

THE SPACE ECONOMY IN ITALY

Anno 2021

Istat presents the main results on the measurement of the contribution and of the characteristics of the space industry as emerged from the Thematic account of the space economy, compiled for the first time in Italy with reference to 2021. The thematic account has been developed by following the guidelines provided by ESA and Eurostat, in collaboration with OECD, US Bureau of Economic Analysis and European Commission Joint Research Center. The compilation of the thematic account is carried out in the context of a collaboration agreement with the Italian Space Agency (ASI) aimed at the collection of data on the characteristics of firms operating in the space industry and on their contribution of the national economic system.

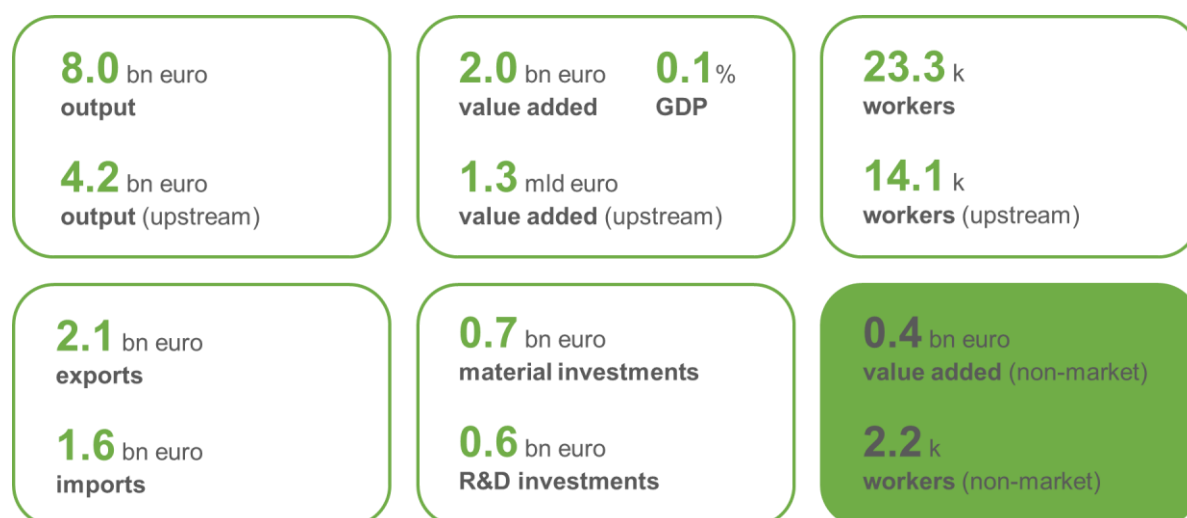
Estimates are referred to private and public economic operators within the boundary of National Accounts, excluding central and local Public Administrations, but including, e.g., public universities and research centers. In particular, expenditures connected with national defense are outside the scope of the analysis. The boundary of the thematic account is composed of market and non-market business units which, according to international guidelines, operate in the space industry in one of its defined components: *upstream*, *downstream* e *space-derived*.¹ Estimates are integrated and fully consistent with the system of National Accounts, thus assuring structural and performance indicators that are comparable in time and among Countries.

The Thematic account of the space economy will be compiled every three years. The next release is scheduled for 2027 with reference to 2024.

The contribution of the space economy

In 2021, market business units within the boundary of the space economy generate 8.0bn euro of output, employing slightly more than 23k workers. The total value added is 2.0bn euro, 0.1% of GDP.

FIGURE 1. MAIN RESULTS. Year 2021.

