en Belleza
Travel Guide	37 (72%)	CT	Guia Turistico

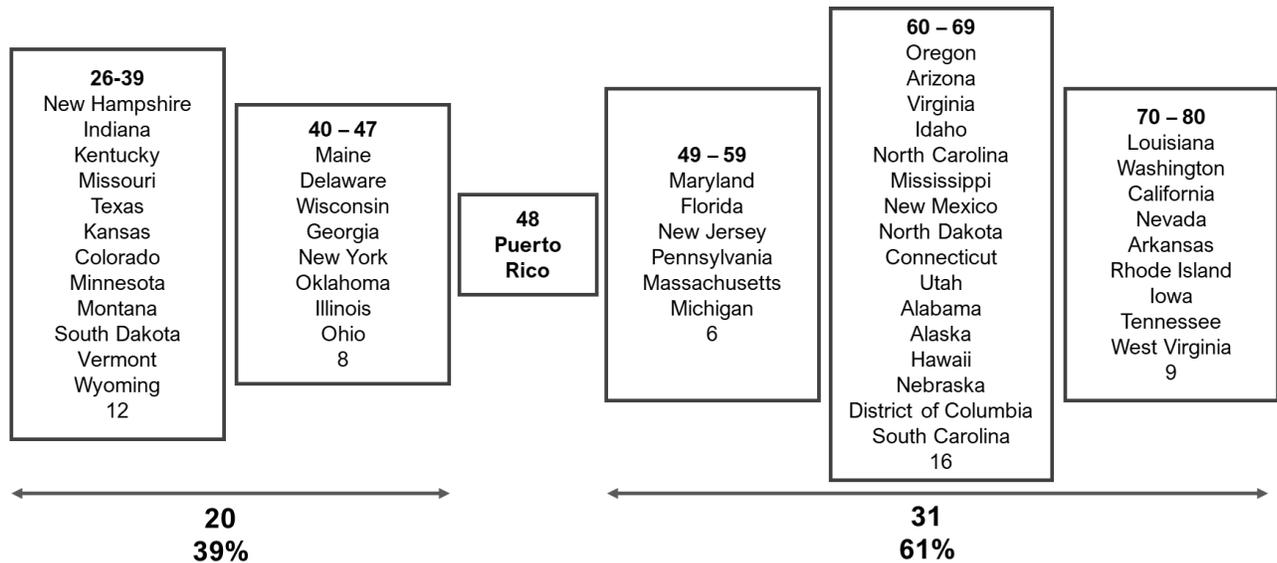
4. Rankings over all jurisdictions

4.1 Number of occupations licensed

The first relevant result is the number of occupations that are licensed in Puerto Rico. A total of 48 out of the 102 occupations in LTW have a license requirement in Puerto Rico, representing 47% of the total. Figure 1 shows Puerto Rico's position among all jurisdictions. The top of each box indicates the range of the number of licenses for the jurisdictions in the box, followed by a list of the jurisdictions, and at the bottom of the box is the number of jurisdictions. Underneath the boxes, the line at the left indicates the total number of jurisdictions with fewer licenses (20 or

39%), and the line at the right indicates the total number of jurisdictions with more licensed occupations (31 or 61%). Therefore, Puerto Rico would rank 32 in terms of occupations requiring a license (from high to low).

Figure 1. Puerto Rico’s position relative to all other jurisdictions in terms of total number of occupations being licensed.



4.2 Rankings per measure

Following the methodology used in the LTW report, a ranking of Puerto Rico’s average requirements for fees, education, experience, exams, minimum grade, and minimum age is presented in Table 6. As a reference, Appendix B (Table B) presents for each of the measures a sorted list by jurisdiction; arranged from high to low. In the table, Puerto Rico’s position is highlighted in blue.

The results from this analysis are consistent with those previously found, which indicate that Puerto Rico’s licensing requirements are in general less burdensome than most jurisdictions. The exception is the minimum grade requirement, where Puerto Rico ranks first. The explanation to this exception is that Puerto Rico’s regulations specify a minimum grade more frequently than many jurisdictions.

Table 6. Puerto Rico’s rank for the seven measures of burden and their respective average values.