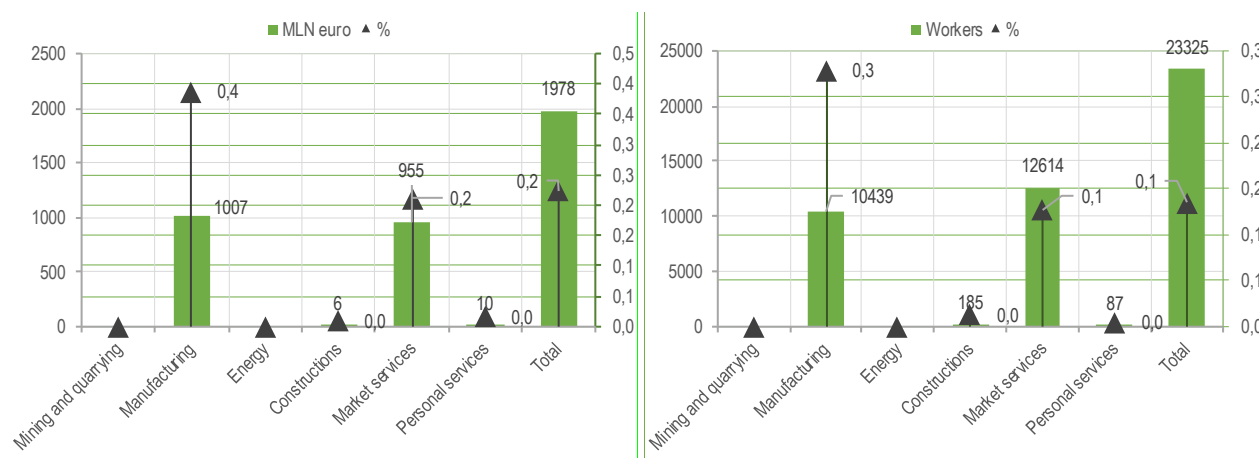


¹ In this work, following international guidelines, *upstream* identifies activities producing goods and services used in space or those directly supporting them (e.g., satellites or satellite components). *Downstream* activities produce goods and services that need *upstream* goods and services in their production process (e.g., satellite broadcasting and telecommunications). Finally, *space-derived* activities include the production of goods and services that may use (even if not in compulsory way) *upstream* goods and services in their production process (e.g., remote control of transport infrastructure).

The space industry accounts for 2.1bn euro of exports and 1.6bn of imports. Gross fixed capital formation related to material assets is about 0.7bn euro, while investments in research and development are 0.6bn. The value added generated by the non-market units included in the space economy is 0.4bn euro, with 2.2k workers, and R&D investments equal to 0.2bn.

The *upstream* component, including the *core* activities of the space economy, employs more than 14k workers, with output equals to 4.1bn euro and a value added amounting to 1.3 bn. *Upstream* firms activate 1.8bn euro of exports and 1.2bn of imports (see Figure 1).

FIGURE 2. VALUE ADDED (SX) AND WORKERS (DX) BY SECTOR. Year 2021.

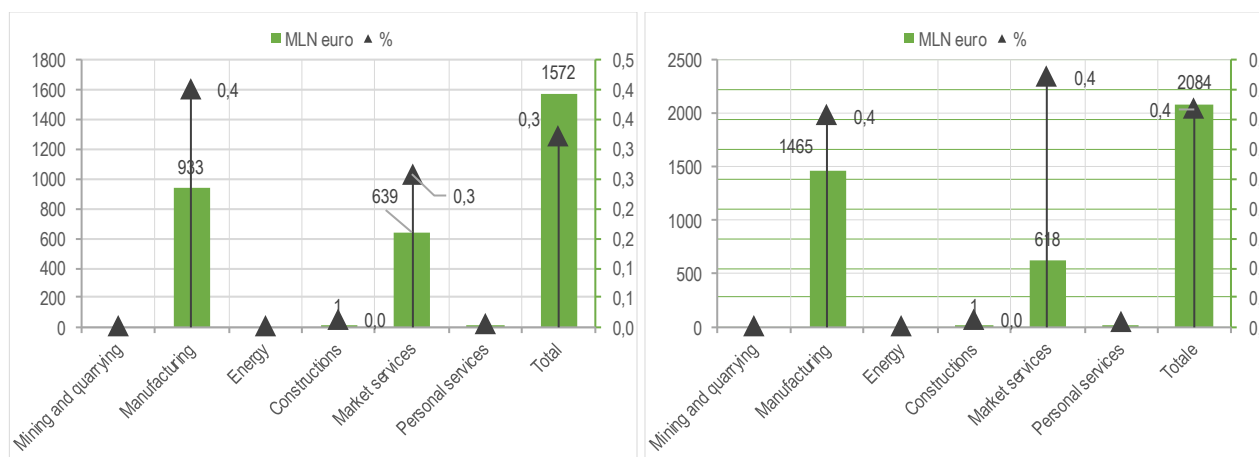


Overall, manufacturing business units operating in the space industry generate about 1bn euro of value added, equal to 0.4% of the total value added of the sector, employing slightly less than 10.5k workers (0.3% of the total of the sector). The “space” value added generated in services is 955mln euro, with about 12.6k workers (see Figure 2).

In particular, considering manufacturing, Other transport equipment (70mln euro), Electronic (205 mln) and Machinery (45mln) generate more than 90% of “space” value added, employing 9.5k workers and accounting for 1.4bn euro of exports.

In services, Software (226mln euro), Telecommunications (104mln) and Broadcasting (133mln) contribute to the formation of about all the value added related to the *downstream* component. Software (105mln euro) and Telecommunications (119mln) also contribute to the *upstream* value added.

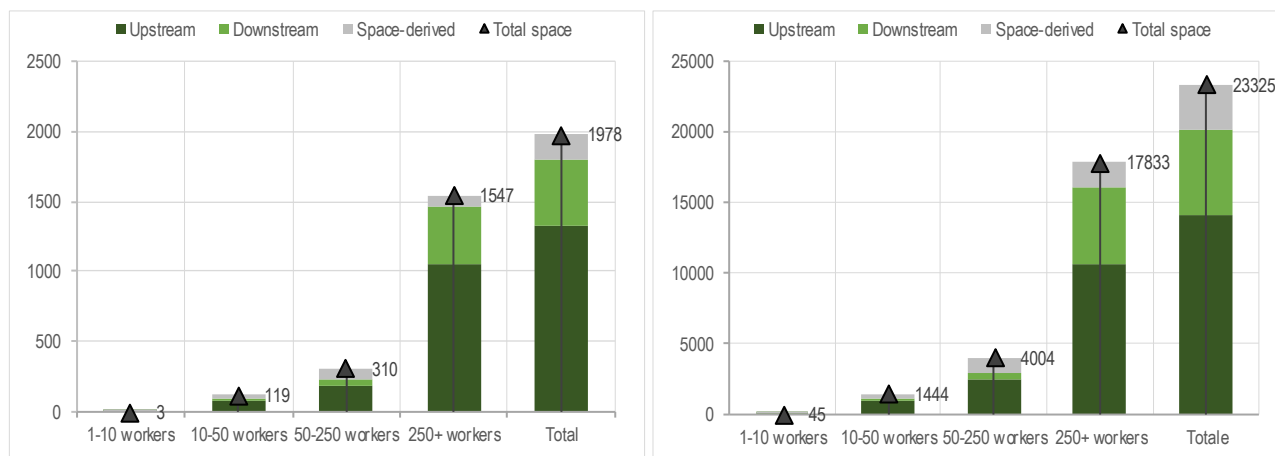
FIGURE 3. IMPORTS (sx) AND EXPORTS (dx) BY SECTOR. Year 2021.



Manufacturing firms in the space industry import goods and services for about 1bn euro, 0.4% of the total imports of the sector. Imports from “space” firms in services are about 600mln euro, 0.3% of the total of the sector. As for exports, manufacturing “space” business units export 1.5bn euro of their output, 0.4% of total manufacturing exports, while exports by “space” firms in services are 0.6bn (see Figure 3).