	Rank (H to L)	Average for PR
Fees	34	\$218.67
Educ(d)	35	100.9
Exp(d)	52	22.3
CDL	48	123.1
Exams	52	0.54
Min Grade	1	3.85
Min Age	28	9.81

4.3 Ranking per normalized values of burden measures

The analysis that ranks average direct measures per jurisdiction has as a limitation given that each jurisdiction licenses a different set of occupations. Therefore, different occupations are averaged, thus the comparisons are not based on the same elements. Furthermore, occupations have different ranges for measures. For example, some occupations have fees that range in the hundreds of dollars across all jurisdictions, while other occupations have fees that range in the 0-\$50 across all jurisdictions. Comparing jurisdictions that have many occupations that typically have high fees versus jurisdictions that have many occupations with a low range in fees is a bit like comparing a bag with oranges and apples to a bag of apples and pears. Certainly, there are many licenses that are present in all or most states, but as some states have 70+ occupations being licensed, and others have less than 50, it is proposed there are significant differences in the occupations used to determine these averages. This reduces the validity and reliability of these rankings.

To enhance the understanding of Puerto Rico's relative position to all the jurisdictions, an additional method of analysis is presented based on the normalized value of each measure across the range for all jurisdictions. This does not eliminate the issue of comparing different sets of licenses, but it addresses the issue of scale difference. For each occupation licensed in each jurisdiction, the maximum and minimum values of each measure are determined across all the jurisdictions, and then each jurisdiction's measure is normalized by the following formula (*all j = all 52 jurisdictions*):

$$\text{jurisdiction (normalized measure)} = \frac{\text{jurisdiction (measure)} - \text{min.measure (all j)}}{\text{max.measure (all j)} - \text{min. measure (all j)}}$$

A value of 1 would indicate that the jurisdiction's requirement for that measure is the same as the maximum of all jurisdictions, while a value of 0 would indicate that the requirement is equal to the minimum of all jurisdictions. There is a total of 19,726 normalized values, although it is noted that cases where the maximum and the minimum are the same are not included in the calculations (undefined). The average of these normalized values is then determined for each measure per jurisdiction. The results of this analysis are presented in Table 7. As a reference, Appendix C (Table C) presents for each of the normalized measures a sorted list by jurisdiction; arranged from high to low. In the table, Puerto Rico's position is highlighted in blue.

Table 7. Puerto Rico’s rank for the seven normalized measures of burden and their respective normalized average values.

	Rank (H to L)	Average Index
Fees	16	0.331
Educ(d)	3	0.359
Exp(d)	41	0.076
CDL	15	0.294
Exams	48	0.222
Min Grade	1	0.623
Min Age	25	0.486

Puerto Rico’s relative ranking to other jurisdictions is notably different when considering normalized measures rather than the direct measures, in particular for the most relevant burdens: fees, educational requirements, and CDL (of which educational requirements is a component) as they are now in the top quartile of all the jurisdictions. Puerto Rico now ranks 16th in terms of fees, 3rd in terms of educational requirements, and 15th in terms of CDL. Therefore, Puerto Rico’s educational requirements are closer to the maximum for those licenses it regulates than most of the jurisdictions. The overall result from this analysis leads to the conclusion that Puerto Rico’s requirements are, for the most part, in the high side of all jurisdictions, although the experience and exams requirements are on the lower end of all the jurisdictions.

5. Summary and Conclusions

A total of 48 occupations in Puerto Rico derived from those contained in the list of the Institute for Justice LTW report are licensed in Puerto Rico; a total of 27 licenses regulated by 10 government agencies. Of these 48 occupations, 26 have at least one measure of fees, education, experience, exams, minimum age and/or minimum grade that is 25% or more above the average burden compared to the 51 evaluated jurisdictions, while 44 occupations have at least one measure that is 25% or less under the average burden when compared to the same sample of jurisdictions. It should also be noted that, of these 26 occupations for which there is at least one measure of 25% or more above the average burden, there are 23 that are regulated under 16 license names in Puerto Rico with an overburden for fees, experience, education, and exams (the most relevant burden indicators). On the other hand, six of the occupations licensed in Puerto Rico are recognized as occupations that require licensing in less than half of the overall set of jurisdictions. Puerto Rico compared to 51 other jurisdictions, would rank 32 in terms of occupations requiring a license considering that it requires the licensing of 48 occupations of the 102 under the LTW report considerations.

Puerto Rico’s rankings when considering direct measures of burden positions the commonwealth as one that has relatively low requirements, ranking below at least half the 52 jurisdictions in all measures except minimum grade (see Table 6). However, when the measures

are normalized to account for the range for specific occupations, Puerto Rico's burden rankings are notably higher, and the commonwealth ranks above half the jurisdictions in several relevant measures as fees, education requirements, and CDL (see Table 7). These results suggest a need for each agency to perform an in-depth analysis of the requirements of the licenses it regulates and address possible overburdens in specific licensing requirements when compared to the rest of the jurisdictions.

Appendix A (Table A). Average burden measures across all jurisdictions

Occupation	Fees	Educ(d)	Exp(d)	CDL	Exams	Min Grade	Min Age
Athletic Trainer	471.5	1460.0	0.0	1460.0	1.1	0.2	4.2
Barber	154.3	316.8	53.3	370.0	2.2	7.1	14.0
Bill Collection Agency	551.2	0.0	158.9	158.9	0.1	1.2	4.9
Bus Driver, City/Transit	106.1	0.2	100.2	100.4	5.0	0.0	18.5
Carpenter/Cabinet Maker Contractor (Res)	314.0	0.8	342.9	343.7	0.8	0.0	7.2
Cement Finishing Contractor (Residential)	294.8	0.8	282.1	282.8	0.8	0.0	6.6
Child Care Home, Family	79.3	13.2	37.1	50.3	0.0	6.5	18.3
Cosmetologist	177.0	368.2	17.9	386.0	2.0	8.0	13.2
Dental Assistant	138.3	73.3	20.2	93.6	0.7	4.0	7.9
Door Repair Contractor (Residential)	314.8	0.8	317.0	317.8	0.7	0.0	7.4
Drywall Installation Contractor (Residential)	308.5	0.3	342.9	343.2	0.7	0.0	7.2
Electrical Helper	55.0	0.0	0.0	0.0	0.0	0.0	16.5
Emergency Medical Technician	108.4	33.3	0.8	34.1	2.0	3.1	17.8
Fisher, Commercial	142.4	0.0	0.0	0.0	0.0	0.0	1.9
Floor Sander Contractor (Residential)	302.5	0.3	259.3	259.7	0.6	0.0	6.0
Gaming Cage Worker	173.9	0.0	0.0	0.0	0.0	0.0	13.2