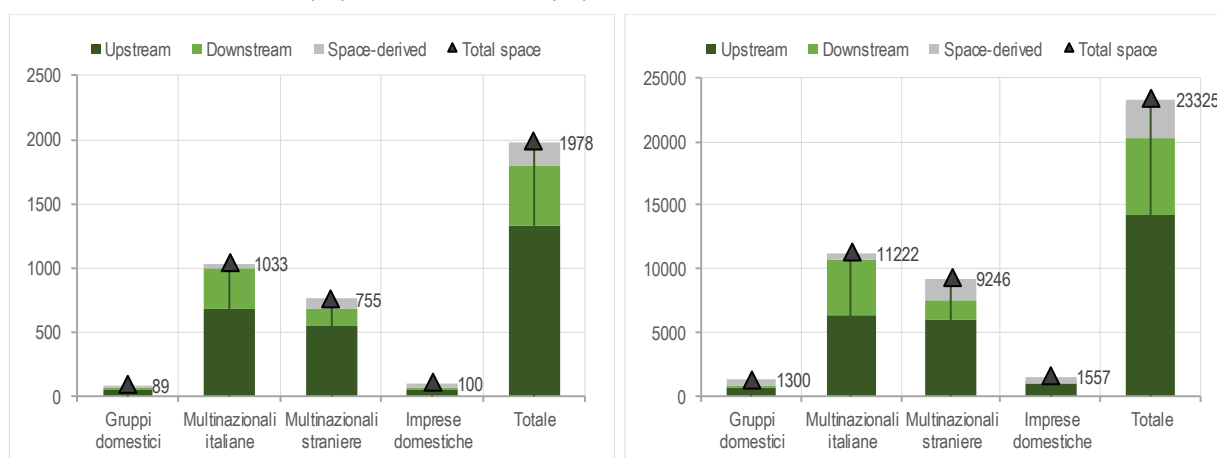
Larger business units (250+ workers) generate more than 78% of the “space” value added, equal to 1.5bn euro, employing about 17.8k workers. Medium firms (50-250 workers) account for more than 15%, corresponding to 0.3bn euro, and employing about 4k workers. Micro and small firms jointly account for 121mln euro of value added and about 1.5k workers (see Figure 4).

FIGURE 4. VALUE ADDED (sx) AND WORKERS (dx) BY SIZE CLASS. Year 2021. Million euro and number of workers.



Business units belonging to multinational groups generate 90% of the value added of the space economy (1.8bn euro, 20.5k workers). Considering only the *upstream* component, they account for about 1.2bn euro of value added, employing slightly less than 12.5k workers. *Upstream* firms belonging to Italian multinational groups generate about 0.7bn euro of value added and account for the employment of 6.4k workers. *Upstream* firms belonging to foreign multinational groups produce more than 0.5bn euro of value added and employ about 6k workers (see Figure 5).

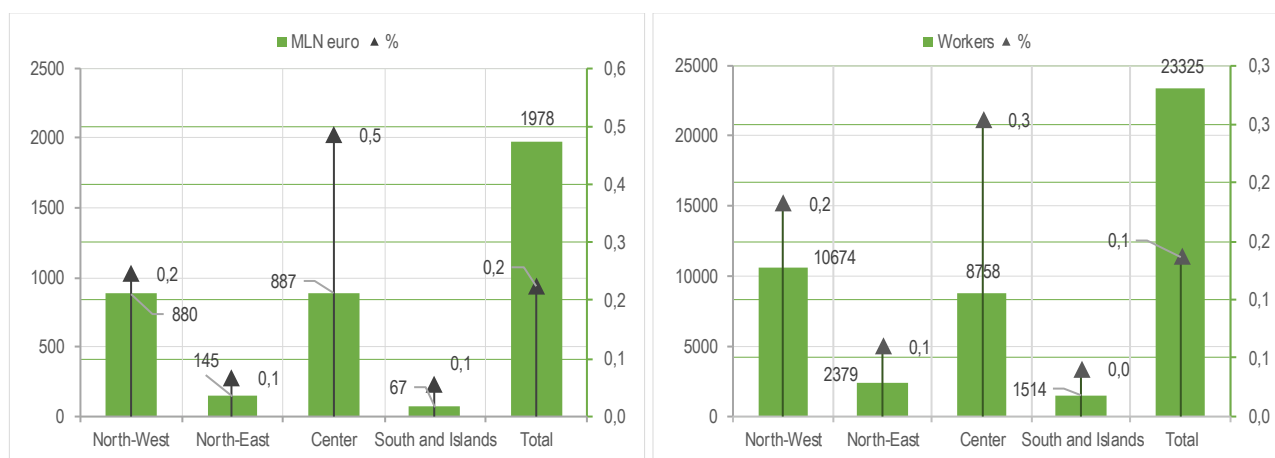
FIGURE 5. VALUE ADDED (sx) AND WORKERS (dx) BY GOVERNANCE FORM. Year 2021. Million e number of workers.