Gaming Dealer	173.9	0.0	0.0	0.0	0.0	0.0	12.2
Gaming Supervisor	461.6	0.0	0.0	0.0	0.0	0.0	12.8
Glazier Contractor (Residential)	316.9	0.3	342.9	343.2	0.8	0.0	7.2
HVAC Contractor (Residential)	395.5	0.3	1087.7	1088.0	1.6	0.3	10.3
Insulation Contractor (Residential)	296.9	0.8	257.7	258.5	0.6	0.0	6.6
Interior Designer	1265.0	2007.5	182.5	2190.0	1.0	3.0	4.5
Iron/Steel Contractor (Residential)	313.0	0.3	367.2	367.5	0.9	0.0	7.2
Landscape Contractor (Residential)	200.2	15.3	167.3	182.6	0.4	0.0	3.8
Makeup Artist	169.0	133.9	0.0	133.9	1.8	8.5	14.0
Manicurist	172.2	90.9	0.0	90.9	2.0	8.0	13.5
Mason Contractor (Residential)	314.7	0.7	355.4	356.1	0.8	0.0	7.5
Massage Therapist	372.1	139.8	0.0	139.8	1.1	5.2	14.8
Optician	449.0	481.2	233.0	714.1	2.1	11.5	17.3
Painting Contractor (Residential)	306.6	0.8	250.1	250.9	0.7	0.0	6.4
Paving Contractor (Residential)	292.7	0.3	302.2	302.5	0.7	0.0	6.4
Pharmacy Technician	135.6	10.1	35.7	45.8	0.6	7.4	9.2
Pipelayer Contractor	371.2	0.4	518.7	519.1	1.1	0.0	8.0
School Bus Driver	111.9	9.4	290.6	299.9	6.1	0.2	19.3
Security Guard, Unarmed	89.0	2.8	6.9	9.6	0.6	1.1	15.4
Shampooer	130.2	241.1	6.1	247.2	1.8	7.6	13.1
Sheet Metal Contractor, HVAC (Residential)	382.1	0.3	1057.4	1057.8	1.6	0.7	10.0
Sheet Metal Contractor, Other (Residential)	297.3	0.7	331.8	332.6	0.7	0.4	7.5
Skin Care Specialist	174.9	145.3	0.0	145.3	2.0	8.2	13.5
Slot Supervisor	467.1	0.0	0.0	0.0	0.0	0.0	13.7
Taxi Driver/Chauffeur	46.7	0.1	148.4	148.4	0.4	0.0	16.4
Terrazzo Contractor (Residential)	298.4	0.8	263.1	263.9	0.6	0.0	6.4
Travel Agency	211.0	0.0	0.0	0.0	0.0	0.0	2.6
Travel Guide	322.7	0.4	76.7	77.1	0.4	0.0	8.4
Truck Driver, Other	105.6	0.2	78.7	78.9	4.0	0.0	18.1
Truck Driver, Tractor-Trailer	107.4	0.7	78.7	79.5	5.0	0.0	18.1
Veterinary Technician	379.7	730.0	0.0	730.0	1.6	1.0	6.5
Weigher	61.8	0.0	0.0	0.0	0.2	0.0	8.8

Appendix B (Table B). Ranking for all jurisdictions and all measures.

Rank	State	Fees	State	Educ(d)	State	Exp(d)	State	CDL	State	Exams	State	Min Grade	State	Min Age	Rank
1	Nevada	697.96	South Dakota	251.9	Hawaii	904.3	Hawaii	987.6	California	2.17	Puerto Rico	3.85	Hawaii	16.35	1
2	Arizona	615.49	Kentucky	225.7	California	754.2	Nevada	849.0	Wyoming	2.00	Wyoming	3.77	Arizona	15.81	2
3	California	486.03	Indiana	219.7	Nevada	732.0	California	826.7	Mississippi	1.85	Montana	3.75	Nevada	15.05	3
4	Hawaii	437.76	Missouri	210.2	Arizona	652.4	Arizona	765.3	South Dakota	1.84	South Dakota	3.69	Florida	14.86	4
5	D C	400.42	Wyoming	206.6	Arkansas	549.8	Florida	693.0	Hawaii	1.81	Vermont	3.48	California	14.50	5
6	Louisiana	360.23	Vermont	192.8	Florida	541.1	Arkansas	641.6	Kentucky	1.79	Kentucky	3.47	New Mexico	14.12	6
7	Wyoming	344.73	Colorado	183.5	Virginia	489.9	Virginia	619.5	New Mexico	1.79	Kansas	3.43	Rhode Island	13.82	7
8	Colorado	344.03	Montana	178.7	Oregon	444.6	Oregon	537.5	Vermont	1.77	New Jersey	3.11	Virginia	13.76	8
9	Oregon	335.28	New Hampshire	175.7	Maryland	412.1	Maryland	529.2	Minnesota	1.74	Texas	2.78	North Dakota	13.09	9
10	Mississippi	330.44	Wisconsin	170.5	Massachusetts	411.1	New Mexico	519.7	Arizona	1.72	Minnesota	2.76	Oregon	13.09	10
11	Tennessee	327.49	Ohio	167.8	New Mexico	390.8	Massachusetts	512.9	West Virginia	1.70	Ohio	2.65	Illinois	12.59	11
12	Alabama	325.86	Georgia	166.0	South Carolina	341.4	Delaware	475.2	Nevada	1.66	Illinois	2.63	Missouri	12.49	12
13	Florida	318.02	Maine	164.3	Delaware	331.9	Kentucky	452.9	New York	1.63	Michigan	2.59	Michigan	12.35	13
14	Massachusetts	308.56	Oklahoma	163.8	Georgia	286.9	Georgia	452.8	Oklahoma	1.63	Georgia	2.45	Kentucky	12.32	14
15	Alaska	298.10	Minnesota	160.0	New Jersey	284.4	South Carolina	439.8	Texas	1.59	Massachusetts	2.40	Indiana	12.27	15
16	Utah	295.25	Kansas	158.3	Connecticut	265.8	New Jersey	421.7	South Carolina	1.58	Indiana	2.32	Georgia	11.40	16
17	Virginia	291.28	Florida	151.9	Idaho	239.7	Oklahoma	398.7	Colorado	1.56	New Hampshire	2.21	Wyoming	11.31	17
18	Maryland	287.80	New York	149.8	Oklahoma	234.9	Connecticut	360.6	Louisiana	1.55	Delaware	2.18	Colorado	10.79	18
19	New York	279.37	Delaware	143.3	Kentucky	227.2	South Dakota	354.5	Kansas	1.54	Mississippi	2.00	Montana	10.78	19
20	New Mexico	269.86	New Jersey	137.3	West Virginia	225.3	Ohio	350.3	Montana	1.53	Missouri	2.00	Maryland	10.76	20
21	Connecticut	267.31	Virginia	129.6	Rhode Island	223.2	Missouri	348.3	Michigan	1.53	Iowa	1.97	Massachusetts	10.72	21
22	Wisconsin	264.95	New Mexico	128.8	Texas	218.0	Texas	341.2	New Hampshire	1.50	Maine	1.91	New York	10.59	22
23	Montana	261.09	Louisiana	124.3	Iowa	185.0	Idaho	331.6	Oregon	1.48	Arkansas	1.83	Wisconsin	10.48	23
24	Texas	253.51	Illinois	123.8	Ohio	182.6	Indiana	322.2	Georgia	1.48	New Mexico	1.82	Ohio	10.48	24
25	Arkansas	245.56	Texas	123.2	D C	152.1	Montana	312.0	Ohio	1.48	Oklahoma	1.76	Texas	10.11	25
26	Michigan	242.02	Tennessee	117.9	Michigan	145.2	Rhode Island	310.2	Alabama	1.47	Nebraska	1.69	New Jersey	10.04	26