Firms belonging to multinational groups activate almost all international trade flows: 1.5bn euro of imports (0.8bn attributable to Italian multinational groups and 0.7bn to foreign multinational groups); 2bn euro of exports, equally generated by Italian and foreign multinational groups.

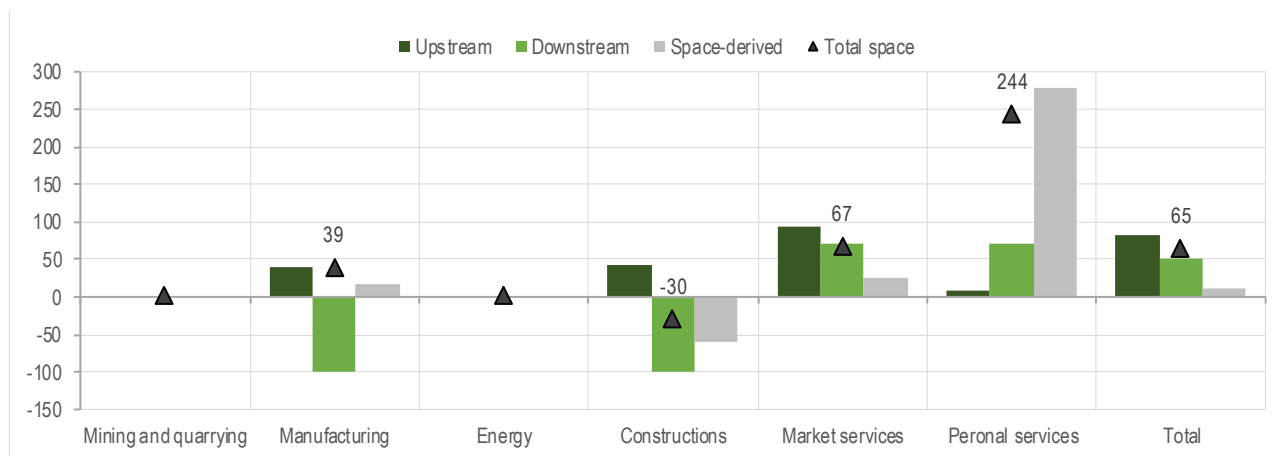
Considering the geographical dimension, slightly less than 90% of the space industry concentrates in the Center and North-West of Italy, employing about 12k workers. The Regions with the most relevant contribution in terms of value added and employment are Lazio (0.8bn euro of value added, 8k workers), Piemonte (0.2bn, 2,2k) and Lombardia (0.7bn, 8,3k).

FIGURE 6. VALUE ADDED (sx) AND WORKERS (dx) BY TERRITORY. Year 2021.



Labour productivity of “*space*” firms is 65% higher compared to “*non-space*” business units (84.8k euro of per worker value added vs. 51.3k). In particular, in manufacturing the differential is 39%, while it is 67% in services. The differential is even larger when considering *upstream* firms, for which the productivity is 94.1k euro per worker, more than 80% higher compared to the rest of the economy (see Figure 7).

FIGURE 7. DIFFERENTIAL IN PRODUCTIVITY BETWEEN “SPACE” FIRMS AND THE REST OF THE ECONOMY BY INDUSTRY. Year 2021. Percentages.