Rank	State	Fees	State	Educ(d)	State	Exp(d)	State	CDL	State	Exams	State	Min Grade	State	Min Age	Rank
27	Kentucky	240.39	Maryland	117.1	Minnesota	139.1	Minnesota	299.1	Missouri	1.46	Nevada	1.58	South Dakota	9.84	27
28	Minnesota	238.06	Nevada	117.0	Missouri	138.1	Maine	297.4	Tennessee	1.44	West Virginia	1.50	Puerto Rico	9.81	28
29	Oklahoma	234.02	Arizona	112.8	Alaska	134.1	West Virginia	295.4	Maine	1.40	Rhode Island	1.49	Oklahoma	9.78	29
30	Illinois	229.66	D C	111.3	Montana	133.3	Vermont	287.0	Virginia	1.38	Arizona	1.47	Vermont	9.29	30
31	New Jersey	224.48	Mississippi	109.3	Maine	133.0	Wyoming	283.7	Florida	1.36	Louisiana	1.45	Kansas	9.09	31
32	Rhode Island	223.11	Michigan	109.2	North Carolina	126.2	Iowa	283.6	Indiana	1.32	North Dakota	1.45	Delaware	8.39	32
33	South Carolina	220.08	North Carolina	104.5	New York	124.7	New York	274.5	North Carolina	1.32	Idaho	1.43	New Hampshire	7.89	33
34	Puerto Rico	218.67	Massachusetts	101.8	Tennessee	108.1	New Hampshire	272.3	Maryland	1.31	South Carolina	1.42	West Virginia	7.64	34
35	Washington	209.19	Puerto Rico	100.9	South Dakota	102.7	D C	263.4	Massachusetts	1.28	Pennsylvania	1.41	Pennsylvania	7.57	35
36	South Dakota	205.25	Iowa	98.6	Indiana	102.5	Colorado	259.7	Wisconsin	1.26	Hawaii	1.33	Arkansas	7.39	36
37	North Carolina	199.34	South Carolina	98.4	New Hampshire	96.6	Michigan	254.4	Delaware	1.25	Tennessee	1.30	Maine	7.04	37
38	Delaware	198.50	Connecticut	94.8	Vermont	94.2	North Carolina	230.7	Arkansas	1.24	California	1.26	Louisiana	6.92	38
39	Maine	192.60	North Dakota	93.6	Illinois	83.6	Tennessee	226.0	Illinois	1.20	D C	1.23	Idaho	6.84	39
40	Vermont	192.52	Oregon	92.9	Louisiana	77.7	Wisconsin	213.9	New Jersey	1.19	Alabama	1.16	Tennessee	6.83	40
41	New Hampshire	188.89	Pennsylvania	92.9	Wyoming	77.2	Alaska	209.8	Connecticut	1.13	Florida	1.07	South Carolina	6.72	41
42	Ohio	187.88	Idaho	91.9	Colorado	76.3	Illinois	207.4	Idaho	0.97	Maryland	1.07	Mississippi	6.24	42
43	Georgia	180.69	Arkansas	91.8	Washington	72.8	Louisiana	202.0	Rhode Island	0.96	Washington	0.94	Washington	6.14	43
44	Iowa	178.78	Washington	90.1	Alabama	60.5	Kansas	200.1	Iowa	0.92	New York	0.88	North Carolina	6.13	44
45	Missouri	178.54	Nebraska	87.8	Utah	55.1	Washington	162.9	Utah	0.89	Oregon	0.87	Connecticut	5.97	45
46	West Virginia	171.59	Rhode Island	87.0	Mississippi	50.1	Mississippi	159.4	Pennsylvania	0.88	Wisconsin	0.86	Nebraska	5.88	46
47	Indiana	169.65	Hawaii	83.3	Wisconsin	43.5	Alabama	140.1	North Dakota	0.86	Connecticut	0.83	D C	5.58	47
48	Idaho	163.91	Alabama	79.7	Kansas	41.9	Puerto Rico	123.1	Washington	0.84	Colorado	0.71	Iowa	5.42	48
49	North Dakota	157.21	Alaska	75.7	Nebraska	28.5	North Dakota	120.1	D C	0.83	North Carolina	0.71	Alabama	5.27	49
50	Pennsylvania	137.71	California	72.5	North Dakota	26.5	Pennsylvania	117.1	Alaska	0.76	Virginia	0.71	Minnesota	5.26	50
51	Kansas	133.31	West Virginia	70.1	Pennsylvania	24.2	Nebraska	116.3	Nebraska	0.72	Alaska	0.57	Alaska	4.75	51
52	Nebraska	74.36	Utah	61.2	Puerto Rico	22.3	Utah	116.3	Puerto Rico	0.54	Utah	0.38	Utah	4.39	52