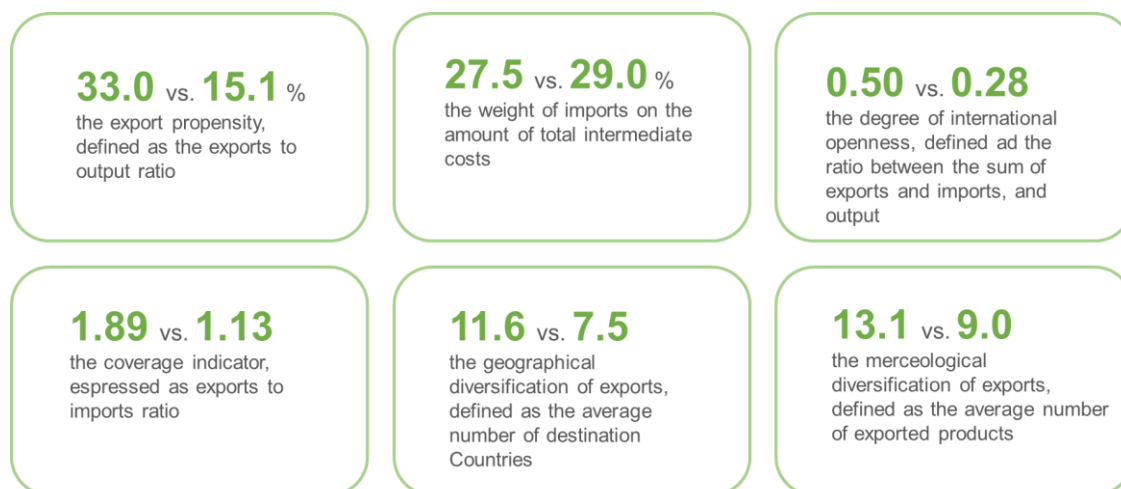
The main features of *upstream* firms

Upstream business units are more internationalized as compared to the rest of the economy. Indeed, their degree of openness, measured by the ratio between the sum of exports and imports, and the value of production, is by 77% higher than the one registered for the rest of the economy.

This higher internationalization is mainly explained by exports. While the degree of dependency from imports for *upstream* firms (27%) is similar to the rest of the economy (29%), the propensity to exports of the former (33%) is more than double as compared to the one of the latter (15%). Consequently, the coverage indicator, defined as the exports to imports ratio, for *upstream* business units is higher (1.88) with respect to the rest of the economy (1.13).

As for the exports of goods, *upstream* firms also show a higher diversification in both the destination of markets (11.6 Countries vs. 7.5) and the number of goods exported (13.1 vs 9) as compare to the other business units (see Figure 8).

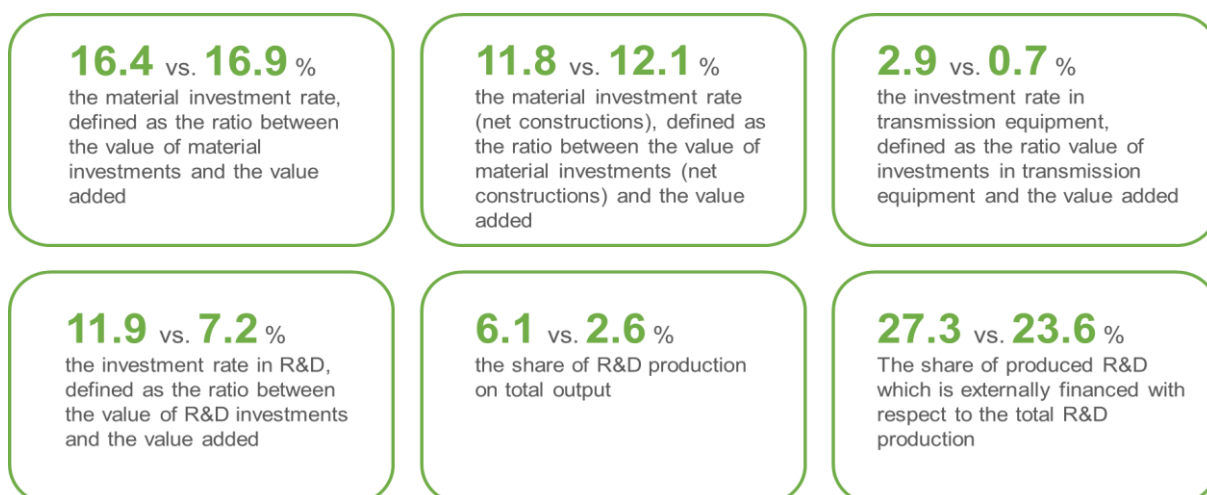
FIGURE 8. DIFFERENCES IN INTERNATIONALIZATION INDICATORS BETWEEN *UPSTREAM* FIRMS AND THE REST OF THE ECONOMY. Year 2021.