Appendix C (Table C). Ranking for all jurisdictions and all normalized measures.

Rank	State	Fees	State	Educ(d)	State	Exp(d)	State	CDL	State	Exams	State	Min Grade	State	Min Age	Rank
1	Nevada	0.686	Utah	0.473	Hawaii	0.630	Hawaii	0.641	California	0.762	Puerto Rico	0.623	Hawaii	0.875	1
2	Arizona	0.586	Oregon	0.404	Nevada	0.574	Nevada	0.568	New Mexico	0.623	New Jersey	0.508	Arizona	0.821	2
3	California	0.482	Puerto Rico	0.359	California	0.554	California	0.553	South Dakota	0.582	South Dakota	0.474	Nevada	0.798	3
4	D C	0.464	Michigan	0.333	Arizona	0.506	Arizona	0.513	Mississippi	0.579	Kansas	0.446	California	0.754	4
5	Hawaii	0.452	Kentucky	0.333	Florida	0.393	Florida	0.426	Nevada	0.555	Montana	0.441	Florida	0.741	5
6	Wisconsin	0.387	Georgia	0.288	Massachusetts	0.378	Kentucky	0.397	Arizona	0.549	Vermont	0.403	New Mexico	0.731	6
7	Alaska	0.380	South Dakota	0.278	Arkansas	0.363	Virginia	0.397	Hawaii	0.546	Wyoming	0.401	Virginia	0.726	7
8	Oregon	0.370	Virginia	0.263	Maryland	0.350	Arkansas	0.384	Louisiana	0.537	Kentucky	0.385	Rhode Island	0.721	8
9	Louisiana	0.352	Indiana	0.258	Virginia	0.319	Massachusetts	0.380	West Virginia	0.536	Michigan	0.384	North Dakota	0.686	9
10	Tennessee	0.351	Oklahoma	0.246	New Mexico	0.304	New Mexico	0.370	Colorado	0.528	Iowa	0.373	Oregon	0.681	10
11	Alabama	0.345	Missouri	0.244	Oregon	0.299	Maryland	0.366	Wyoming	0.516	Mississippi	0.369	Kentucky	0.638	11
12	Mississippi	0.341	Kansas	0.243	Delaware	0.279	Oregon	0.361	Oklahoma	0.507	Ohio	0.353	Illinois	0.616	12
13	Colorado	0.340	Colorado	0.236	South Carolina	0.240	Delaware	0.333	Kansas	0.497	Massachusetts	0.337	Michigan	0.604	13
14	Massachusetts	0.336	Wyoming	0.224	Kentucky	0.224	Georgia	0.306	Minnesota	0.495	Minnesota	0.331	Indiana	0.594	14
15	Kentucky	0.333	Vermont	0.211	New Jersey	0.197	Puerto Rico	0.294	New York	0.493	Illinois	0.325	Missouri	0.593	15
16	Puerto Rico	0.331	Wisconsin	0.208	New York	0.192	Oklahoma	0.293	Michigan	0.490	Indiana	0.313	Georgia	0.557	16
17	Utah	0.320	Montana	0.207	West Virginia	0.184	Indiana	0.292	Oregon	0.489	Nebraska	0.303	Maryland	0.555	17
18	Connecticut	0.315	Maine	0.206	Rhode Island	0.183	South Dakota	0.291	Ohio	0.466	Texas	0.299	Ohio	0.529	18
19	Maryland	0.307	Delaware	0.205	Georgia	0.181	South Carolina	0.280	Texas	0.455	New Hampshire	0.288	New York	0.529	19
20	New Mexico	0.306	Minnesota	0.201	Indiana	0.179	Missouri	0.276	Kentucky	0.452	Arkansas	0.283	Wyoming	0.518	20
21	Florida	0.302	Ohio	0.199	Ohio	0.171	New Jersey	0.258	Vermont	0.449	Nevada	0.283	Massachusetts	0.516	21
22	Vermont	0.302	New Hampshire	0.196	Connecticut	0.161	Ohio	0.255	Missouri	0.443	Pennsylvania	0.282	Colorado	0.503	22
23	Virginia	0.289	Tennessee	0.182	Maine	0.155	Maine	0.248	South Carolina	0.442	New Mexico	0.279	New Jersey	0.503	23
24	Oklahoma	0.288	New York	0.181	Oklahoma	0.153	New York	0.241	Alabama	0.436	West Virginia	0.278	Montana	0.496	24
25	Wyoming	0.283	Illinois	0.179	Idaho	0.151	Minnesota	0.237	Tennessee	0.436	Maine	0.273	Puerto Rico	0.486	25
26	Texas	0.279	Texas	0.174	Missouri	0.145	Montana	0.236	New Hampshire	0.416	Idaho	0.268	Wisconsin	0.478	26