Upstream firms are characterized by a slightly lower propensity to invest in material assets than the other business units, with an investment rate, computed as the ratio between the value of investments and the value added, equals to 16.4% vs. 16.9%. A similar differential, 11.8% vs. 12.1%, can be observed also for the investment rate net constructions and for the investment in machinery.

On the other hand, *upstream* business units show a higher tendency towards the production of R&D. The share of R&D with respect to the total output is 6.1% on average for *upstream* firms and 2.6% for the other business units. Similarly, *upstream* firms also show a higher propensity to invest in R&D with respect to the rest of the economy, 11.9% vs. 7.2% the ratio between investment in R&D and the value added (see Figure 9).

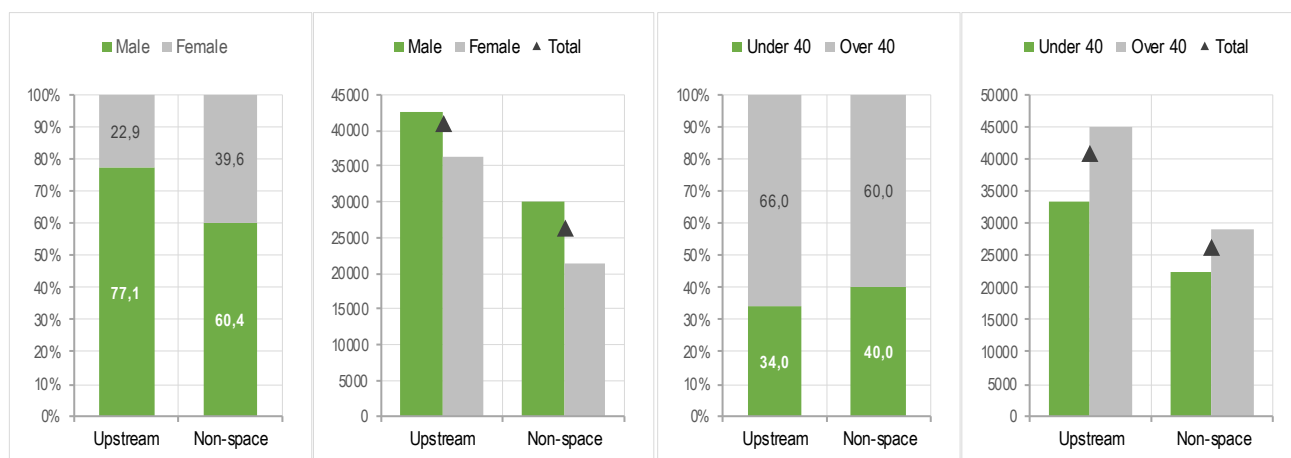
FIGURE 9. DIFFERENCES IN MATERIAL AND R&D INVESTMENTS INDICATORS BETWEEN *UPSTREAM* FIRMS AND THE REST OF THE ECONOMY. Year 2021.



The average compensation of employees in *upstream* firms (41.1k euro per worker) are by 55% higher than the ones observed in the other business units (26.5k euro). The males employed in the *upstream* industry are 77.1% with respect to the 60.4% in the rest of the economy, with weaker a salary gender gap, 17% vs. 40%.

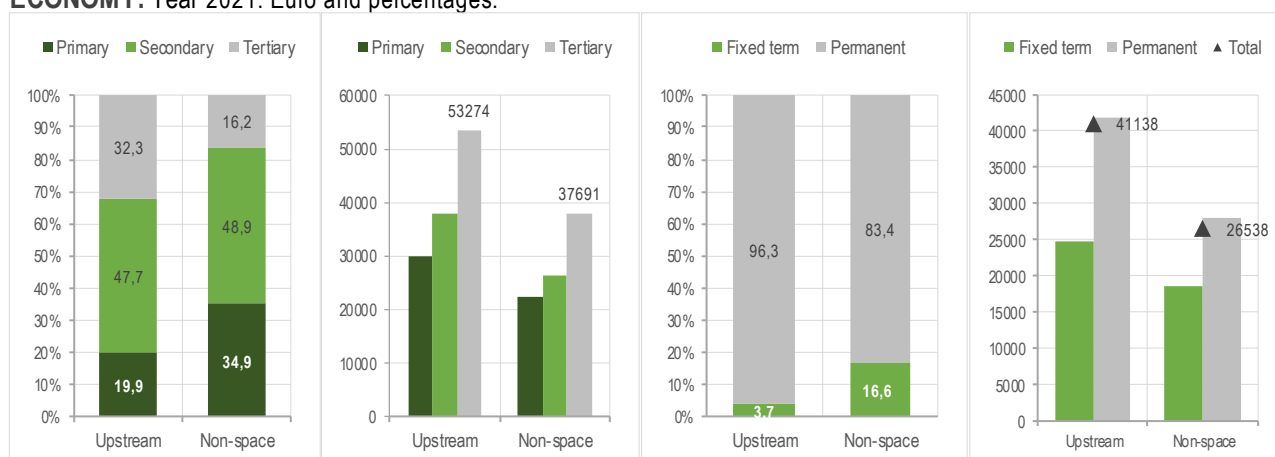
Taking into account the age of workers, *upstream* firms employ under 40 workers to a lower extent with respect to the other business units: 34% vs. 40%. Albeit less paid that over 40 workers in both cases, the salary gap is higher in *upstream* firms, where younger workers receive compensations that are on average lower by 26% with respect to older ones, while the gap is 22% in the rest of the economy (see Figure 10).

FIGURE 10. DIFFERENCES IN COMPOSITION BY SEX (SX) AND AGE (DX) OF EMPLOYMENT AND THE RELATED COMPENSATION BETWEEN UPSTREAM FIRMS AND THE REST OF THE ECONOMY . Year 2021. Euro and percentages.



In *upstream* firms the composition of employment is strongly oriented towards the highest levels of education: 32.3% of workers hold tertiary education, 47.7% hold secondary education. In the rest of the economy, workers with tertiary education account for the 16.2%, while the 34.9% have a primary education. In the *upstream* component of the space economy the salary gap between tertiary and primary education levels, equals to 78.6, is higher than the one registered in the rest of the economy, which is 68.6%. At the same time, the salary gap is lower if the differential between tertiary and secondary education levels is considered, 40.7% in *upstream* firms vs. 43.3% in other business units.

FIGURE 11. DIFFERENCES IN COMPOSITION BY EDUCATION (SX) AND TYPOLOGY OF CONTRACT (DX) OF EMPLOYMENT AND THE RELATED COMPENSATIONS BETWEEN UPSTREAM FIRMS AND THE REST OF THE ECONOMY. Year 2021. Euro and percentages.



Worker with fixed term contracts are marginal in *upstream* firms (3.7%), while they are relevant in the rest of the economy (16.6%). Considering compensation of employees, fixed term workers in *upstream* firms show average compensations higher by 31.8% as compared to those employed in the rest of the economy. However, in *upstream* business units the salary gap between permanent and fixed term workers is relevant, equals to 69% (see Figure 11).



For methodological and technical information

Federico Sallusti

fsallusti@istat.it

Stefania Cuicchio

cuicchio@istat.it