Rank	State	Fees	State	Educ(d)	State	Exp(d)	State	CDL	State	Exams	State	Min Grade	State	Min Age	Rank
27	Montana	0.272	Rhode Island	0.173	Iowa	0.136	Kansas	0.227	Maryland	0.409	Arizona	0.266	Oklahoma	0.470	27
28	Michigan	0.270	Washington	0.173	Texas	0.131	Texas	0.226	Virginia	0.405	Georgia	0.263	Texas	0.468	28
29	Maine	0.270	New Mexico	0.161	Minnesota	0.127	Idaho	0.221	Maine	0.405	Rhode Island	0.254	South Dakota	0.440	29
30	Minnesota	0.269	Florida	0.155	South Dakota	0.107	Wyoming	0.220	Indiana	0.402	North Dakota	0.251	Kansas	0.427	30
31	Ohio	0.263	Mississippi	0.154	North Carolina	0.107	Colorado	0.219	North Carolina	0.399	Hawaii	0.245	West Virginia	0.375	31
32	Washington	0.262	Massachusetts	0.143	Tennessee	0.104	Rhode Island	0.216	Florida	0.399	Delaware	0.241	Delaware	0.373	32
33	Illinois	0.256	New Jersey	0.143	Colorado	0.102	New Hampshire	0.211	Montana	0.394	Louisiana	0.238	Vermont	0.373	33
34	New Jersey	0.253	North Dakota	0.142	Montana	0.093	Vermont	0.206	Massachusetts	0.370	South Carolina	0.229	New Hampshire	0.358	34
35	South Dakota	0.249	Louisiana	0.135	Michigan	0.093	West Virginia	0.206	Georgia	0.370	D C	0.223	Arkansas	0.354	35
36	North Carolina	0.242	Maryland	0.133	D C	0.092	Connecticut	0.205	Arkansas	0.363	California	0.217	Pennsylvania	0.338	36
37	Rhode Island	0.232	Alabama	0.133	Alaska	0.091	Tennessee	0.200	Delaware	0.348	Oklahoma	0.209	Idaho	0.336	37
38	Indiana	0.232	Pennsylvania	0.126	New Hampshire	0.086	Iowa	0.195	New Jersey	0.344	Tennessee	0.209	Tennessee	0.331	38
39	Delaware	0.226	Nevada	0.125	Kansas	0.085	Michigan	0.195	Wisconsin	0.341	Alabama	0.206	Louisiana	0.326	39
40	Georgia	0.224	Iowa	0.124	Illinois	0.084	Wisconsin	0.181	Connecticut	0.306	Maryland	0.202	Maine	0.317	40
41	Kansas	0.223	North Carolina	0.123	Puerto Rico	0.076	Illinois	0.180	Illinois	0.302	Missouri	0.198	South Carolina	0.308	41
42	New York	0.217	Nebraska	0.113	Wyoming	0.072	North Carolina	0.175	Idaho	0.267	Washington	0.171	Washington	0.293	42
43	New Hampshire	0.212	Arizona	0.112	Vermont	0.063	D C	0.171	Washington	0.264	Florida	0.154	Connecticut	0.290	43
44	South Carolina	0.212	D C	0.112	Louisiana	0.058	Alaska	0.156	Iowa	0.253	Oregon	0.152	D C	0.288	44
45	Arkansas	0.210	Arkansas	0.109	Washington	0.054	Louisiana	0.148	Utah	0.253	Connecticut	0.126	North Carolina	0.282	45
46	West Virginia	0.198	Idaho	0.108	Utah	0.054	Alabama	0.145	Rhode Island	0.234	New York	0.121	Mississippi	0.281	46
47	Missouri	0.193	Hawaii	0.107	North Dakota	0.047	Mississippi	0.137	Pennsylvania	0.232	Virginia	0.120	Nebraska	0.271	47
48	Pennsylvania	0.190	Alaska	0.103	Alabama	0.045	North Dakota	0.136	Puerto Rico	0.222	North Carolina	0.111	Alabama	0.248	48
49	Idaho	0.189	South Carolina	0.099	Nebraska	0.036	Washington	0.133	North Dakota	0.209	Wisconsin	0.104	Iowa	0.244	49
50	Iowa	0.185	California	0.098	Wisconsin	0.036	Nebraska	0.119	D C	0.197	Alaska	0.094	Alaska	0.223	50
51	North Dakota	0.175	Connecticut	0.093	Mississippi	0.034	Pennsylvania	0.100	Alaska	0.178	Utah	0.066	Utah	0.208	51
52	Nebraska	0.087	West Virginia	0.084	Pennsylvania	0.032	Utah	0.097	Nebraska	0.154	Colorado	0.050	Minnesota	0.196	52